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DEVELOPMENT IN THE AMERICAS

DEALING WITH DEBT

Less Risk for More Growth in
Latin America and the Caribbean



Edited by:

Andrew Powell

Oscar Mauricio Valencia

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Contents

List of Tables	vii
List of Figures	ix
List of Boxes	xv
Preface	xvii
Acknowledgments	xix
List of Authors	xxiii
1. The Debt Conundrum	1
2. Strong External Balance Sheets for Resilient Economies	5
3. Domestic Bond Markets: Successes and Challenges	37
4. Understanding the Rise in Debt	67
5. Debt Sustainability: More Important than Ever	95
6. Sovereign Debt Management	123
7. Official Creditors: Providing More than Money	161
8. Past the Tipping Point? Assessing Debt Overhang in Latin America and the Caribbean	183
9. Reducing Public Debt: What Works Best?	197
10. Sovereign Debt Restructuring: In Need of a New Approach	223
11. Managing Private Debt	255
12. Balance Sheet Vulnerabilities in the Wake of the Pandemic	285
13. The Bottom Line on Debt	309

References 319

Index357

List of Tables

Table 3.1	Outstanding Domestic Government Bond Debt as Percent of Trend GDP	39
Table 3.2	Private Sector Total Bond Issues in Domestic and Global Markets	49
Table 3.3	What Drives Bond Market Capitalization?	55
Table 5.1	Safe Debt Levels: Comparing Results Across Methodologies (% of GDP)	114
Table 6.1	The Government Balance Sheet	134
Table 6.2	Analytical Dimensions Included in a Recent Survey of Debt Management Offices	153
Table 9.1	Debt Reduction Episodes in Latin America and the Caribbean	199
Table 11.1	Minimum Additional Investment Needed to Meet Infrastructure SDGs Related to Public Services	277

List of Figures

Figure 2.1	Net Foreign Liabilities, 2020	7
Figure 2.2	External Liabilities, 2020	7
Figure 2.3	External Assets, 2020	8
Figure 2.4	Financial Integration Index	12
Figure 2.5	Actual Financial Integration	13
Figure 2.6	Net Foreign Liabilities in Latin America and the Caribbean	13
Figure 2.7	Net Foreign Liabilities by World Regions	14
Figure 2.8	External Assets and Liabilities	15
Figure 2.9	Difference in the Annual Growth Rates of External Assets	16
Figure 2.10	Difference in the Annual Growth Rates of External Liabilities	17
Figure 2.11	Sovereign Bond Spreads (EMBI)	18
Figure 2.12	Composition of External Liabilities and Assets, 2020	20
Figure 2.13	Evolution of External Equity Liabilities by Region	21
Figure 2.14	Evolution of External Equity Assets by Region	22
Figure 2.15	Evolution of International Reserves by Region	22
Figure 2.16	Balance Sheet Risk Indicator (BSRI) by Component (Regional Average)	30
Figure 2.17	BSRI per Unit of Liabilities and Assets (Regional Average)	31
Figure 2.18	Balance Sheet Vulnerability Assessment (BSVA), average by country group	32
Figure 3.1	Outstanding Domestic Bonds in LAC 6 Countries and Their Composition	41

Figure 3.2	International Comparison of Domestic Bond Markets	41
Figure 3.3	Proportion of Total (Domestic and External) Government Debt Denominated in Local Currency	43
Figure 3.4	Breakdown of Government Bonds by Type of Instrument (average country)	43
Figure 3.5	Average Maturity of Public Bonds by Governing Law	44
Figure 3.6	Correlation of Fiscal Policy Responses to COVID and Domestic Government Bond Market	45
Figure 3.7	Private Sector Bond Issues in Domestic and Global Markets	48
Figure 3.8	Private Sector Median Issue Size in Domestic and Global Markets	52
Figure 3.9	Maturity of Private Sector Bonds	52
Figure 3.10	Private Sector Median Yield in Domestic and Global Markets	53
Figure 3.11	Foreign Participation in Local Currency Bonds	58
Figure 3.12	Change in Foreign Investors' Share of Local Currency Debt	61
Figure 3.13	Interest Rate Spreads Rise with Expected Currency Depreciation	62
Figure 4.1	The Rise in Public and Private Debt Across Countries	68
Figure 4.2	General Government Gross Debt in Latin America and the Caribbean	70
Figure 4.3	Credit to Nonfinancial Corporations across the World	76
Figure 4.4	Credit to Nonfinancial Corporations	77
Figure 4.5	Evolution of Corporate Leverage during COVID	77
Figure 4.6	Household Debt in Latin America and the Caribbean	79
Figure 4.7	Household Total Debt-to-Income Ratio	80
Figure 4.8	Household Mortgage Debt as a Ratio of Total Debt	80
Figure 4.9	Average Interest Rates on Mortgages and Nonsecured Consumer Lending	81
Figure 4.10	Distribution of Debt Changes in Five-year Windows, 1985-2021	82

Figure 4.11	Spike Episodes in Latin America and the Caribbean, 1985-2021	83
Figure 4.12	Regional Characterization of Spike Episodes, Average 1985-2021	84
Figure 4.13	Decomposition of Debt Spikes, 1985-2021, Five-Year Window	87
Figure 4.14	How Macroeconomic Variables Are Associated with the Probability of a Debt Spike	89
Figure 4.15	Impact of Fiscal Institutions and International Reserves on the Probability of Debt Spikes	91
Figure 4.16	Debt Levels and the Probability of Debt Spikes	92
Figure 5.1	Debt Sustainability Characteristics	96
Figure 5.2	Structural Primary Balance and Gross Debt	98
Figure 5.3	Primary Public Spending Increases during Crises	99
Figure 5.4	Gross Debt Projection	101
Figure 5.5	The Reaction of Fiscal Balances to Debt Levels	105
Figure 5.6	Impact of Median and Average Implicit Interest Rates on Debt	107
Figure 5.7	Median GDP Growth Rates	108
Figure 5.8	Median Primary Balance, Interest Rate and Debt	109
Figure 5.9	Weaker Fiscal Responses at Higher Debt Levels	111
Figure 5.10	Debt Limits and Prudent Debt Levels	112
Figure 5.11	Gross Debt and Primary Balance Scenarios for Latin America and the Caribbean	115
Figure 5.12	Gross Debt Scenarios for Country Groups	116
Figure 5.13	Primary Balance Scenarios for Country Groups	117
Figure 5.14	Debt Level and Affordability	119
Figure 6.1	Representation of the Debt Strategy Frontier	128
Figure 6.2	Contingent Liability Realizations by Year and Type	133
Figure 6.3	Foreign Currency Debt Ratios	136
Figure 6.4	Trends in Official Debt	138
Figure 6.5	External and Foreign Currency Debt	139

Figure 6.6	The Evolution of the Average Maturity of Bonded Debt	140
Figure 6.7	A Scorecard for Debt Composition	141
Figure 6.8	Sovereign Spreads	142
Figure 6.9	The Weight of Public Debt Service	148
Figure 6.10	The Debt Amortization Schedule	149
Figure 6.11	A Heat Map of Debt Amortizations	150
Figure 6.12	Stylized Debt Management Office Environment	151
Figure 6.13	DMO Capacity and the Size of Economies	152
Figure 6.14	DMO Capacity by Dimension	154
Figure 7.1	Composition of Public and Publicly-Guaranteed External Debt in Latin America and the Caribbean	162
Figure 7.2	Public and Publicly-Guaranteed External Debt in Latin America and the Caribbean	164
Figure 7.3	Latin American and Caribbean Market Interest Rates and MDB Rates	170
Figure 7.4	MDB Lending and Output Gaps in Latin America and the Caribbean	173
Figure 7.5	Indirect Mobilization Multipliers in Infrastructure	175
Figure 7.6	Official Bilateral Debt as a Share of GDP	178
Figure 9.1	Share of Debt Reduction Episodes	205
Figure 9.2	Share of Debt Reduction Episodes by Region	206
Figure 9.3	Share of Smooth Debt Adjustment	209
Figure 9.4	Composition of Debt Changes by Region	211
Figure 9.5	Main Contributors to Debt Reduction Episodes	212
Figure 9.6	Conditional and Unconditional Probability of a 10 Percentile Debt Reduction Episode	213
Figure 9.7	Different Types of Debt Reduction Episodes and Debt Levels	215
Figure 9.8	Central Bank Independence and Inflation-Driven Debt Reduction Episodes	216
Figure 9.9	Inflation, Real Interest Payments, and Central Bank Independence	217

Figure 9.10	Probability of Different Types of Debt Reduction Episodes	218
Figure 9.11	Change in Debt Dynamics by Region	219
Figure 9.12	Debt Reduction Episodes and Inequality	220
Figure 10.1	Probability Distribution of Present Value Haircuts in Bond Restructurings	229
Figure 10.2	Are Debt Restructurings Successful?	230
Figure 10.3	Increased Diversity of Debt in Default	232
Figure 11.1	Domestic Credit to the Private Sector in Latin America and the Caribbean	257
Figure 11.2	Share of Firms Identifying Access to Finance as a Major Constraint	258
Figure 11.3	Sources of Investment Financing by Region	259
Figure 11.4	Proportion of Working Capital Financed by Banks	260
Figure 11.5	Sources of Investment Financing by Firm Size	261
Figure 11.6	Share of Firms Identifying Access to Finance as a Major Constraint	264
Figure 11.7	Proportion of Companies with Rejected Loan Applications	267
Figure 11.8	Proportion of Companies that Report being Overdue on Obligations	268
Figure 11.9	Probability of Falling into Arrears During the Pandemic	269
Figure 11.10	Fraction of Firms that Closed	270
Figure 11.11	Exporter Performance and Corporate Debt	273
Figure 11.12	Decline in Export Transactions, Markets, and Debt	274
Figure 11.13	Government and Nongovernment Investment in Infrastructure	276
Figure 11.14	Non-Government Financing of Infrastructure	276
Figure 11.15	Who Financed Infrastructure in the Region?	278
Figure 11.16	Commercial Bank Financing of Infrastructure by Instrument	279
Figure 12.1	Soaring Debt, Plummeting Investment: The Buildup of Balance Sheet Vulnerabilities in Latin America	286

Figure 12.2	Incomplete Recovery in Stock Market Valuations	288
Figure 12.3	Median Investment Rates at Different Levels of Leverage	292
Figure 12.4	Median Investment Rates at Different Levels of Distance-to-Default	295
Figure 12.5	The Business Cycle of Investment Rates: Normal Times vs Recessions	296
Figure 12.6	Average Impact of Debt and Risk on Corporate Investment	298
Figure 12.7	Positive Complementarity between Leverage and Risk	300
Figure 12.8	Sizeable Debt Overhang Effects after Economic Recessions	301
Figure 12.9	Debt Overhang and Slow Recoveries in Investment Following Large Recessions	303

List of Boxes

Box 2.1	The Insurance Value of International Reserves	27
Box 3.1	Infrastructure Bonds: The Case of Brazil	50
Box 3.2	Multinational Initiatives: Asia and Latin America	56
Box 3.3	Uruguay: The Road to De-Dollarizing Government Debt	59
Box 4.1	Stock Flow Adjustment and the Evolution of Public Debt	86
Box 4.2	Subnational Debt: On the Decline	86
Box 5.1	Fiscal Reaction Functions	102
Box 6.1	Public Debt Management in Brazil	144
Box 7.1	Preferred Creditor Treatment for MDBs	166
Box 9.1	Successes in the Region: How They Did It	200
Box 9.2	Austerity Intolerance	203
Box 10.1	The Greek and European Debt Restructuring Architecture	242
Box 10.2	Iraq's UN Asset Shield	243
Box 11.1	Caribbean Firms in Need of Financing	265
Box 12.1	A Simple Theory of Debt Overhang	291
Box 12.2	Estimating Firm-level Distance-to-Default	294

Preface

The pandemic dealt a severe blow to Latin America and the Caribbean, inflicting unfathomable human suffering and exacting a heavy economic toll. It has left many scars in its wake. At the macroeconomic level, one of the most lasting and significant ones is high debt. Debt had risen even before the pandemic, but it accelerated further as governments deployed fiscal packages to support their economies while watching revenues run dry. The fiscal response was justified given the magnitude and nature of the crisis, but the region must now address the consequences. This book focuses on how countries should manage high debt levels and develops policy recommendations based on rigorous analysis.

Countries in the region are reducing the exceptional fiscal deficits induced by the pandemic. Baseline projections from the Inter-American Development Bank suggest continued consolidation and a fall in public debt ratios. But, as this book recommends, governments should bring debt levels down further to more prudent levels. There are many opportunities to do so by improving spending efficiency, expanding the tax base, and seeking wider reforms to enhance fiscal balances and boost growth.

The Russian invasion of Ukraine, high energy and food prices, rising inflation, and monetary normalization around the world complicate the policymaking environment. To chart a way forward, governments must coordinate monetary and fiscal policy. An expansionary fiscal policy with an even tighter monetary response will not yield the desired results. Fiscal and monetary policy should work together to ensure macroeconomic stability.

Still, neither fiscal nor monetary policy in the short term can boost longer-term economic prospects beyond an economy's potential. Rather, to increase growth, countries should seek underlying gains in productivity. Technological advances, improved education, better management, and a more efficient allocation of resources can all contribute to boosting growth well into the future.

Harnessing the potential of the private sector is key. The most successful economies have found the balance between allowing private enterprise

to flourish and wealth redistribution mechanisms to protect poorer households. This requires a business-friendly environment that provides incentives for investment, including foreign capital.

International financial institutions such as the IDB can help through financial resources and knowledge. The longer-term loans they offer at low interest rates can help countries manage current debt levels. Other tools they can deploy to help governments manage their financial affairs include guarantees, lending in local currency, and facilitating the use of swaps and other insurance-type products to manage risks. International financial institutions also contribute through knowledge, which comes in many shapes and forms. Financial resources for programs built on evidence-based analysis can help boost short-term prospects as well as longer-term growth.

This book is a further example of the way in which institutions like the IDB can contribute, through rigorous analysis and policy recommendations in a critical area. We hope this volume will prove useful to policymakers and appeal to a wider audience concerned with the challenges facing the region at this time of global uncertainty and high debt.

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The Debt Conundrum

Debt may be good or bad. If the financing obtained is used to increase high-quality investment and provide better services, then benefits should outweigh costs. But if debt levels become too high or debt is not managed effectively, then the effects are negative. Interest rates rise, the cost of servicing the debt becomes very burdensome, and new debt becomes expensive or impossible to issue. Investment and growth suffer.

High debt levels also increase the risk of a crisis. If the economic or political costs of paying high public debt service become too great, investors may question governments' willingness to make the required payments, and rolling over debt may become impossible. This can then prompt the need for a restructuring. In addition, high debts in foreign currency increase vulnerability to global monetary policy decisions and depreciations. High corporate debt depresses investment, increases risk, and may provoke more general economic problems. In extreme circumstances, the risk of widespread corporate default can impact the health of the banking system, threaten financial stability, and exact fiscal costs if government intervention is needed.

Given the dangers of excessive debt, the current situation in Latin America and the Caribbean is worrisome. Debt has risen to some US\$5.8 trillion or 117 percent of gross domestic product (GDP) in the region, and as much as 140 percent of GDP for the five largest economies. Public debt soared to 71 percent of GDP during the pandemic, and corporates issued substantial amounts to survive the crisis. In 2020, the additional financing was used to counter the negative shock of the pandemic when the economy was at a standstill. Financing was employed to allow households to buy food and healthcare and permit firms to pay wages. While justifiable, the result was a burgeoning debt. The debt conundrum is real: it helped the region weather the pandemic but is now weighing down the economy.

This book examines the rise in debt in Latin America and the Caribbean and discusses what should be done. It offers recommendations to

policymakers to ensure debt is used wisely, avoid the harmful impacts of debt, manage high debt levels well, and bring debt down where it is too high. In order to develop the recommendations, the book reviews relevant literature and presents innovative work in a number of specific areas. The book is organized in three sections.

The first section explores how the region arrived at current debt levels and discusses debt in a more general context. Countries have assets as well as liabilities. Chapter 2 notes that given deeper global financial integration, countries' external assets as well as external liabilities have grown. Some assets may be very beneficial and, in some circumstances, it is even worth issuing more debt to finance those assets to improve liquidity and reduce risk. Chapter 3 reviews the development of domestic capital markets. The growth in financial systems and deeper local markets allow countries to have more debt at home and in domestic currency, which is often preferable to issuing abroad in other currencies, from a risk perspective. While interest rates rise when domestic currencies depreciate, moderating these advantages, the chapter still argues that deeper markets are valuable.

Both public and private debt grew before the pandemic but with different dynamics. Public debt grew largely in bad times with sharp accelerations or spikes provoked by a combination of low growth, high interest costs, currency depreciation, and the appearance of unfunded liabilities. Household debt has been on the rise but remains relatively low by international standards, while corporate debt grew in the years preceding the pandemic to relatively high values, as firms took advantage of low international interest rates and ample global liquidity. Chapter 4 details these trends, setting the scene for the following chapters, and makes the case for stronger fiscal institutions as a crucial element in the effort to avoid sharp public debt spikes.

The second section of the book focuses on public debt. Chapter 5 tackles the central question of whether public debt is sustainable. A concrete answer hinges on beliefs about future fiscal policy action. Taking the past as a guide, projected fiscal policy indicates debt in the region as a whole is sustainable, but that does not guarantee sustainability in every case. Moreover, the region should take additional steps to bring down debt to more prudent levels. The chapter argues for stronger fiscal guidance. Chapter 6 considers how debt should be managed. Debt management in the region has become more sophisticated, and its institutions for this purpose have strengthened. Debt composition has also improved during the 2000s. However, in the years leading up to and through the pandemic, those advances stalled. The chapter argues that the critical functions of

debt management should be enhanced and that active liability management can improve the debt profile going forward.

Official creditors remain a significant source of financing for the region. Chapter 7 highlights the changing composition of official creditors, noting increased lending from non-Paris Club country bilateral institutions, and investigates whether multilateral development banks provide less procyclical, longer-term and low-cost financing. If public debt is too high, the fear is that growth will suffer. Chapter 8 considers this topic and identifies the point at which debt turns from having a positive to a negative impact. If high levels of public debt reduce growth and increase interest costs and risks, then reducing public debt will be beneficial. How have countries reduced debt in the past? This question is addressed in Chapter 9, which reviews how countries achieved successful and significant debt reductions. In some cases, such reductions have not been feasible, public debt has become unsustainable, and countries have restructured through negotiations with creditors. Chapter 10 describes how the region has played a central role in the changing nature of the global financial architecture, considers a set of new and unresolved issues, and proposes a regional forum to complement current international initiatives.

The third section of the book focuses on private debt. While access to credit has grown, it remains limited for many small and medium-sized enterprises, including female-led firms. During the pandemic, these firms suffered relatively more than their larger counterparts and were more likely to fall into arrears with creditors or close their doors. Chapter 11 highlights the benefits of access to credit to survive negative shocks such as the COVID-19 crisis. In general, larger firms enjoy good access to credit; leverage rose before the pandemic and soared to ensure survival as the virus closed down economies. Subsequently, debt ratios have fallen, but stock market valuations and volatility have risen. Chapter 12 suggests the region may suffer a corporate debt and risk overhang, which may hinder efforts to build back the productive capital stock. These two chapters also provide recommendations for policymakers on how to boost credit access for promising smaller enterprises and how to best assist larger firms in the recovery phase.

Latin America and the Caribbean faces challenging times. The aftermath of the pandemic, the Russian invasion of Ukraine, inflation, rising global interest rates, a strong dollar and the need for tight monetary policy at home, all paint a difficult picture for the region in the coming years. High debt levels imply less room to maneuver, and policy actions should be carefully calibrated. The greater the global challenges and the more uncertain is the environment, the more important it becomes to make robust

and credible plans at home. This report is laced with policy recommendations to develop appropriate measures. It is hoped that the analyses and policy suggestions herein contribute to favorably confront the debt challenge across the region and beyond.

Strong External Balance Sheets for Resilient Economies

Latin America and the Caribbean has faced many crises derived from fragile external balance sheets and global events or triggers. These crises have often been accompanied by currency and banking crises and a decline in economic growth. While debt has often been a key factor in external crises, its role and the risks it poses depend on a country's entire portfolio of external assets and liabilities. The objective of this chapter is to view external crises from this comprehensive perspective, analyze countries' external balance sheets, consider the implications for macroeconomic stability, and discuss policies to reduce fragilities.

External crises usually provoke large economic and social costs. It is useful to distinguish different drivers of such crises and in particular separate the risks associated with the country's external balance sheet from other macroeconomic risk factors. Traditional macroeconomic imbalances such as high fiscal deficits are the focus of other chapters in this book. This chapter focuses on the vulnerabilities created by the country's external balance sheet, specifically on the portfolio composition of both external assets and liabilities. This also puts the subsequent chapters that focus on debt (including external debt) in a broader context.

Assessing the risk of external financial crisis is key to evaluating economic health in Latin America and the Caribbean, and to inform policies to prevent it. The COVID-19 shock, the Russian invasion of Ukraine, inflation, and higher global interest rates have made this task especially relevant. This chapter shows how healthy external balance sheets help limit the incidence of external crises and discusses what policymakers can do to strengthen the external balance sheet.

What Are Country External Balance Sheets?

The balance of payments of a country records financial flows between a country's residents and the rest of the world, which determine the

accumulation of foreign assets owned by residents and the foreign liabilities owned by nonresidents (which are claims on residents). In the simplest case, payment imbalances between exports and imports generate financial obligations to or from residents. Beyond trading in goods and services, residents and nonresidents may engage in financial transactions that further contribute to the accumulation of foreign assets and liabilities.¹ The external balance sheet reflects the accumulated stocks of foreign assets and liabilities of the public and private sectors at a particular point in time.

Figure 2.1 shows the overall external balance sheet of each Latin American and Caribbean country as measured by its *net foreign liabilities*² (i.e., external liabilities minus external assets) expressed as a percentage of its annual GDP as of end-2020.³ It reveals a wide variety of *net* balance sheets across countries; while most countries are net external debtors (reflected in *positive* net liabilities), Argentina and Venezuela are net external creditors (*negative* net liabilities).⁴ For the average and the median country in the region, net liabilities are between 50 percent and 60 percent of GDP.

Figures 2.2 and 2.3 show separately the two sides of the balance sheet ledger: external liabilities and assets, respectively.⁵ They demonstrate that, in all countries, the net balance sheets in Figure 2.1 hide substantial gross external liabilities and assets. The median country stocks of

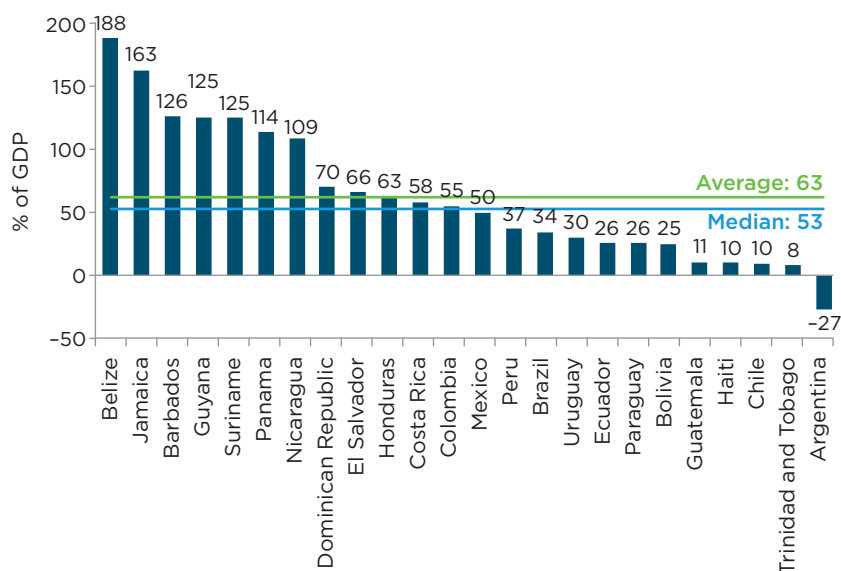
¹ Whatever the original source of external assets and liabilities, they also entail service payments over time that further add to these stocks.

² The net foreign liabilities (NFL) position of a country is the sum of the accumulated absorption of foreign savings, appropriately priced and depreciated over time. Lane and Milesi-Ferretti (2007) document that different rates of absorption of foreign savings give rise to sizeable cross-country differences in NFL positions. Information for Haiti and Barbados is only available until 2019.

³ External balance sheet information is scaled with GDP measured in dollars to make countries comparable. Note that while the numerator is robust to short-term marginal variations because it is a stock, the denominator is not because annual GDP is a flow. In this chapter, trend GDP is used to avoid temporary fluctuations. The use of trend GDP in dollars makes the measurement robust to fluctuations in real growth and real exchange rates.

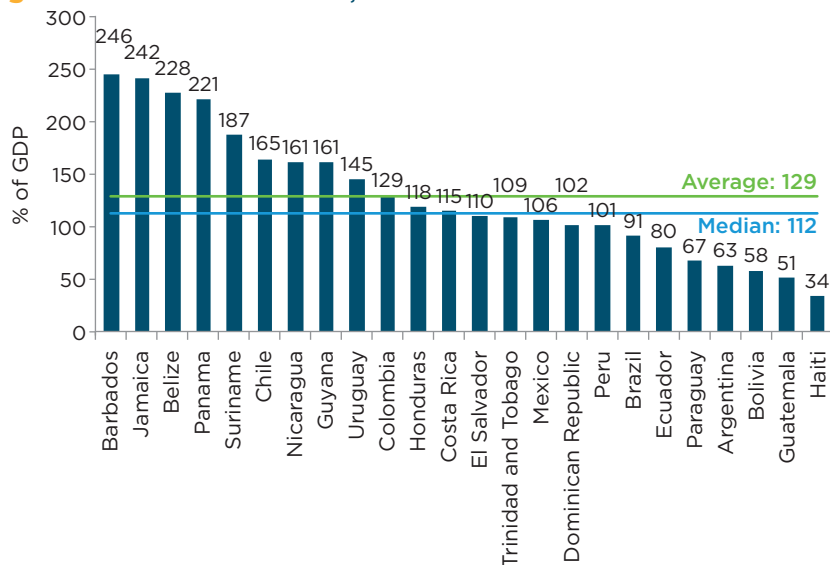
⁴ Venezuela is excluded from the figure due to discrepancies between official statistics and other estimates of external assets and liabilities, especially in recent years. Moreover, Venezuela's trend GDP is estimated at the 1990 level; therefore, its balance sheet levels have increased in recent years due to the substantial drop in trend GDP (65 percent between 2015 and 2019).

⁵ Unless otherwise noted, the balance sheet data used in this chapter is taken from Lane and Milesi-Ferretti (2018), updated in 2021. Stocks are valued at end-year prices. The data are reported at market value, including for debt obligations. Latin American and Caribbean countries in this chapter are the 26 IDB borrowing members except The Bahamas, an international financial center whose balance sheet statistics are not comparable to the rest.

Figure 2.1 Net Foreign Liabilities, 2020

Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.

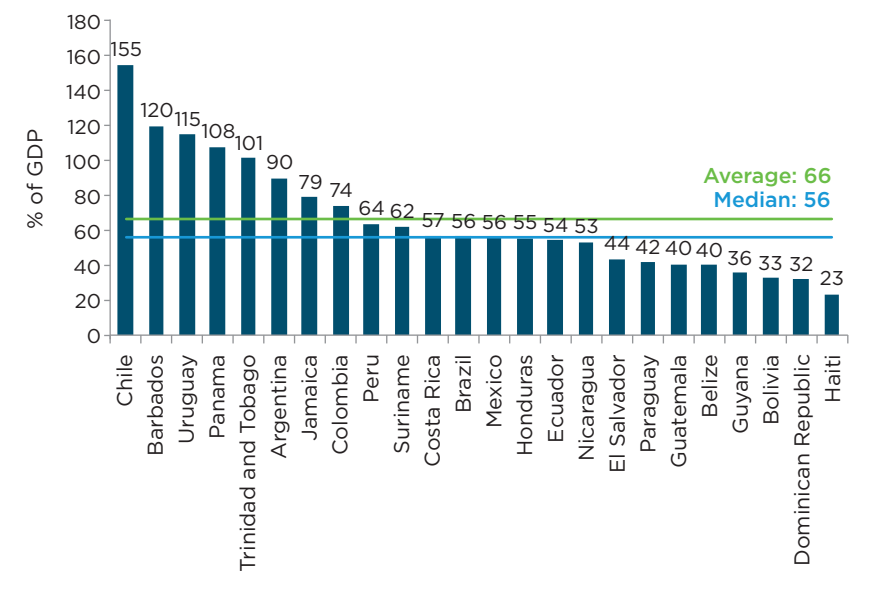
Note: Figures scaled by trend GDP.

Figure 2.2 External Liabilities, 2020

Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.

Note: Figures scaled by trend GDP.

Figure 2.3 External Assets, 2020



Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.
Note: Figures scaled by trend GDP.

external liabilities and assets are about 112 percent and 56 percent of GDP, respectively.

Three main reasons explain why public and private agents may find it beneficial to take advantage of incurring external liabilities and/or acquiring external assets beyond fluctuations due to normal variations in exports and imports: i) to stabilize economic activity affected by shocks and the business cycle, smoothing consumption over time; ii) to finance high-return investment opportunities; and iii) to reduce overall financial risks by creating exposure to a diverse portfolio that includes external positions. Each of these motivations as they apply to the region is explored below.

Stabilization. Using foreign resources, or repatriating foreign assets, to temporarily buffer transient economic shocks, or even to help adjust to intertemporal challenges such as the costs of population ageing and pensions in the best possible way, is useful to smooth consumption. Furthermore, it avoids the costs of interruptions in investment and production by protecting investment projects vulnerable to the lack of interim financing. Private agents, and particularly the public sector, are motivated by the need for stabilization. While private economic agents can smooth idiosyncratic shocks by borrowing from domestic financial

systems, governments dealing with negative aggregate shocks must turn to foreign resources, either by borrowing or by repatriating assets such as international reserves or sovereign wealth funds. Public sectors responsible for macroeconomic stability would benefit from having access to foreign resources when a business downturn or negative shock—such as the recent COVID-19 pandemic—threatens aggregate economic activity.⁶ More generally, the desire to preserve macroeconomic stability and fend off crises have been key reasons why many countries have accumulated international reserves since the 1990s.

The stabilization motive can rationalize incurring external liabilities, or repatriating external assets, to counter a negative shock and acquiring external assets, or reducing external liabilities, in the case of a positive shock to the economy. However, the net effect on external balance sheets is bound to be largely neutral unless there is a long string of one-sided shocks. Even so, the stabilization motive cannot rationalize the large stocks of gross external assets and liabilities observed in all countries.⁷ Other structural reasons also play a role.

Investment. In a developing region, the prospect of economic development is expected to generate high-return domestic investment opportunities. The investment motivation would lead to the accumulation of external liabilities to fund profitable investment opportunities. In effect, higher expected income as countries develop would also justify accumulating liabilities to spread out the anticipated higher income over time (consumption tilting). These motivations apply to private agents as well as the public sector, which may want to expand public investment and services without reducing current domestic disposable income.⁸ Depending on the characteristics of available investment opportunities and the degree of development of domestic financial systems, funding external liabilities could take the form of debt or equity financing, an issue discussed later in the chapter.

⁶ This assumes that economic policies are sustainable. If macroeconomic instability is caused by unsustainable policies, access to additional resources may simply postpone problems and worsen the situation.

⁷ Moreover, liquid debt liabilities and international reserves are the typical instrument to obtain resources to accommodate shocks but, as shown below, external balance sheets reflect substantial activity across different categories of assets and liabilities.

⁸ Economists have long established that, in practice, domestic investment is constrained by the availability of national savings, contrary to the implications of perfect financial integration (Feldstein and Horioka, 1980). Cavallo, Fernández-Arias, and Marzani (2017) show that better financial integration in low-saving countries would weaken the domestic savings constraint and increase the absorption of foreign savings, investment, and consumption.

While the investment motivation can explain why countries accumulate external liabilities, it does not explain the high levels of external assets shown in Figure 2.3. In the average country, external assets are about two-thirds of external liabilities. Why would Latin American and Caribbean countries accumulate such high levels of external assets?

One reason for holding external assets may be that access to foreign savings—the possibility of accumulating external liabilities—may be fickle. Thus, it may make sense to own external assets that can be repatriated if needed. This justification would apply particularly well to the public sector, and is a natural explanation for holding international reserves as a (self-)insurance policy. However, international reserves amount to less than one-third of external assets in the average Latin American and Caribbean country, suggesting that the private sector is the main driver of external asset accumulation.

Another potential explanation is that, despite the presumption that domestic investment in the region ought to deliver higher returns, residents may find that investment opportunities abroad are better than at home. For example, individual investors may have high-return investment opportunities abroad to expand their domestic firms (e.g., CITGO in the case of Venezuela, or private “multilatinas”). However, foreign direct investment (FDI) assets are only about 17 percent of foreign assets on average.⁹

Another reason investors may hold external assets is because instability at home induces capital flight. The general presumption that developing countries generate higher-return investment opportunities may fail in certain country circumstances. In particular, investors care about high *risk-adjusted* returns and may choose to save and invest abroad rather than domestically to avoid macroeconomic instability.¹⁰ In fact, as shown later in the chapter, non-reserve external debt assets, the main instrument for capital flight, account for about 50 percent of total external assets on average in Latin America and the Caribbean.

Diversification. Portfolio risk diversification offers a strong rationale for why balance sheets may normally include substantial foreign assets

⁹ In Venezuela, whose foreign asset-to-GDP ratio more than doubles that of any other Latin American and Caribbean country, FDI assets are only 5 percent of total foreign assets (as of end 2019, last year available). In Argentina, the other economy with a net creditor position, FDI assets are only 10 percent of total foreign assets. Their very large foreign assets as a proportion of GDP (Venezuela) or relative to foreign liabilities (Argentina) are not explained by FDI abroad.

¹⁰ In Argentina and Venezuela, combined FDI and international reserves amount to less than 24 percent and 11 percent of foreign assets respectively—substantially below average.

beyond international reserves even in countries not subject to capital flight pressures. Domestic agents choose new financial investments depending on their risk exposure and acquire external assets whose risk profile can hedge the returns on their domestic assets. The objective in this case is to build a diversified portfolio that, due to the covariation of risks among its components, can deliver lower overall risk.

This motivation applies to all agents, including pension and sovereign wealth funds. These institutional investors—which have grown in number and size in the region (measured by the amount of assets under management)—invest in a variety of assets, including foreign stocks and bonds. The aggregate result of this portfolio risk diversification strategy is the simultaneous increase of external assets and liabilities (which are the foreign assets of the rest of the world) for any given net liability position. Thus, the analysis demands consideration of gross stocks, that is, both sides of the balance sheet ledger. This process may entail a variety of debt and equity instruments depending on what best fits portfolio diversification.

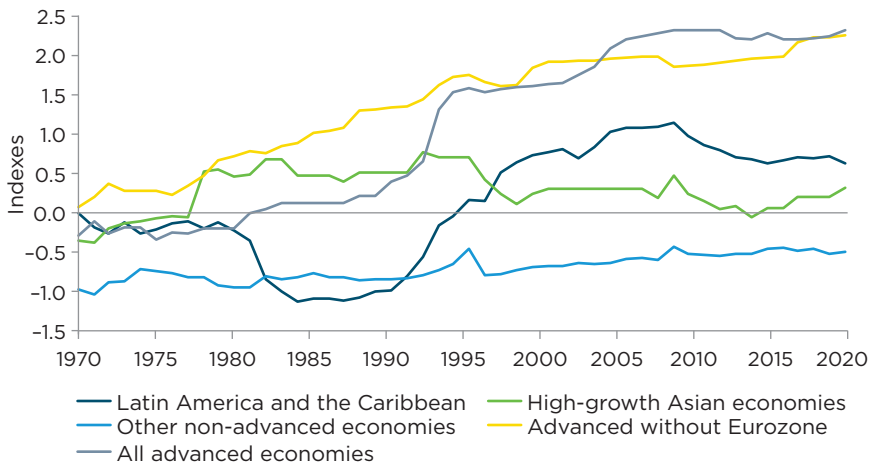
Financial Integration on the Rise

The world trend is to facilitate cross-border financial transactions through international financial liberalization. Fewer impediments to cross-border financial transactions have facilitated more financial flows in both directions and, consequently, the expansion of countries' external balance sheets. What are the implications of this trend for the risk of external crisis?

Figure 2.4 shows an index of financial liberalization capturing the dismantling of legal restrictions to capital flows, and Figure 2.5 illustrates the actual deepening of international financial integration over time, defined as the sum of external assets and liabilities (as a percent of GDP)¹¹ in Latin America and the Caribbean and across world country groupings: i) other non-advanced economies; ii) high-growth Asian economies; iii) advanced economies excluding the Eurozone; and iv) Eurozone.¹²

¹¹ This measure underestimates desired financial integration because countries in financial distress face substantial frictions to incur liabilities and are often subject to capital flight controls.

¹² All country groupings throughout the chapter are represented by the typical country in the group, defined as the simple average of all countries in that group. Country groupings outside Latin America and the Caribbean are: Other non-advanced economies: Angola, Bangladesh, Benin, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, China, Macao, Comoros, Democratic Republic

Figure 2.4 Financial Integration Index

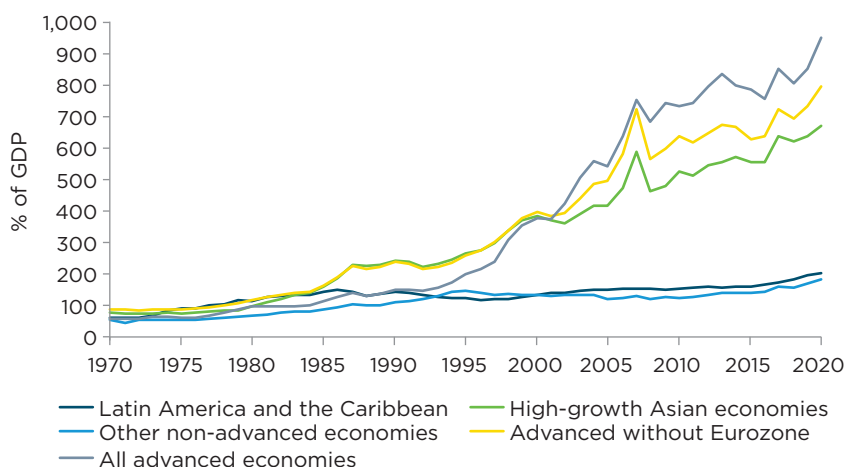
Source: IDB staff calculations based on Chinn and Ito (2006), updated in 2021.

Note: Simple average by country over time.

Figure 2.4 shows that Latin America and the Caribbean is the region that increased financial liberalization the most in the 1990s and 2000s, although the trend stopped after the global financial crisis of 2008–2009. Figure 2.5 shows that the evolution of actual financial integration in the region is qualitatively similar to other non-advanced economies, but is dwarfed by the fast expansion in high-growth Asia and advanced economies, especially in the Eurozone.¹³ Still, the figures show that global international financial integration is deepening, and international financial liberalization is a force behind it.

of Congo, Republic of Congo, Cote d'Ivoire, Equatorial Guinea, Eswatini, Ethiopia, Fiji, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Hungary, India, Indonesia, Kenya, Lao People's Democratic Republic, Lesotho, Liberia, Madagascar, Malawi, Malaysia, Maldives, Mali, Mauritania, Mozambique, Myanmar, Namibia, Nepal, Niger, Nigeria, Pakistan, Papua New Guinea, Philippines, Poland, Romania Rwanda, Samoa, Senegal, Seychelles, Sierra Leone, Solomon Islands, Somalia, South Africa, Sri Lanka, Sudan, Sao Tomé and Príncipe, Tanzania, Thailand, Togo, Tonga, Turkey, Uganda, Vanuatu, Zambia, Zimbabwe. High-growth Asian economies: China, Hong Kong, India, Indonesia, Korea, Malaysia, Singapore, Sri Lanka, Thailand. Advanced economies, excluding Eurozone: Australia, Canada, Denmark, Hong Kong, Iceland, Israel, Japan, Korea, New Zealand, Norway, Singapore, Sweden, Switzerland, Taiwan, United Kingdom, United States. Eurozone: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Spain.

¹³ Higher financial integration among advanced economies holds even when excluding Eurozone countries, which are naturally more integrated, from the country groups.

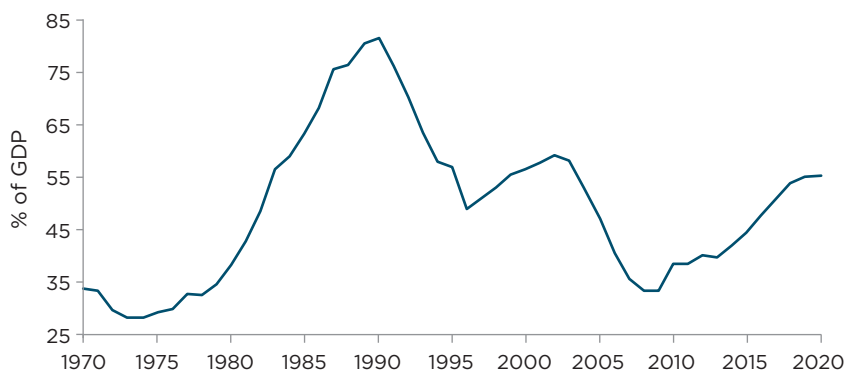
Figure 2.5 Actual Financial Integration

Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.

Note: By country, the proxy of actual financial integration is constructed as the sum of external liabilities and external assets to trend GDP. The regional average is the simple average by country over time.

Transforming External Balance Sheets: Fifty Years and Counting

The changes in countries' external balance sheets may be useful to gauge economic prospects going forward and inform how to deal with future challenges. Figure 2.6 shows the evolution of the net external balance sheet of the average Latin American and Caribbean country over the past 50 years.

Figure 2.6 Net Foreign Liabilities in Latin America and the Caribbean

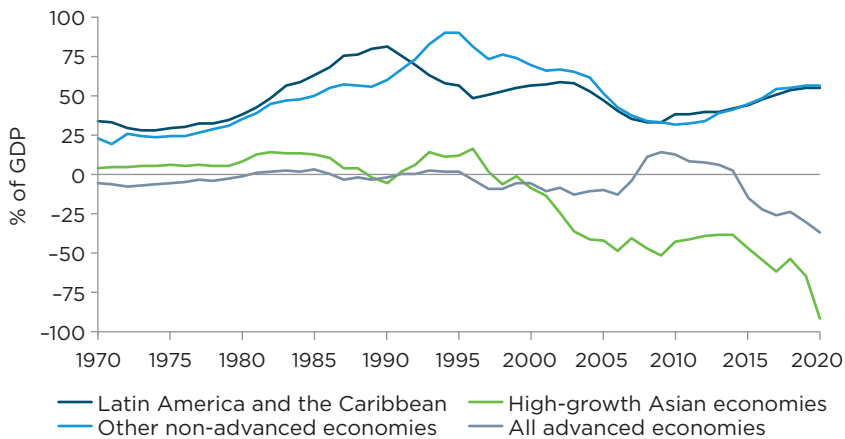
Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.

Note: Figures scaled by trend GDP. Simple average by country in the region.

The level of net foreign liabilities at the start of the 1980s proved to be unsustainable and skyrocketed during the debt crisis of that decade. The ultimately successful external debt restructuring and macroeconomic adjustment returned net foreign liabilities to about 50 percent of GDP by the mid-1990s. The crisis resolution opened the possibility for countries to issue bonds externally and increase net foreign liabilities, reaching 60 percent of GDP by 2003. Between 2003 and 2008 net foreign liabilities declined significantly and coincided with the period of high commodity prices. Deleveraging ended with the onset of the global financial crisis by year-end 2008. From 2009 to 2020, net foreign liabilities have steadily increased by 20 percentage points (p.p.) to about 55 percent of GDP, on average.¹⁴ The changes during 2020 are discussed in detail below.

Figure 2.7 compares the typical Latin American and Caribbean country to the average country in four comparator groups. The evolution of net foreign liabilities in Latin America and the Caribbean is by and large similar to the one observed in other non-advanced economies. The levels of net foreign liabilities and the phases average countries in both groups went through are similar, including the sustained increase after 2008. The similar patterns suggest that the changes observed in Latin America and the Caribbean do not reflect a regional peculiarity. Still, high-growth Asian

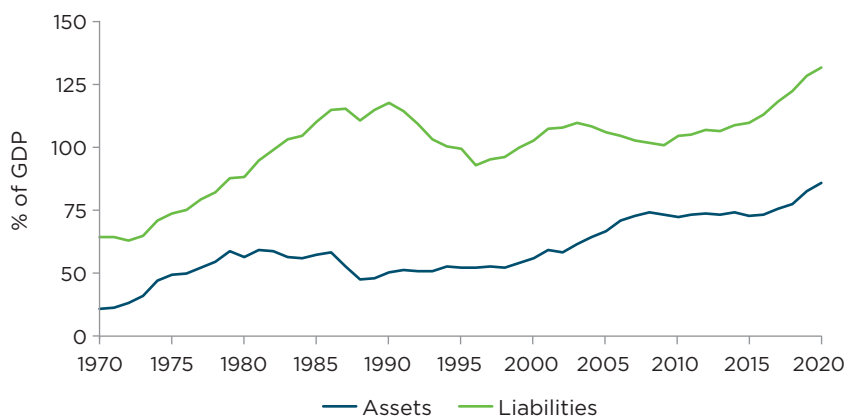
Figure 2.7 Net Foreign Liabilities by World Regions



Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.

Note: Figures scaled by trend GDP. Simple average by countries in each region.

¹⁴ While the level observed in 2020 is comparable to the one observed prior to the debt crisis of the 1980s, as shown in the next section, the risk of an external crisis is not.

Figure 2.8 External Assets and Liabilities

Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.

Note: Figures scaled by trend GDP. Simple average by country in the region.

economies and advanced economies followed a markedly different path.¹⁵ In particular, net foreign liabilities declined dramatically after the global financial crisis, meaning they have been financing the rest of the world since then; by 2020, they show a positive (i.e., creditor) net investment position.

As noted, however, net balance sheets do not tell the full story. Gross stocks of external assets and liabilities are both substantial and, as will become clear, need to be tracked separately to assess balance sheet risks. Figure 2.8 zooms in on the evolution of both sides of the external balance sheet for the average Latin American and Caribbean country, showing that increasing liabilities starting in the mid-1990s after the debt crisis resolution have been accompanied by a parallel increase in assets.¹⁶ Financial integration has been deepening in the region since the 1980s debt crisis and accelerated in recent years.

COVID versus Other Shocks: Balance Sheets Bounce Back

The pandemic was a large negative external shock which, as per the stabilization motive, countries could have tried to buffer by increasing net foreign liabilities. Since this was a global shock, all countries may want to achieve this outcome. However, some countries must fail in their effort to

¹⁵ From here on, all advanced economies are subsumed into one category, including the Eurozone economies.

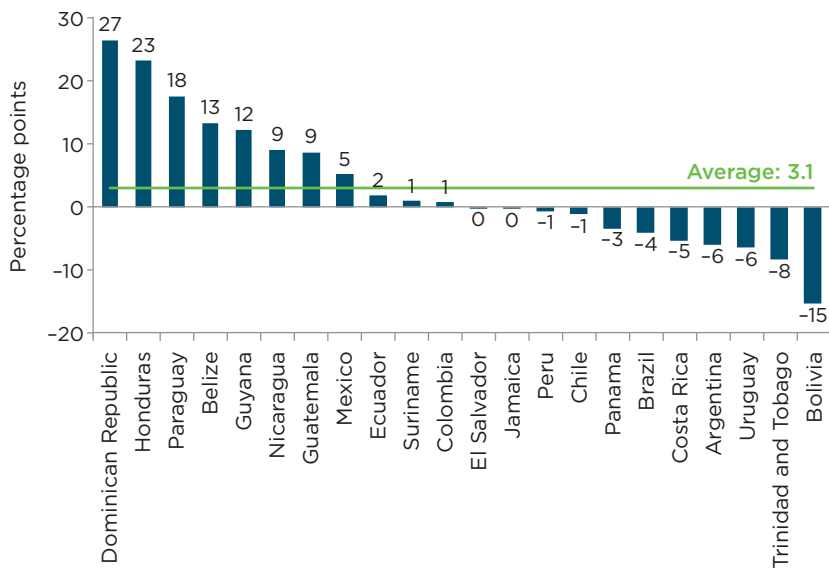
¹⁶ This is an indicator in the quantity dimension. The convergence of investment returns internationally would be an indicator of financial integration in the price dimension.

allow others to access additional foreign resources. Considering 2020, the only year affected by COVID-19 for which there is complete information, Figure 2.6 suggests that net foreign liabilities (scaled by GDP) remained unchanged vis-à-vis 2019 in the typical Latin American and Caribbean country. In contrast, net foreign liabilities of other non-advanced economies *declined* on average (Figure 2.7), suggesting they suffered greater economic destabilization in 2020, either because they reduced external liabilities and/or accumulated external assets.

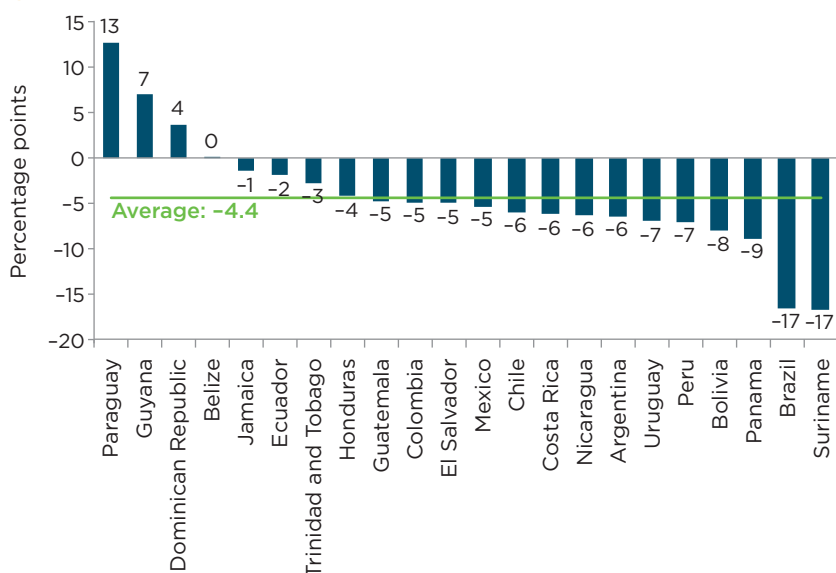
However, the extent to which countries were or were not able to benefit from changes in their external balance sheets during 2020 is difficult to assess by the net foreign liability position because steep declines in GDP around the world may drive this indicator. To further probe the dynamics of balance sheets during COVID in the region, Figures 2.9 and 2.10 show the underlying growth rate of the dollar level of gross external assets and liabilities (without scaling by GDP) in 2020 compared to their trend as measured by the average annual growth rate over the preceding 10 years. A positive (negative) difference means that growth in 2020 was faster (slower) than it was previously by as many percentage points.

The region is evenly split between countries that accelerated external asset accumulation, which includes countries that experienced capital

Figure 2.9 Difference in the Annual Growth Rates of External Assets



Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.
Note: Growth rate of external assets in 2020 minus the average annual growth rate of external assets in 2008-2019.

Figure 2.10 Difference in the Annual Growth Rates of External Liabilities

Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.

Note: Growth rate of external liabilities in 2020 minus the average annual growth rate of external liabilities in 2008–2019.

flight, and countries that decelerated it, which include countries that used international reserves and repatriated other external assets to offset the negative shock from COVID (see Figure 2.9).

At the same time, the accumulation of liabilities *slowed down* in most Latin American and Caribbean countries vis-à-vis the preceding decade by almost 5 p.p. on average (Figure 2.10), especially driven by FDI (average deceleration of 6.3 p.p.), but also in the case of debt (average deceleration of 1.9 p.p.).¹⁷

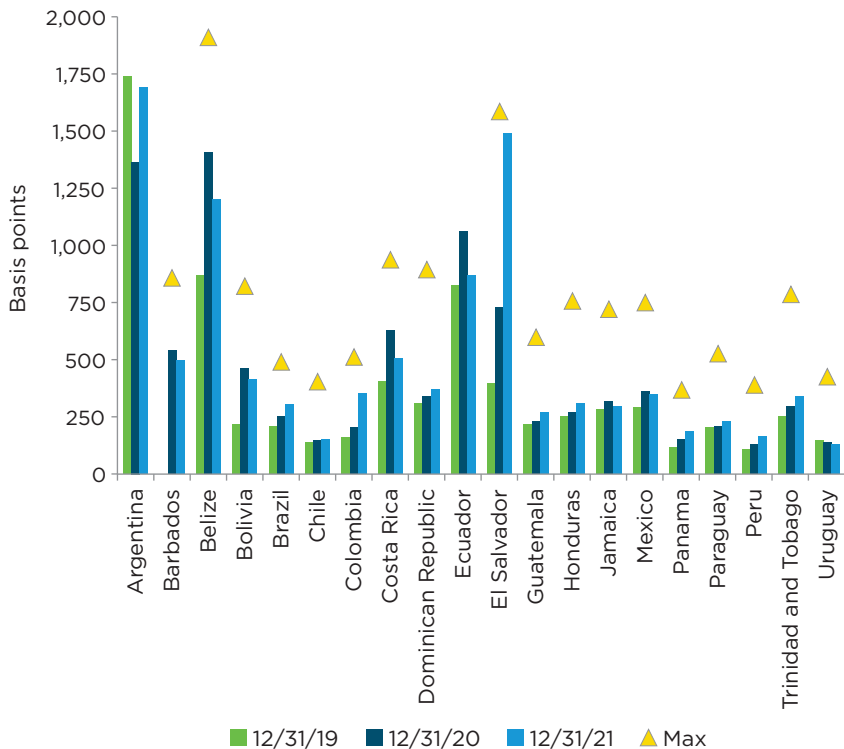
Countries' responses in terms of their external balance sheets were highly sensitive to global financing conditions, which in turn shifted significantly during the pandemic. COVID rattled international financial markets in the first quarter of 2020: risk premiums skyrocketed, exchange rates depreciated, and domestic stocks and bonds suffered substantial valuation losses.

¹⁷ The accumulation of portfolio equity liabilities decelerated significantly in 2020 (86 p.p. vis-à-vis the preceding decade's average annual growth rate of portfolio equity liabilities) but, as will be shown later, portfolio equity liabilities are a small fraction of external balance sheets in Latin America and the Caribbean and, therefore, their contribution to the total variation of liabilities is limited. In the few countries where portfolio equity liabilities are a significant share of total liabilities, the deceleration was also large: Brazil (29 p.p.), Chile (27 p.p.), Mexico (7 p.p.), and Peru (24 p.p.).

But the financing shock and the impacts on net flows were short-lived. The evolution of the Emerging Market Bond Index (EMBI) sovereign risk spread for all Latin American and Caribbean economies from year end-2019 to end-2020, and end-2021 is illustrated in Figure 2.11. The figure also reports the highest level EMBI spreads in the interim period, which spiked in the early part of the shock. In the second half of 2020, EMBI spreads generally returned to the pre-crisis levels of end-2019, suggesting that market access was essentially reestablished (and remained reasonably stable in 2021).

The favorable conditions enabled countries that wanted to access external financing to do so. External debt bond issuance in the first semester of 2020 was significantly higher than in the same period of 2019.¹⁸ Furthermore,

Figure 2.11 Sovereign Bond Spreads (EMBI)



Source: IDB staff calculations with data from Bloomberg.

Note: In the cases of Argentina and Ecuador, the maximum values during this window are outside the scale (they were 4,362 basis points for Argentina and 6,063 basis points for Ecuador). The maximum in all countries occurred between the end of March and April 2020, except for El Salvador where the maximum occurred during 2021. The figure excludes Venezuela, whose implied spreads on bonds in default distort the scale.

¹⁸ See Cavallo and Powell (2021).

virtually all Latin American and Caribbean countries benefited from emergency financing from official multilateral institutions. The public sector used external financing to sustain public spending and to finance COVID-19 stimulus packages. Still, the overall pace of accumulation of external liabilities fell, as shown in Figure 2.10, weighed down by lower demand from the private sector, which remained subdued and, therefore, negatively impacted the accumulation of external debt and especially FDI, due to high uncertainty about the impact of COVID-19 on the real economy.¹⁹

The bottom line is that country balance sheets did not turn out to be a vulnerability factor during the COVID-19 shock. This contrasts with preceding shocks that sparked crisis episodes, particularly in the 1980s and the 1990s, when weak country balance sheets contributed to the severity of crises.²⁰

Shifts in Composition: Building a Better Balance Sheet

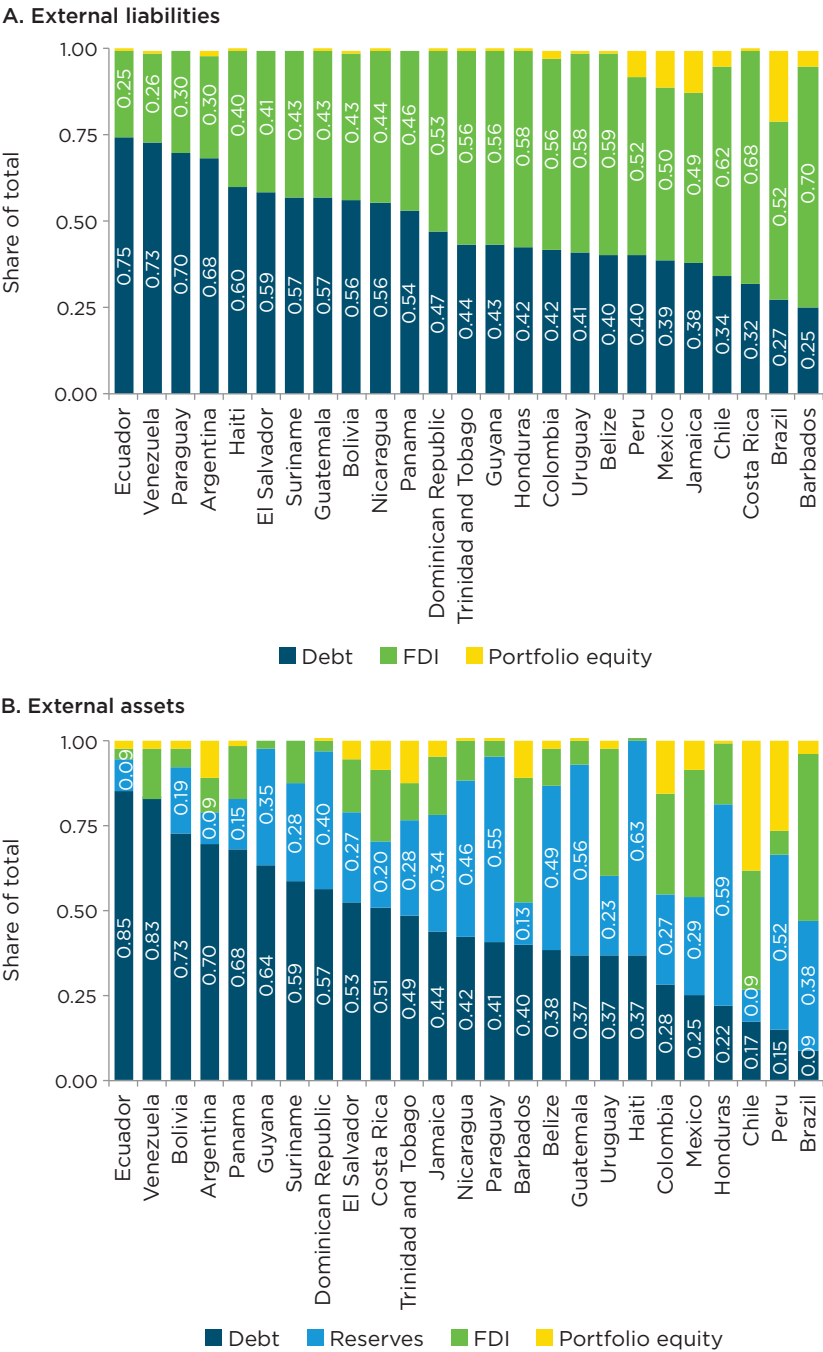
Different motivations for international investments call for different types of financial instruments to match risk/return profiles of investment opportunities and investors in the marketplace. For example, investors with know-how may prefer direct investments while others may prefer portfolio investments in equity or debt instruments depending on the risk/return differentials available and their risk tolerance. Assessing country risks requires distinguishing among types of financial instruments in the country external balance sheet. Risk trends cannot be understood without recognizing the aggregate portfolio changes of financial instruments with different risk profiles. Figure 2.12, Panels A and B, show the composition of external balance sheets as of 2020 by financial instrument. Foreign liabilities are classified as debt (D_L), portfolio equity (PE_L), and direct equity (FDI_L). Foreign assets are classified as debt (D_A) which excludes international reserves, portfolio equity (PE_A), direct equity (FDI_A), and international reserves (RES).²¹ To facilitate comparability, composition is expressed as shares of total external liabilities and assets.

¹⁹ The evolution of corporate risk spreads as measured by the Corporate Emerging Market Bond Index (CEMBI) was parallel to the evolution of sovereign risk spreads. Therefore, lack of access to financing was not the main driver of low foreign investment in the private sector. This is consistent with evidence from large firms in Cavallo and Powell (2021).

²⁰ See Cavallo et al. (2022) for an analysis of the impact of COVID on capital flows to Latin America and the Caribbean.

²¹ This follows the guidelines of balance of payments accounting standards. The estimates are taken from Lane and Milesi-Ferretti (2018), who provide a consistent world panel of external country balance sheets in U.S. dollars by financial instrument. The assumptions, for example concerning FDI valuation, may lead to measurement errors.

Figure 2.12 Composition of External Liabilities and Assets, 2020



Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.
Note: Data from Venezuela, Haiti, and Barbados are from 2019.

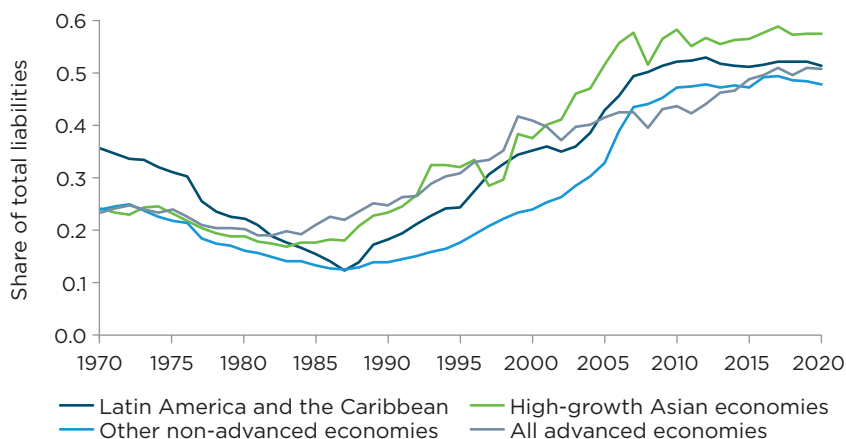
One stylized fact that emerges in Figure 2.12, Panel A, is that *debt* is not predominant among external liabilities in most Latin American and Caribbean economies; debt and equity liabilities are roughly evenly divided in the total. The exceptions are Argentina, Ecuador, Haiti, Paraguay, and Venezuela, where debt exceeds 60 percent of total external liabilities. Equity liabilities overwhelmingly take the form of FDI; only in Brazil does portfolio equity account for more than 20 percent of total external liabilities.

On the foreign assets side (Figure 2.12, Panel B), debt instruments tend to predominate over equity in most countries, with a number of exceptions. In several countries, international reserves account for about half of total assets. Overall, external assets are diversified between debt instruments, international reserves, and FDI, with shares varying across countries. Portfolio equity is less common across all countries with the exceptions of Chile and, to a lesser extent, Peru.

Over time, external balance sheet composition has been shifting in favor of equity—predominantly FDI. Figures 2.13 and 2.14 show the evolution of the equity share (adding FDI and portfolio) on both sides of the ledger in Latin America and the Caribbean and comparator groups.

The share of equity in total liabilities (Figure 2.13) declined through the 1980s everywhere, especially in Latin America and the Caribbean, which was navigating through the debt crisis. Then, in the 1990s, the share of equity started to increase, leveling off between 40 and 60 percent of the total, depending on the country group, by the time the global financial crisis hit in 2008; only in advanced economies did the equity share continue

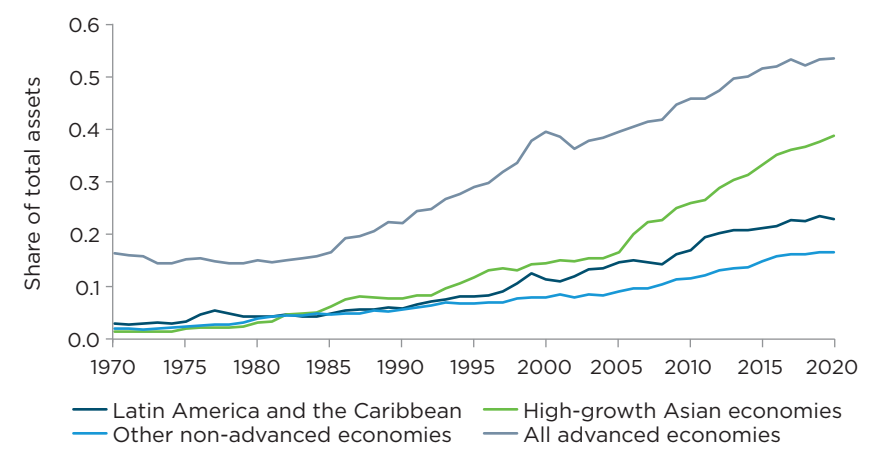
Figure 2.13 Evolution of External Equity Liabilities by Region



Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.

Note: Figures scaled by trend GDP. Simple average by countries in each region.

Figure 2.14 Evolution of External Equity Assets by Region

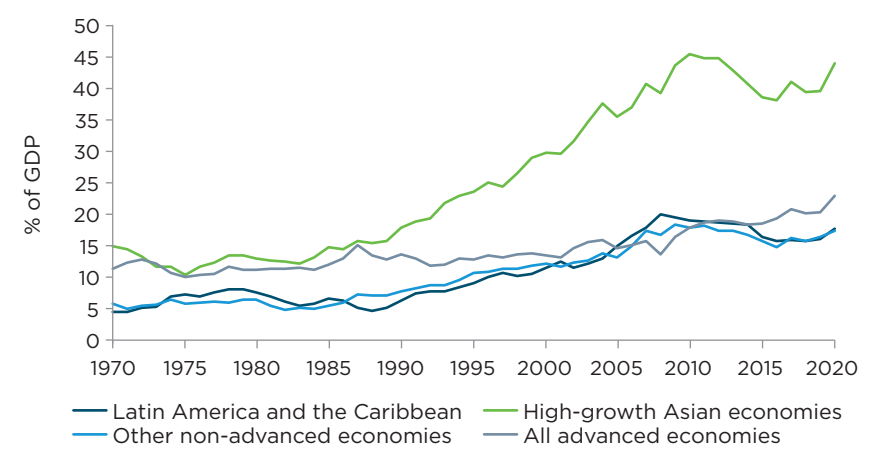


Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.
 Note: Figures scaled by trend GDP. Simple average by countries in each region.

to increase even after the global financial crisis. On the asset side (Figure 2.14), the equity share has increased little across country groups, while levels have been consistently higher in advanced economies.

Another remarkable trend is the rise in international reserves across all country groups until plateauing out after the global financial crisis (see Figure 2.15). By end-2020, the average country in Latin America and the Caribbean had international reserves stocks of about 17 percent of GDP,

Figure 2.15 Evolution of International Reserves by Region



Source: IDB staff calculations based on Lane and Milesi-Ferretti (2018), updated in 2021.
 Note: Figures scaled by trend GDP. Simple average by countries in each region.

comparable to the other country groups except high-growth Asia, which boasted a level more than twice as high.

Interestingly, international reserves *increased* in 2020 when measured as a share of (trend) GDP in all country groups. In the average Latin American and Caribbean country, reserves increased by 1.6 percentage points of GDP. Although part of that increase was driven by the decline in GDP during 2020, international reserves accumulation grew by 3.8 percent in dollar terms in the typical Latin American and Caribbean country.²² As will be shown in the next section, reserves accumulation strengthened countries' external balance sheets in the face of uncertainty, and reinforced the positive trend towards safer balance sheets.

Reducing Risk

Financial liberalization policies that help countries expand their external balance sheets can pay off in terms of stabilization, investment, and diversification. However, that is only half of the story—the glass half-full part. For all the benefits under normal circumstances, when things go wrong, the risk of costly crisis may call for prudential policies of balance sheet management.

Countries incur external liabilities to fund financing needs, including to comply with external debt payment obligations. When access to foreign funding is lost, the whole system comes to a screeching halt, at least once liquid foreign assets such as international reserves are used up to plug the gap. Such external crises are costly and difficult to end.

The key question concerning the drivers of crisis risk is, why would access to foreign funding be impeded or lost in the first place? As in the domestic corporate world, the perception of serious repayment risk leads to reluctance to fund and, eventually, to no funding. In the case of a country, not to repay may be a sovereign decision rather than an inability to repay. Compliance is more costly when stocks of external liabilities demanding large service payments are high and stocks of external assets to ease those efforts are low. At the same time, costs associated with non-compliance, such as a damaged reputation as a good borrower or impairment of foreign assets and international trade, may dissuade countries from reneging on foreign payments. For a country, insolvency means that nonpayment

²² Total reserves increased to US\$34.2 billion in 2020 from US\$32.9 billion in 2019. Total reserves as a share of total liabilities increased to 16.7 percent in 2020 from 15.9 percent in 2019. The dynamics of the crisis on aggregate saving and investment that led to the reserve accumulation are discussed in Powell (2021) and Cavallo and Powell (2021).

is the least costly alternative. While a government assessing the situation is concerned with the fiscal implications of its decision and has direct control over its own external assets and liabilities (the so-called public external balance sheet), it is also presumably concerned with broader welfare implications and has policy tools to impede and block private sector compliance with external obligations if it sees fit—for example, with capital controls. Consequently, this chapter looks at the overall country external balance sheet, including its private portion.

Liquidity considerations may also be important, or even decisive, for the risk of crisis. A country unable to withstand a temporary interruption of foreign funding without becoming insolvent would cause anxiety among foreign investors, even if it is able and willing to comply under normal foreign funding circumstances. Countries with substantial stocks of foreign liabilities maladapted to liquidity shortages, such as debt with short-term amortization spikes, would suffer substantially from a liquidity shock in a sudden global disinvestment, or financial contagion, and be more prone to crisis. By the same token, countries with external assets that can be easily used to provide needed liquidity would be less vulnerable to liquidity shocks.

Whether driven only by solvency or by additional liquidity considerations, crisis risk depends on several factors. This section focuses on risks and risk-mitigants associated with both the liability and asset side of country external balance sheets (gross stocks), broken down by financial type.²³ It uses an econometric model of the probability of a country falling into external crisis three years down the road as explained by the balance sheet components, controlling for the global factors prevailing at that time, the country's macroeconomic imbalances (high fiscal and current account deficit as well as exchange rate misalignment), and whether it is an advanced country, which appears to be systematically less vulnerable.²⁴

²³ The model disregards further disaggregation concerning liquidity attributes such as maturity or private/public ownership (private and public external balance sheets), which are potentially relevant features, to preserve the power of the statistical inferences that can be made from the world's crisis experience.

²⁴ This approach relates to the traditional current account sustainability analysis in which the growth of net external liabilities is assessed to determine whether a policy adjustment will eventually be needed to avoid their explosive growth and crisis. In this approach, however, there is a threshold scenario at which an external crisis would result, irrespective of the projected current account dynamics and its sustainability. This approach would shed light on the space for making adjustments when the current account is unsustainable. The probability of reaching this threshold depends on the entire balance sheet portfolio, not its net position.

This empirical exercise draws from Cavallo, Fernández-Arias, and Rinaldi (forthcoming) who make a panel estimate using 62 countries to obtain the following country balance sheet risk indicator (BSRI).

<i>BSRI</i> =	0.68 (<i>FDI_L</i>)	+0.95 (<i>PE_L</i>)	+1.11 (<i>D_L</i>)
	-5.08 (<i>FDI_A</i>)	-2.00 (<i>PE_A</i>)	+0.14 (<i>D_A</i>)
	-4.27 (<i>RES</i>)		

The weights associated with each component reflect the estimated relative risk effect involved in a marginal increase in the corresponding asset or liability type (keeping control variables fixed).

The first row is the liability component, the second row is the asset component (excluding reserves), and the third row is the international reserves component. The BSRI is zero when the net risk effect of the external balance sheet over and above other sources of risk is null, as in financial autarky. Balance sheet changes that leave the BSRI unchanged are neutral for crisis risk.

An increase in any type of liability raises the crisis risk indicator, and an increase in any type of asset reduces the crisis indicator (except for debt assets whose coefficient estimate is close to zero and not statistically significant), albeit at different magnitudes as per the corresponding point estimates. In terms of relative effects, there are two takeaways: i) the composition of assets and liabilities is important because risk differs by financial instrument, significantly so on the asset side; and ii) the gross positions are important to assess risk: the net balance sheet is not sufficient to indicate risk vulnerability, even by financial instrument.

On the liability side, the point estimates suggest that debt is the riskiest type of instrument, about twice as risky as FDI.²⁵ However, it is noteworthy that FDI is also risky, because it defies the notion that only exposure to debt liabilities is relevant for crisis risk. This evidence suggests that FDI is more liquid than it seems and can be disinvested easily (a point first made by Fernández-Arias and Hausmann, 2001) and/or that the risk of creeping or outright expropriation parallels the risk of debt restructuring. The bottom line is that the shift in liability composition from (riskier) debt to (less risky) equity instruments would help reduce balance sheet risk, but would not eliminate it given that equity instruments bear substantial risk.

²⁵ However, the evidence of differential effects between the coefficient estimates is statistically weak (see Cavallo, Fernández-Arias, and Rinaldi, forthcoming).

On the asset side, FDI is a very effective risk mitigant in contrast to the null mitigation power of debt. This evidence is consistent with the notion that potential impediments or retaliation against a country's FDI assets abroad may act as a deterrent to not honoring the country's liabilities. More generally, the sizable protection afforded by portfolio equity assets suggests that the larger capacity of equity investors to absorb risk relative to debt investors may make them more prone to repatriate assets when the home economy is under financial stress—hence, another reason to support FDI assets risk mitigation.

Finally, international reserves appear to be very effective at mitigating risks. Thus, borrowing to increase international reserves has a net risk-mitigating effect on average. According to estimates based on a global panel, borrowing one unit to accumulate reserves would offset the risk generated by almost three additional units of debt $\left(= \frac{-4.27}{1.11} - 1\right)$. The evidence of powerful risk mitigation effects suggests that international reserves are expected to be effective at preventing liquidity crises or be an important tool to buy time to strengthen underlying vulnerabilities (see Box 2.1). Still, borrowing to increase international reserves is not a free lunch, especially in countries that pay high external borrowing costs as reflected in EMBI spreads. Moreover, accumulating international reserves funded by increasing national savings, rather than external borrowing, has an unambiguous advantage in terms of the implications on country risk because it provides the same risk-mitigation benefits without the risk enhancing costs of accumulating higher debt levels.²⁶ Similarly, contingent credit lines, like the IMF's Flexible Credit Line, are alternative mechanisms through which a country can access international reserves when most needed without incurring the cost of borrowing to hold them permanently.

The BSRI indicator tracks well the crisis experience in the region (see Figure 2.16). It deteriorated steadily going into and through the 1980s debt crisis and strongly rebounded after the debt crisis resolution. This risk indicator ceased to decline and stalled after the global financial crisis in 2008. Interestingly, the improvement has not come through the liability component: the risk associated with liabilities is as high as it was in the 1980s. The improvement is attributable to an increase in the risk mitigation power of assets, both international reserves and other assets in similar magnitudes.²⁷

²⁶ See Cavallo and Serebrisky (2016) for an analysis.

²⁷ This overall pattern of improvement in asset risk mitigation, which more than offsets stagnant or somewhat increasing liability risk, is also observed in the average advanced and non-advanced country.

Box 2.1 The Insurance Value of International Reserves

The empirical evidence points towards a strong risk mitigation effect from borrowed international reserves that cannot be explained by the traditional literature based on the country's net external position; when countries borrow to purchase international reserves, net foreign liabilities remain unchanged. To rationalize this evidence, borrowed international reserves need to be thought of as insurance, meaning shifting resources among different future events. For example, in the case of house insurance, from the insured perspective, insurance transfers resources from those states of the world where there is no fire in the house (the premium) to those where there is a fire (the payoff). In the case of borrowed reserves, they provide the sovereign with insurance in multiple ways, but insurance against liquidity risk is the key.

Borrowed Reserves as Insurance for Default States

In normal times, when countries do not default, the cost of borrowing to hold reserves is proportional to the difference between assets' and liabilities' rates of return. Since international reserves are mostly invested in highly safe and liquid U.S. Treasury bills and bonds, the sovereign spread is a good measure of the cost of holding reserves, akin to an insurance premium. In default times, debt is (partially) wiped out. Reserves, on the other hand, are protected by sovereign immunity and cannot be seized in case of default. Hence, borrowed reserves provide a windfall of resources in default states. From an insurance perspective, borrowed reserves provide support in default times, usually associated with lower output. The cost of this insurance is the sovereign spread, which makes the insurance fairly priced as the bond spread compensates lenders for a potential default event loss.

However, conditional on the same net position, a country with a lot of debt and reserves should be *more, not less*, likely to default than one without reserves and lower debt. This is because reserves cannot be seized by creditors. Since default is a strategic choice of the sovereign, it gives rise to moral hazard. Countries cannot credibly commit to not default during mild crises and would end up defaulting more often than optimal, so they face *higher* spreads. Thus, sovereigns *avoid* such insurance (see Hernández, 2018). These implications are at odds with the evidence, which reveals that more powerful countervailing mechanisms are in place.

Borrowed Reserves as Insurance Against Liquidity Risk

Avoiding borrowed reserves as insurance in default states due to moral hazard can be overturned by considering its insurance value against market risk in repayment states. Borrowed reserves allow the sovereign to lock in a price or interest rate on future issuance of debt by borrowing in advance at current terms and temporarily investing the proceeds in reserves. Bianchi, Hatchondo,

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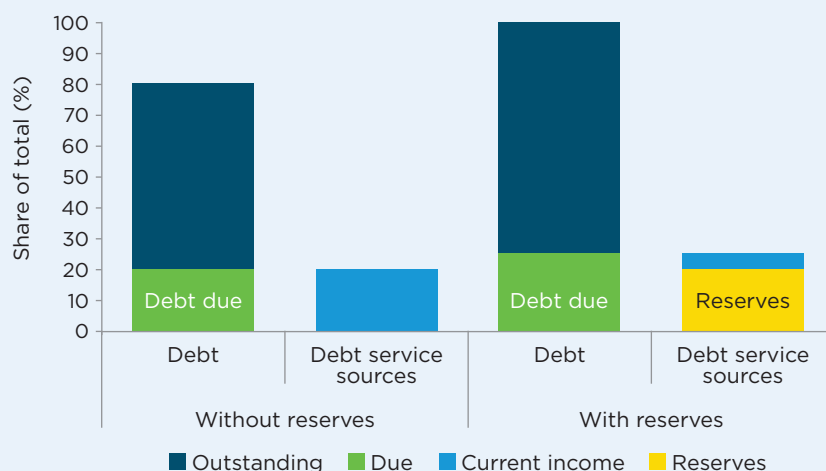
and Martínez (2018) proposed this insurance mechanism and showed numerically that it can overcome the default insurance moral hazard and help explain the existence of borrowed reserves. However, while advancing the literature on why a country would find it optimal from an insurance standpoint to hold borrowed reserves, the framework of Bianchi, Hatchondo, and Martínez (2018) does not explain why countries with borrowed reserves face lower spreads and are less prone to debt crises. Insurance against liquidity risk provides the explanation.

A sovereign issuer is exposed to liquidity risk when, while being solvent, it cannot find buyers for newly issued debt. It often happens when a significant amount of debt is due. The lack of buyers forces the government to default on its current obligations (being unable to properly adjust to a financial cutoff), validating the decision of investors to stay away from the new debt. Had investors decided to buy newly issued debt, the government could have met its current *and future* obligations, since it was solvent under normal financing conditions; that would have validated investors' decisions to buy the new debt in the first place.

The previous scenario is known in the literature as a roll-over crisis. It may arise as the bad equilibrium of two possible equilibria: investors buy new debt, and the government repays, or investors don't buy new debt, and the government defaults. These multiple equilibria leave the government exposed to liquidity shocks arising from investor sentiment: if they feel the government will default, they decide not to lend and, as a self-fulfilling prophecy, the government subsequently defaults. Hernández (2018) argues that borrowed reserves provide insurance against liquidity crises. They do so by impeding the multiplicity of equilibria that allows for a roll-over crisis to happen in the first place. The key mechanism is that borrowed reserves increase the sovereign's incentives to repay even if investors decide to run and not roll-over the debt over a period of time, thus reducing the risk of crisis. Oftentimes, the sudden stop of new lending is produced not by a bad market equilibrium originating in the recipient country, but by disruptions in the global supply of funds leading to the temporary financial cut of all but the best-risk countries. In this case, borrowed reserves may be effective in funding debt service while the no roll-over regime lasts, further reducing the risk of crisis.

To shed light on the mechanism, imagine a government that owes 80 and has no reserves versus one that owes 100 and has 20 in reserves. Their net position is the same: -80 . And in the case that all debt is due, their situation is equivalent: without new lending, they need to come up with 80 from their current income to service it. But the situation changes when only a fraction of debt is due, as is the case with long-term debt. Assume only one quarter of the debt is due in the current period in both reserve scenarios (see Figure 2.1.1). In case of no lending, the first government would need to come up with $0.25 \times 80 = 20$ of current income to service debt, while the other government would need only $0.25 \times 100 = 25$ of current income to service debt, as the rest is covered with reserves. Hence, reserves make servicing the debt easier for the government when borrowing is not feasible.

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Figure 2.1.1 Debt Service Sources with and without Reserves

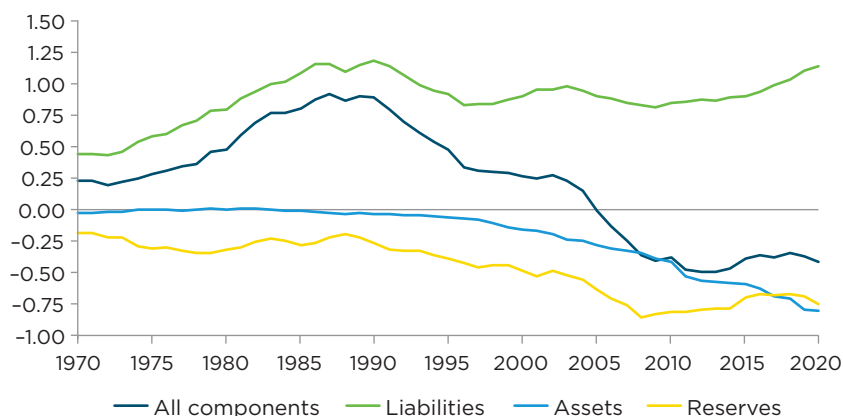
Source: IDB staff calculations.

Note that if the government cannot even achieve a primary surplus of 5, it will still default, which is very likely the case of an insolvent or nearly insolvent government. But in intermediate cases, when both governments can achieve primary balances of 5 but not of 20, borrowed reserves make a difference. Of course, if the no roll-over scenario persists after reserves are exhausted, they would cease to make a difference. Hence, international reserves can be used in those states when investors are reluctant to lend, providing some insurance to the sovereign against liquidity crises.

Borrowed reserves may prevent a sudden stop of new lending due to market fears of a roll-over crisis (Hernández, 2018). Investors realize that the sovereign with borrowed reserves will repay, with or without new lending, so each one of them individually decides to lend (irrespective of what the others decide to do). That precludes the refusal to lend *en masse* that leads to the default equilibrium: a run over a period covered by reserves ceases to be an equilibrium. In fact, in equilibrium, reserves would not need to be actively used to service debt because their existence eases investors' worries. Additionally, reserves may counteract sudden stops in widespread lending caused by temporary systemic financial failures, further guaranteeing continuous market access for the sovereign. By contrast, a government with no reserves depends strongly on being able to issue new debt to cover the 20 due and remains exposed to bad equilibria and failures that lead to liquidity crises.

Hence, borrowed reserves reduce crisis vulnerability and, correspondingly, reduce sovereign spreads, consistent with the evidence presented in Chapter 6. Hernández (2018) provides more details on how this mechanism prevails over the moral hazard obstacle to borrowed reserves.

Figure 2.16 Balance Sheet Risk Indicator (BSRI) by Component (Regional Average)



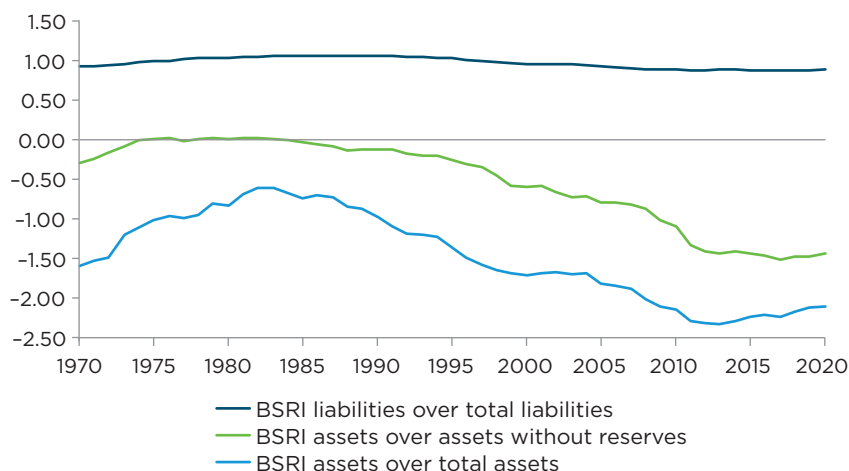
Source: IDB staff calculations based on Cavallo, Fernández-Arias, and Rinaldi (forthcoming); and Lane and Milesi-Ferretti (2018), updated in 2021.

Note: The BSRI is computed by country/year multiplying the coefficient estimates from a regression of a measure of crisis (left hand side) and regressors, including the different components of the external balance sheet (right hand side). The weights associated with each component in the index reflect the estimated relative risk effect involved by a marginal increase in the corresponding asset or liability type, keeping control variables fixed.

The evolution of the BSRI in Latin America and the Caribbean is explained by the combination of changes in the levels and composition of external assets and liabilities. Figure 2.17 shows the risk implications of changes in the composition of liabilities and assets by looking at the evolution of the risk indicator per unit of liability and asset. On the liability side, debt is riskier than equity; thus, the composition shift towards equity instruments (Figure 2.13) reduced the average risk of liabilities, although the quantitative effects are small. On the asset side, the shift is more marked. FDI assets and reserves are the most protective instruments; therefore, their increase vis-à-vis other types of assets (see Figure 2.14) increased the risk mitigation power of foreign assets.

The BSRI provides the basis for estimating the probability of an external crisis in each country. Another index, the Balance Sheet Vulnerability Assessment (BSVA), provides a measure—in probability space—of the risk emanating from external balance sheet positions. In particular, the BSVA is the probability of a crisis three years ahead emanating from balance sheet factors in the absence of other risk factors (i.e., no macroeconomic imbalance and no foreign country in crisis).²⁸ The BSVA has the advantage that

²⁸ Cavallo, Fernández-Arias, and Rinaldi (forthcoming) show that these neglected macroeconomic factors have contributed even more than balance sheet factors to the

Figure 2.17 BSRI per Unit of Liabilities and Assets (Regional Average)

Source: IDB staff calculations based on Cavallo, Fernández-Arias, and Rinaldi (forthcoming); and Lane and Milesi-Ferretti (2018), updated in 2021.

Note: BSRI liabilities include only liability components of the external balance sheet: debt liabilities, FDI liabilities, and equity liabilities. BSRI assets include only asset components of the external balance sheet: debt assets, FDI assets, equity assets, and international reserves. Without reserves means excluding international reserves from total assets.

it can be employed to compare balance sheet risk levels across country groups.

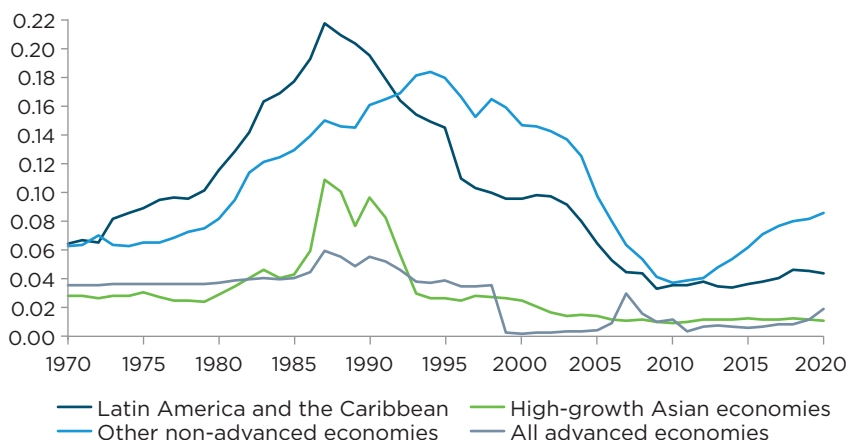
Figure 2.18 shows the BSVA for the average country in Latin America and the Caribbean as well as in comparator groupings. For Latin America and the Caribbean, the vulnerability of its external balance sheet is at a historically low level.²⁹ While average vulnerability is currently two or three times as high as in high-growth Asia and advanced economies, it is remarkably lower than in other non-advanced economies.

In summary, external balance sheet risk in Latin America and the Caribbean has fallen substantially since the 1980s thanks to the improvement in its external balance sheets, composition, especially on the asset side. This success has helped mitigate the global financial crisis and COVID-19

risk of crisis in the overall sample. Therefore, prudent macroeconomic policies may offset high balance sheet risks, and poor macroeconomic policies may lead to crisis despite low balance sheet risks.

²⁹ The average country value hides the heterogeneity within the region. Still, for the countries in Latin America and the Caribbean that are above the 75th percentile of the distribution, the BSVA by the end of the sample is about the same as other non-advanced economies, while for countries below the 75th percentile of the distribution, the BSVA by the end of the sample is about the same level as in advanced economies.

Figure 2.18 Balance Sheet Vulnerability Assessment (BSVA), average by country group



Source: IDB staff calculations based on Cavallo, Fernández-Arias, and Rinaldi (forthcoming); and Lane and Milesi-Ferretti (2018), updated in 2021.

Note: BSVA is the estimated probability of a crisis three years ahead emanating from balance sheet factors in a scenario in which risk contributions of other control variables are muted (i.e., no macroeconomic imbalance and no foreign country in crisis). It is calculated by applying the probit function to the BSRI.

shocks, largely avoiding the external crises that would have likely ensued otherwise.

Balance Sheet Management to Reduce Vulnerabilities

Balance sheet risks depend on the composition of gross external liabilities and assets. On the liability side, the evidence shows that debt, as opposed to equity, is the riskiest type. Consequently, debtholders are the riskiest foreign investors, prone to cash in and flee, because they own liquid holdings and have little appetite for risk. Nevertheless, equity liabilities also carry risk; it would be a mistake to gauge liability risk by looking at foreign debt alone. In particular, FDI may be at risk of expropriation of some sort and be able to disinvest through financial engineering.

On the asset side, and crucially for the evolution of risk over time, equity assets, especially FDI assets, appear to be strongly risk mitigating; on the other hand, non-reserve debt assets appear to be unhelpful. This novel finding suggests that FDI assets abroad may magnify the country's reputational cost of defaulting on external liabilities and in this way amount to an effective risk mitigating factor. At the same time, liquid assets are effective mitigants, but only when there is an incentive to use them in risky

situations. The ability to repatriate private liquid assets held by risk-averse debt investors to help comply with foreign liability obligations is not particularly helpful in practice. In contrast, international reserves are the most protective type of asset.

The previous risk characterization, however, is not enough to design effective policies of balance sheet management. The type of instrument chosen by investors in the marketplace results from a cost/benefit analysis in which riskier instruments may be acceptable if they deliver higher than expected returns. As a policy question, whether balance sheet vulnerabilities merit a prudential policy response depends on whether the market fails to find the appropriate tradeoff between benefits and crisis risks. The existence of balance sheet risks is not, in itself, a justification for policy intervention to reduce them (beyond public sector appropriate behavior concerning its own balance sheet footprint). The need for balance sheet management arises from private agents' failure to completely internalize the aggregate risk of their financial transactions.³⁰ First, the accumulation of assets and liabilities alters country risk as reflected in market financial terms, and in extreme financial rationing. But market transactions contributing to this aggregate outcome that affect all participating market agents do not bear these financial consequences. Second, the costs of external crisis entail substantial losses of welfare that spill over the entire society, beyond participating market agents. These collective economic costs are, again, not internalized by financial markets.³¹

While a complete policy analysis would require a full-fledged general equilibrium model beyond the scope of this chapter, the previous evidence strongly suggests that fully benefitting from international financial integration requires prudential management to bring about an external portfolio mix that is safer than the one the market (and an imprudent public sector) is likely to deliver by itself. This is in line with the conclusions of studies on macroprudential regulation of the capital account.³² The policy objective of reducing balance sheet vulnerabilities must consider not only the direct risks of balance sheet items but also their indirect risks, which amplify the effects of exogenous factors—negative shocks to terms of trade, natural

³⁰ For example, in Jeanne and Korinek (2010), individual agents do not fully internalize how their individual capital inflow decisions impact overall volatility in the economy, which leads to excessive leverage unless regulated.

³¹ For example, Farhi and Werning (2016) identify an aggregate demand externality that can be corrected by macroprudential interventions in financial markets. Ex ante, however, the effects of the externality are not internalized in private financial decisions.

³² See, for example, Ostry et al. (2011).

disasters, pandemics, or international financial turbulence—that often trigger external crises when vulnerability is high. While exogenous shocks cannot be prevented, exposure to them depends on balance sheet features that can be managed.

Balance sheet management should address the following five key areas:

- *Discourage risky features of debt liabilities, such as short maturity and foreign currency denomination.* Debt claims that can be recovered as contracted when country risk increases provide a natural disinvestment mechanism that makes them especially risky for amplifying stress into crisis. For this reason, short-term debts, which offer this option frequently, are riskier than longer-term debts and may be penalized for prudential reasons. Similarly, bunching external debt amortizations may trigger a liquidity crisis. Apart from debt maturity, foreign currency denomination may compound the effect of real devaluation resulting from balance of payments stress on debt obligations in GDP terms. These issues are discussed in detail in Chapter 6.
- *Support the trend in favor of equity financing.* Foreign equity financing eliminates the potential incentive of debt financing to disinvest at maturity and brings less fickle foreign investors to the market. In this regard, FDI would be preferable because its barriers to disinvestment are presumably higher (albeit not insurmountable) due to costs of liquidation. The evidence also shows that, contrary to diversification and capital flight through foreign debt assets, the private acquisition of foreign equity assets mitigates crisis risks and may therefore be favored on prudential grounds. This is especially true with FDI abroad, which helps countries comply with their external liability obligations.
- *Invest in international reserves.* International reserves are powerful risk mitigants, and long-term borrowing to keep reserves high may be an effective policy. This finding makes sense in a world of frequent temporary sudden stops of external financing and erratic swings in terms of trade; the breathing room provided by reserves (including open credit lines, for example the IMF's Flexible Credit Line, and other sources of liquidity available to the public sector) may prevent a liquidity crisis. The multilateral financial system has the responsibility to serve as a lender of last resort to prevent avoidable liquidity crises due to global shocks and relieve individual developing countries from that burden. In that case, a

global safety net would be more efficient than relying on individual country reserves.

- *Promote balance sheet insurance.* Oftentimes, external crises are brought on when a country with a weak balance sheet suffers a shock. While a stronger balance sheet that ensures financing to cope with the shock is helpful, offsetting the shock with insurance that eliminates future repayments is safer. Prudential policy may look at insurance or hedging features of the balance sheet itself and, for example, promote debt contingent on GDP growth or terms of trade (or at least limits to external payments to ensure liquidity in times of stress if full insurance is not feasible). In a sense, the contingency features built into balance sheet contracts would substitute for the costly ex post renegotiations that take place in external crises in stressful scenarios.
- *Encourage national savings.* Besides improving the risk features of the external financial portfolio such as those suggested in the previous bullets, stronger national savings, both higher private savings and lower public consumption, would also help contain the risk of external crisis by reducing the overall absorption of net foreign savings (either by lowering the demand for foreign liabilities or increasing the accumulation of foreign assets). Countries with a portfolio composition in which liabilities are riskier and assets are safer would benefit the most from policies to encourage stronger national savings.

Latin America and the Caribbean has been wracked by volatility and macroeconomic crises for the last half century. These gyrations have taken their toll on development and must be controlled if the region is to grow and prosper. Safe and sound country balance sheets are a critical factor for creating an environment conducive to equitable and sustainable development. The gradual shift to safer foreign assets and liabilities has helped lower the risk posed by the external portfolio, but countries in Latin America and the Caribbean must remain on guard; the overall risk associated with its external portfolio has been rising for several years and remains high by international standards. Countries with high vulnerabilities need strong balance sheet management policies to prevent external crises. Keeping the risks created by debt liabilities under control by improving their risk profile and favoring the use of equity liabilities may be the key to success.

Domestic Bond Markets: Successes and Challenges

While strengthening financial markets has long been part of the reform agenda in Latin America and the Caribbean, the importance of developing local bond markets has come into focus more prominently since the turn of the century. Deep and well-functioning bond markets play the dual roles of supporting macroeconomic stability and spurring economic growth. When governments can access domestic financial markets by issuing long-term, local-currency instruments, the country avoids the risk of being unable to roll over debt or of a sudden jump in its debt burden should its exchange rate depreciate significantly. For the private sector, a well-developed domestic bond market opens up opportunities to finance investment at longer terms than those normally offered by the banking sector, while also avoiding a currency mismatch. Moreover, domestic markets usually expand opportunities for smaller firms and for financing of mortgages and consumer loans in local currency at longer terms. For local savers, domestic bond markets broaden their portfolio investment opportunities. For policymakers, a liquid, long-term yield curve in local currency makes monetary policy more effective.

After the financial crises of the 1990s, policymakers and analysts recognized the importance of a local currency debt market to reduce vulnerabilities associated with government borrowing. Famously, Fed Chair Alan Greenspan remarked that domestic bond markets could play the role of a “spare tire” in the event of either capital flows sudden stops or systemic banking stress (Greenspan, 1999). However, many emerging and developing economies, including most in Latin America and the Caribbean, struggled to achieve a large, local-currency-denominated market for their public debt, a deficiency that was labeled the “Original Sin” (Eichengreen and Hausmann, 1999).

Over the past three decades, governments in the region have expanded their access to the domestic bond market. Countries with more dynamic financial markets in general (including the banking sector) have enjoyed more growth in their domestic securities markets, as banks and

markets offer many complementarities.¹ The expansion has also reached the private sector, including the issuance of bonds to finance private infrastructure investment. Bond markets tend to offer longer maturities and a more hands-off relationship with creditors, which suits infrastructure projects and the companies that undertake them well.²

Going forward, countries in Latin America and the Caribbean face several policy challenges. The experience with multinational initiatives in East Asia suggests market integration may offer big payoffs, but Latin America and the Caribbean has not had much experience in this regard. In addition to building the foundations for a sound market that includes strong institutional and legal frameworks to encourage investors and firms to engage in bond markets, it may be advisable to provide incentives to help overcome information deficits, first-mover reluctance, and other distortions. But there are no clear guidelines for what kind of incentives and how they should be phased out. The participation of foreign investors in domestic markets may help deal with problems like low liquidity and insufficient scope for growth of markets, but appropriate safeguards may be needed to protect against episodes of sudden stop or sudden reversals of flows.

This chapter will review market developments in government and private bond markets, analyze the determinants of the growth of bond markets, empirically assess the implications of new trends in international investors' portfolios, and present lessons and policy options.

Thirty Years of Bond Market Expansion

The scale of the domestic bond markets, especially for sovereign debt, has grown relative to GDP since the 1990s in most countries in the region. The structure of debt has also improved, with lower, fixed interest rates, and a more diversified investor base that includes a larger share of foreign asset holders. Local currency debt increased as a proportion of total debt. Countries also improved the institutional framework and operational infrastructure of the bond market, ensuring deeper and more liquid markets, and gradually extending market access to the private sector.

The capitalization of the domestic government bond market has grown steadily over the past 30 years. The outstanding level of marketable debt issued under internal legislation increased from an average of 15 percent in the 1990s to 25 percent in 2020 across all countries (Table 3.1). The larger economies—those included in the LAC 6 group that comprises the six biggest

¹ See Chapter 3 in Cavallo and Serebrisky (2016).

² See Cavallo, Powell, and Serebrisky (2020).

Table 3.1 Outstanding Domestic Government Bond Debt as Percent of Trend GDP

Country	1990-1999	2000-2009	2010-2019	2019	2020
Argentina	13.3	22.8	21	22.9	25.5
Bahamas	29.5	30	34.1	36.5	35.6
Barbados	n/a	n/a	84.3	93	89.7
Belize	6.8	6.8	16	26.6	n/a
Bolivia	7.6*	17.4	13.7	16.1	n/a
Brazil	14.8*	27.9	45.8	54.9	51.7
Chile	26.9	13.4	21.1	22.2	24.3
Colombia	12.3*	22	27.8	31.6	35.2
Costa Rica	22.7	27.3	41.3	47	46.6
Dominican Republic	n/a	1.8*	10.3	13.4	15.1
Ecuador	7.8	8.5	11.2	13.8	15.2
El Salvador	n/a	8.8*	5.9	7.2	10.9
Guatemala	n/a	7	13	14.6	16.9
Guyana	18.9*	17	10	6.1	6.6
Honduras	11.8	10.2	15.2	19.7	22
Jamaica	28.5	72.7	57.3	36.7	35.1
Mexico	18.2	21	22.5	26.8	27.2
Nicaragua	13.1	23.7	8.1	6	6.6
Panama	11.4	9.6	7.4	10.6	9.9
Paraguay	6.1	4.4	1.6	1.2	1.3
Peru	1.3**	7.3	11.1	17	15.4
Suriname	n/a	n/a	1.6	7.4	7.7
Trinidad and Tobago	21.6	15.2	30.3	30.9	36.5
Uruguay	17.6	12.6	11.5	10.5	11.4
Venezuela	5.4**	8.5	25.4	n/a	n/a
Simple average	14.8	16.5	21.9	23.9	24.8
Weighted average	14.9	21.7	30.7	34.2	33.9
LAC 6	15.4	23.5	32.9	37.9	36.9
Tourism countries	19.3	18.5	21.0	22.8	23.2
Commodities countries	12.5	14.0	18.4	21.0	23.4
Diversified countries	15.5	24.3	34.4	39.9	38.5

Source: IDB HID – Historical IDB Debt Database.

Note: * indicates missing information for one to four years in the decade. ** indicates missing information for five or more years in the decade. The weighted average is calculated using the average GDP of the decade for each country. For the country groups, a weighted average is calculated. LAC 6: Argentina, Brazil, Chile, Colombia, Mexico, and Peru.

economies in Latin America and the Caribbean—posted large increases, from 15 percent of GDP in the 1990s to more than 37 percent of GDP in 2020. The fact that some relatively small economies—for example, Barbados, Costa Rica, Jamaica, and Trinidad and Tobago—have reached fairly sizable domestic markets suggests that market size is not an insurmountable constraint.

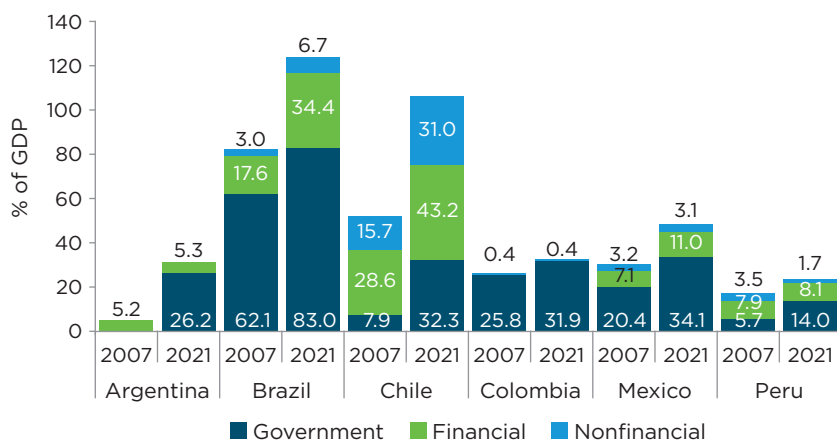
Still, the size of the outstanding stock of government bonds is an incomplete metric of the development of the domestic bond market. To begin with, factors like the liquidity of the market, the ease and security of transactions, and the strength of property rights should be considered along with the volume of the market. Furthermore, the market size of government debt may be an incomplete measure as it depends on the “demand side,” that is, the financing needs arising from fiscal deficits. For example, fiscal deficits in Chile and Peru have been moderate in recent years and, thus, the growth of public debt has been slow as well, although those countries have made clear progress in bond market development. On the flip side, countries with large financing needs are likely to tap captive domestic financial markets more frequently. Given some form of financial repression, the growth in the share of public debt by itself is not a good indicator of the healthy development of domestic bond markets.

A more comprehensive measure of the development of the bond market should include private debt. However, data on the size of private bond markets are available for fewer countries. For those countries with available data, private bonds, issued by nonfinancial corporations and banks, have also made progress since the 2000s. Outstanding bonds issued by the private sector have reached significant levels in Chile, Brazil, and Mexico relative to the size of their economies and the scale of government bond markets (Figure 3.1). In the case of Chile, outstanding private bonds exceed the stock of government instruments.³ In Argentina, Colombia, and Peru, the size of private bond markets is smaller in comparison to the other countries, suggesting space remains for market development. For all countries, financial bonds (those issued by banks) exceed the level of corporate bonds.

Despite its growth, the scale of domestic bond markets in the region has not yet reached levels comparable to the deeper markets found in some Asian and Pacific countries (Figure 3.2). A large group of countries in the Asia Pacific region have made a concerted effort to develop their bond markets through the Asian Bond Markets Initiative (see Box 3.2). The gap is mostly present in the private sector segment, where many Asian

³ The figures for outstanding government bonds may differ from those in Table 3.1 for countries with available data because the information comes from different databases with different definitions.

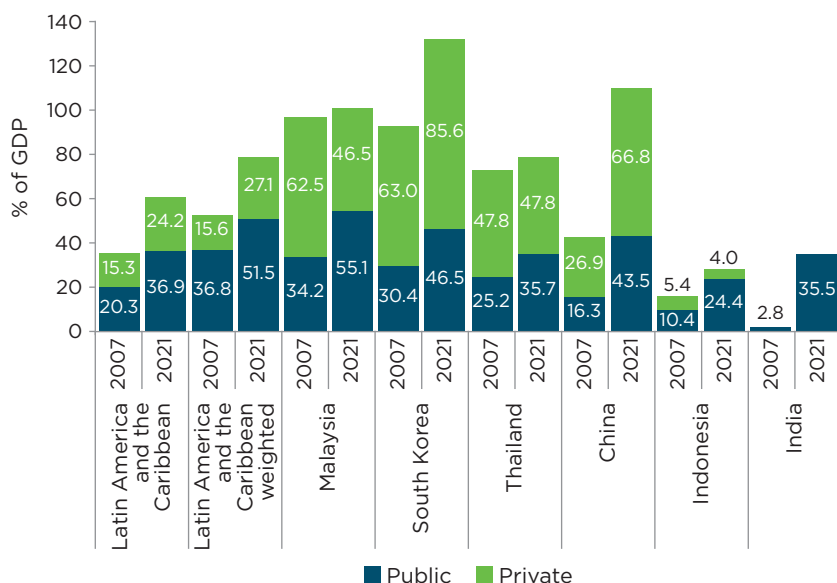
Figure 3.1 Outstanding Domestic Bonds in LAC 6 Countries and Their Composition



Source: BIS Debt Securities Statistics.

Note: Domestic market debt of the government is measured at the level of general government. 2021 includes information until the second quarter of the year. LAC 6: Argentina, Brazil, Chile, Colombia, Mexico, and Peru.

Figure 3.2 International Comparison of Domestic Bond Markets



Source: BIS Debt Securities Statistics.

Note: Domestic market government debt is measured at the level of general government. Latin America and the Caribbean weighted: weighted average using GDP for each year of the six countries for which BIS data are available—Argentina, Brazil, Chile, Colombia, Mexico, and Peru; 2021 includes information until the second quarter.

economies have achieved bond market capitalization exceeding 50 percent of GDP. In the case of government debt, the difference is smaller. Despite the remaining gaps vis-à-vis comparators, when scaled by the size of monetary assets, the overall size of the bond market in Latin American and Caribbean countries has roughly doubled since 2007; and by 2020, the bond market had become bigger than broad money (not shown).⁴

Improvements in the Structure of Debt

Domestic bond markets have grown in size, and by 2021, they represented a large share of total government debt. Government securities issued under domestic legislation represent 48 percent of the total issued, compared to an average 35 percent in the 1990s. The largest economies achieved the biggest gains with the share of domestically issued debt growing by 27 percentage points, compared to the 13 percentage point growth for the simple average of the region. Issuing bonds under domestic legislation presents a number of advantages for the sovereign including the use of national custody and settlement systems, lower required volumes per issue than in international markets, and the resolution of any litigation in national courts with lower cost and less uncertainty.

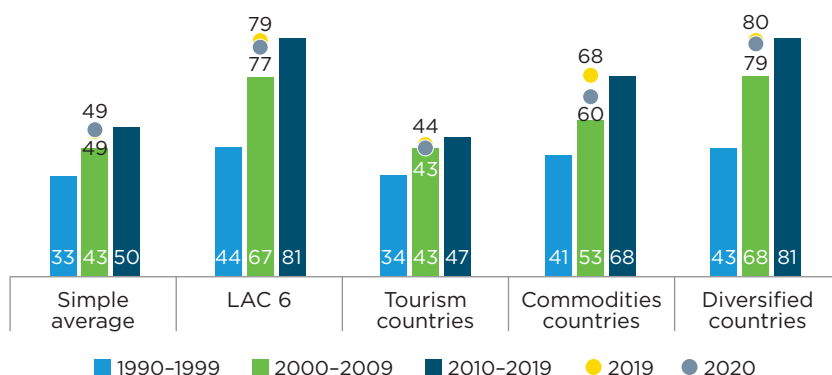
Moreover, in practice the market in which securities are issued and the currency denomination of the debt are closely correlated, meaning the switch towards bonds issued under domestic legislation indicates a shift towards local currency denominated debt (Figure 3.3).

The increase in local currency debt has long been a policy objective in Latin America and the Caribbean. An excessive level of foreign currency debt has been associated with recurrent currency crises and debt defaults. Foreign currency debt increases financial vulnerability because following a negative shock, the exchange rate would need to depreciate sharply, and that causes an automatic jump in the public debt-to-GDP ratio. The gains in the share of local currency government debt have resulted from a stronger macroeconomic policy framework in many economies in the region, and from a growing domestic institutional investor base.⁵

⁴ Broad money is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveler's checks; and other securities such as certificates of deposit and commercial paper.

⁵ The expansion of local currency debt is not unprecedented when compared to the historical record. Reinhart and Rogoff (2008), analyzing two centuries of data, show that the current boom of local currency government debt is bringing the debt structure back to where it had been for extended periods of time in past experience.

Figure 3.3 Proportion of Total (Domestic and External) Government Debt Denominated in Local Currency

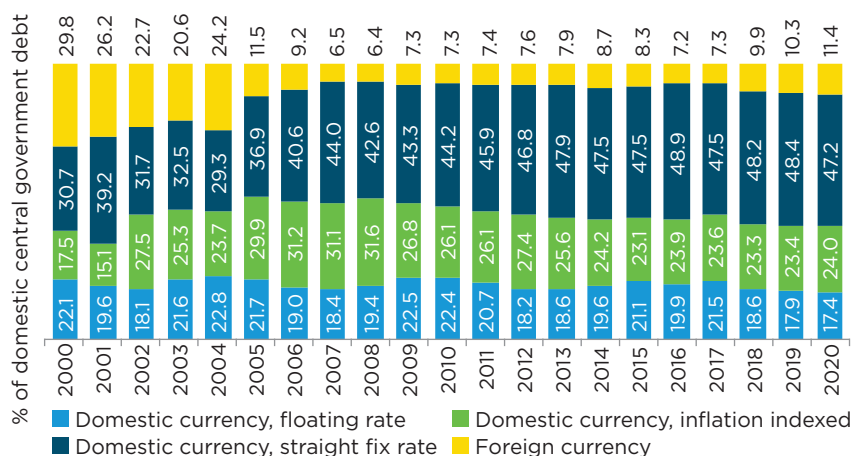


Source: IDB HID - Historical IDB Debt Database.

Note: For the country groups, a weighted average is calculated using the average GDP of the decade. LAC 6: Argentina, Brazil, Chile, Colombia, Mexico, and Peru.

Debt composition has improved in other ways as well. Fixed interest rate debt has gained ground in the domestic market relative to inflation-indexed instruments and foreign currency debt. The share of local currency, fixed rate instruments has increased since 2004, while local currency, floating rate instruments have remained a relatively constant proportion of overall debt issued in domestic markets (Figure 3.4).

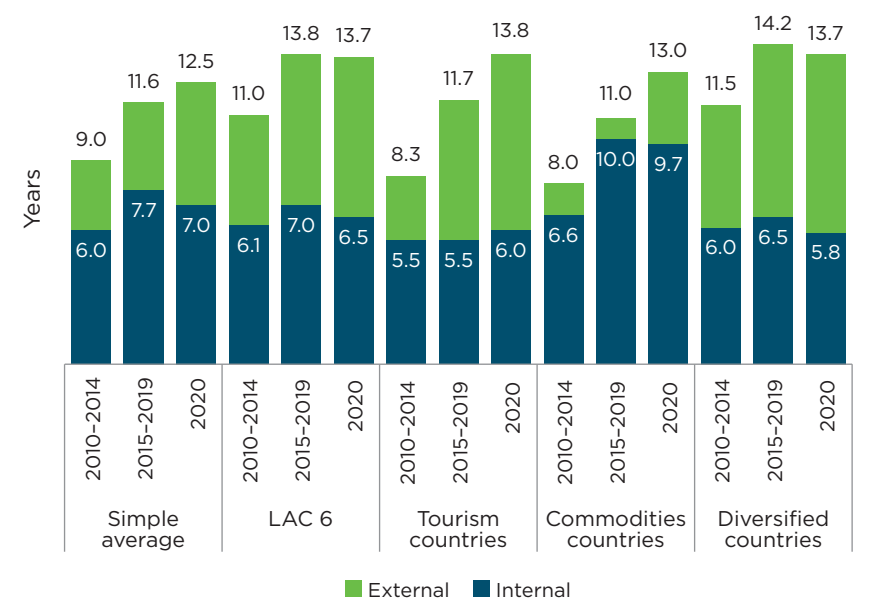
Figure 3.4 Breakdown of Government Bonds by Type of Instrument (average country)



Source: BIS Debt Securities Statistics.

Note: Average country is the simple average of Argentina, Brazil, Colombia, Mexico, and Peru.

Figure 3.5 Average Maturity of Public Bonds by Governing Law



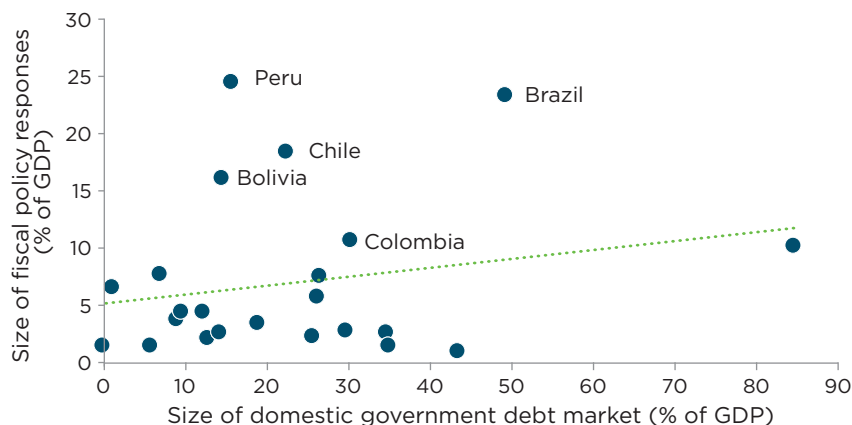
Source: IDB HID - Historical IDB Debt Database.
Note: For the country groups, a weighted average is calculated using the average GDP of the decade. LAC 6: Argentina, Brazil, Chile, Colombia, Mexico, and Peru.

While the progress towards fixed interest rate instruments in local currency provides clear gains in terms of stability and sustainability, there are trade-offs. For example, foreign currency bonds have traditionally offered longer maturities, as the long-term stability of the U.S. dollar and the “safe haven” perception of the U.S. economy reassure markets of the resiliency of dollar-denominated securities in the long haul. The maturity of government bonds issued under international law (almost always denominated in foreign currencies) is five to seven years longer than domestic law instruments (80 percent of which are denominated in local currencies). This notwithstanding, the maturity of domestic law instruments increased by one or two years over the past decade (Figure 3.5).

Bond Markets and COVID-19

The development of bond markets over 30 years proved to be useful in response to the COVID-19 crisis. The pandemic prompted many countries to undertake forceful measures to relieve its effects and resulted in an increase in government debt. Figure 3.6 highlights the size of COVID fiscal relief packages through June 2021 and the level of outstanding

Figure 3.6 Correlation of Fiscal Policy Responses to COVID and Domestic Government Bond Market



Source: IDB HID – Historical IDB Debt Database.

Note: The size of the fiscal policy response is calculated using the IMF Fiscal Policy tracker toolkit. It includes COVID-19 related measures announced between January 2020 and the end of June 2021, with expected implementation in 2020, 2021, and beyond. The types of fiscal support include above-the-line and below-the line measures, as well as contingent liabilities.

government debt in the domestic market at the end of 2019.⁶ The correlation is positive but not high, as many different factors influenced the size of the packages. For example, for countries with a high level of government debt, fiscal space was probably more limited and relief packages had to be smaller. However, most of the countries with the largest fiscal packages are countries where domestic bond markets are more mature.

Still, the pandemic seems to have paused some of the improvements of the preceding decades. For example, the pandemic interrupted the trend towards a higher share of local currency debt. Figure 3.3 shows this by comparing the levels in 2019 and 2020 (the dots above the bars) in addition to the decade averages. Faced with elevated financing needs from sizable relief programs, countries needed to tap both domestic and international markets. Even when able to satisfy most their needs in the domestic market, countries still resorted to international markets more than in the past, which grew the share of foreign currency debt. In addition, average maturities shortened in 2020, reflecting a deterioration in issuing and refinancing conditions (Figure 3.5). Whether these interruptions to the pre-pandemic

⁶ Using the year before the pandemic avoids biases stemming from the extent of the fall in GDP during the pandemic itself.

trends prove to be transient or persistent may hinge on the strength of the institutional underpinnings of domestic bond markets.

Building Better Bond Markets

The foundation of a sound bond market stems from the laws and regulations that rule its functioning and the ease and efficiency of performing transactions. The international community has focused on supporting the development of domestic bond markets in emerging economies with initiatives like the 2011 action plan of the G20 working group on international financial architecture⁷ and the joint efforts by the IMF and World Bank that culminated in a Guidance Note for Developing Local Currency Bond Markets (Hashimoto et al., 2021).

The IMF-WB Guidance Note identifies six building blocks necessary to achieve large and robust domestic bond markets: i) the money market, including commercial paper and a repo market; ii) the primary market, including transparent auctions or syndication; iii) the secondary market, which needs to achieve desirable levels of liquidity and depth; iv) the investor base, which must be deep and diversified with different horizons and risk/return preferences; v) a market infrastructure that facilitates the smooth flow and settlement of transactions with low risk to all parties; and, vi) a legal and regulatory framework that ensures market integrity and protection of investor rights. In addition, some needed enabling factors include a stable macroeconomic and monetary environment (low inflation, moderate public debt, and low risk of financial crises) and a sufficiently low degree of financial repression (financial markets are allowed to operate without excessive government price controls and restrictions).

The region has made progress in strengthening the six building blocks. Countries in Central America, for example, have made headway developing primary markets over the last two decades, especially by implementing the regional Debt Market Harmonization program. Among other capacity building assistance, this initiative has standardized securities and market conventions for new issuances. Still, many challenges remain, including in the operation of money markets and secondary bond markets.⁸ Also, the investor base remains narrow and banking sectors are concentrated, which are obstacles to competitive markets. Even in the largest markets in Latin America, many challenges remain. One of them is achieving a high level of liquidity in secondary markets. The bid-ask spread of debt instruments, a

⁷ A report on the work of the G20 working group is provided in Silva et al. (2020).

⁸ See Clevy, Pedras, and Pérez Ruiz (2021).

common measure of liquidity, is fairly high in Chile but is narrower in Brazil and Mexico. In terms of the legal and institutional framework, investors' views of the effectiveness of security market regulation is good for Brazil and excellent in Chile, but not positive in Argentina.⁹

Some key indicators of the legal and regulatory framework for private bond markets have shown steady progress. Still, there is room for improvement to reach the standard of advanced economies.¹⁰ During the COVID pandemic, for example, the number of bankruptcies and judicial restructurings has been surprisingly low, despite many extra judicial ones. Resolving insolvency is a key aspect for private bond markets, because lack of payment is the main risk of any debt security. Knowledge that insolvencies will be resolved promptly, fairly, and at reasonably low cost reassures investors that even under crisis situations, property rights will be respected.

A Closer Look at Private Sector Bond Markets

The development of domestic bond markets has widened to include more funding for private sector firms, especially in the largest economies. Information from private sources on new bond issues by corporations and financial firms provides a window into developments in this segment of the market.¹¹

In the first decade of this century, bond issues by corporations in domestic markets took off and accounted for a majority of the funds raised (Figure 3.7). This may reflect the evolution of the portfolios of private pension plans, many of which reduced their holdings of government instruments in the 2000s in favor of private bonds.¹² The trend relented in the 2010s as portfolio composition of pension funds stabilized, the conditions in global financial markets became favorable, and bank financing shifted markedly to bond markets, thereby enticing more borrowing from international sources at the expense of domestic markets.¹³ Still, new issues in domestic markets stayed strong and have hovered between \$35 and \$45 billion per year (in 2011 prices) since 2015, including in 2020 and 2021.

Among the six largest Latin American and Caribbean countries, Brazil has displayed steady long-term growth with the largest volume of issuances in

⁹ See BIS (2019).

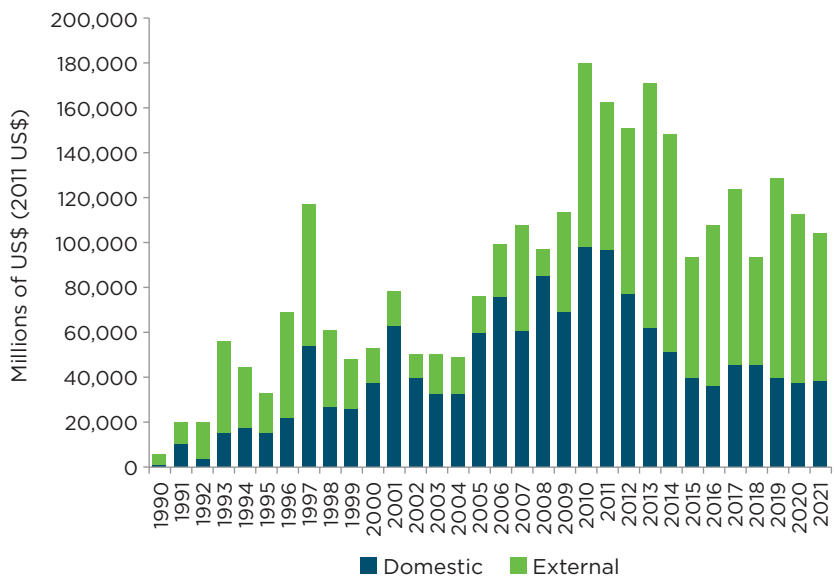
¹⁰ See Powell and Rojas-Suarez (2022).

¹¹ The source of the data is Refinitiv Datastream Bond database. Corporations were classified according to the residence criterion.

¹² See FIAP (2020).

¹³ See Abraham, Cortina, and Schmukler (2020) and Turner (2014).

Figure 3.7 Private Sector Bond Issues in Domestic and Global Markets



Source: Refinitiv Datastream Bond database.

both absolute terms and as a percent of GDP, with Mexico close behind. Chile made the most significant shift towards issuances in the domestic market in the first decade of the 2000s and then to the external market in the 2010s. Argentina, Colombia, and Peru have relatively smaller private bond issuances. A group of 12 other countries trailed the larger economies (Table 3.2).

While the strength of institutions, such as the protection of property rights, are important factors for the development of private bond markets, government and private initiative (and coordination) also play a major role. The case of Brazil's infrastructure debentures is a notable example of proactive government policies to encourage local currency issuance of private bonds for specific purposes. Because infrastructure projects usually generate most of their revenue in local currency, the ability to finance them through local currency instruments is especially desirable (see Box 3.1).

One advantage of domestic bond markets is that issuance size does not have to be as large as in external markets. This is especially helpful to widen access to bond financing for many smaller firms that would not find it economical to issue in external markets. The average issue size by Latin American and Caribbean companies was only about \$50 to \$100 million in the region compared to about \$400 million for international issues (Figure 3.8).

Table 3.2 Private Sector Total Bond Issues in Domestic and Global Markets

A. Total Issue USD Millions 2011														
Year	Argentina		Brazil		Chile		Colombia		Mexico		Peru		Other	
	Domestic	External	Domestic	External	Domestic	External	Domestic	External	Domestic	External	Domestic	External	Domestic	External
90s	1,950	4,855	5,630	8,949	800	2,497	2,130	959	5,757	9,482	568	177	2,232	1,931
00s	2,744	1,316	22,367	6,687	10,843	1,725	3,401	888	14,744	7,381	1,291	662	994	4,036
10s	1,586	2,358	36,102	13,078	1,063	8,686	3,600	4,303	16,497	37,614	774	3,594	258	8,681
2019	565	1,513	27,630	10,973	73	11,243	374	3,998	9,382	51,154	960	2,864	152	9,864
2020	242	218	16,716	25,149	n.a.	11,354	2,740	4,220	16,061	23,793	n.a.	2,607	1,416	8,549
2021	757	2,293	20,086	n.a.	n.a.	n.a.	220	n.a.	16,239	n.a.	n.a.	n.a.	454	13,694
B. Total Issue Over GDP														
Year	Argentina		Brazil		Chile		Colombia		Mexico		Peru		Other	
	Domestic	External	Domestic	External	Domestic	External	Domestic	External	Domestic	External	Domestic	External	Domestic	External
90s	0.6	1.49	0.68	1.08	0.98	3.06	2.01	0.91	1.06	1.74	0.9	0.28	0.95	0.82
00s	0.88	0.42	1.73	0.52	7.56	1.2	1.94	0.51	1.62	0.81	1.26	0.65	0.23	0.95
10s	0.38	0.56	1.89	0.68	0.45	3.7	1.25	1.5	1.48	3.37	0.43	2	0.04	1.38
2019	0.15	0.41	1.7	0.68	0.03	4.46	0.13	1.42	0.84	4.59	0.49	1.47	0.02	1.6
2020	0.07	0.06	1.08	1.63	n.a.	4.42	0.98	1.51	1.43	2.12	n.a.	1.31	0.23	1.39
2021	0.24	0.71	1.41	n.a.	n.a.	n.a.	0.08	n.a.	1.47	n.a.	n.a.	n.a.	0.07	2.23

Source: Refinitiv Datastream Bond database.
Note: The figures by decade correspond to average of total issuance by country over the corresponding years. State-owned are included in the sample. Other includes Bolivia, Bahamas, Belize, Costa Rica, Dominican Republic, Ecuador, Honduras, Panama, Paraguay, Salvador, Uruguay, and Venezuela. n.a. means no data available.

Box 3.1 Infrastructure Bonds: The Case of Brazil

In 2011, the government of Brazil introduced a framework for private companies to issue infrastructure bonds with the objective of promoting the development of long-term private capital markets and strengthening financing for infrastructure projects. The initiative responded to the higher capital costs imposed on bank loans by the Basel III regulations, and the need to curb the dominant position of the Brazilian Development Bank (BNDES) in providing infrastructure financing. The securities' interest and capital gains enjoy income tax exemption conditional on using funds to finance infrastructure expenditures, with a minimum duration at issuance of four years and currency denomination in *reais*. All bonds are traded in local markets under national jurisdiction. The income tax exemption helped build up their popularity among high-income Brazilian savers, although it applies to local investors and non-residents. Financial institutions that invest in these instruments benefit from a reduced tax rate of 15 percent compared to a standard rate of 25 percent. The favorable regime is reflected in the name given to the instruments: *Debêntures Incentivadas* or incentivized bonds, but the benefits are due to expire in 2030.

The first bonds were issued in 2012, and the market took off in 2017. The COVID epidemic slowed activity, however, and in 2020, the volume issued was only 55 percent of the previous year's level. The slowdown seems to have been temporary; in the first half of 2021, issues surpassed those of 2020. In U.S. dollar terms, when calculated using a constant, trade-average based real exchange rate, the value of bonds issued in 2019 reached \$9.5 billion and the overall number of bonds since the program's inception exceeds 400. Bond maturities have gradually increased to an average of just over ten years, and average duration is five to seven years depending on the industry. The amount of infrastructure bonds issued every year rivals BNDES loans in terms of the total financing of infrastructure projects.

Since the start of this market, primary market investors have included individuals (27 percent), mutual funds and other investment funds (20 percent), arranger banks (19 percent), other banks and financial intermediaries (22 percent), corporations (6 percent), and foreign investors (4 percent). Banks find this investment advantageous from the point of view of income tax and capital requirements associated with holding these securities. The limited participation of foreign investors, instead, is surprising considering the relatively high participation of such investors in the domestic Treasury bond market. Two factors appear to be behind this outcome. First, abundant liquidity and relatively lower costs of reaching out to domestic investors render the effort of seeking international funding unattractive to project developers. Second, the tax structure makes the after-tax yield differential of infrastructure bonds more attractive for domestic investors. Treasury bond returns

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are tax-exempt for foreign investors only. Thus, the after-tax yield spread of infrastructure bonds can be three times higher for a domestic investor than for a foreign investor.

Over 80 percent of bonds are rated at issuance by at least one of the three major international rating agencies (Moody's, Standard & Poor's, and Fitch). Of the 363 rated issuances, only nine fell in the speculative grade category on the long-term credit rating scale. This is consistent with the low default rate of these bonds since their inception; there have been only three default events so far. The overall good credit standing of infrastructure bonds owes in part to implicit or explicit guarantees provided by sponsors, collateralization of receivables, and, in a few cases, by multilaterals. The secondary market is active, and infrastructure bonds tend to have a turnover rate somewhat higher than other types of private bonds.

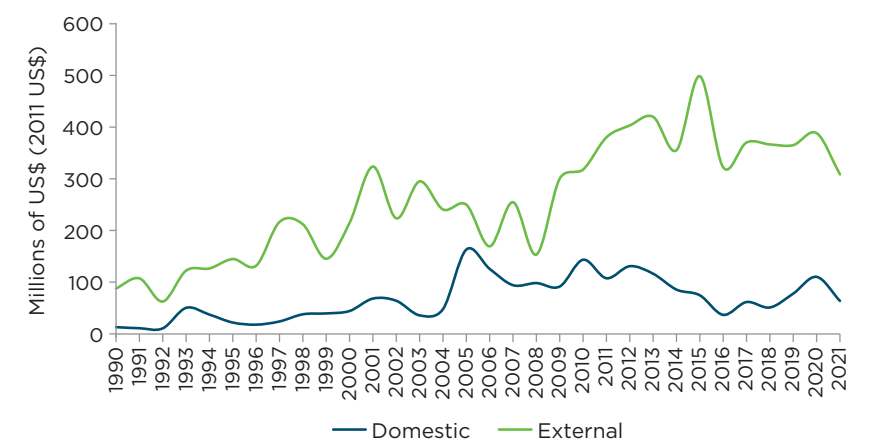
Infrastructure bonds are also used extensively to finance projects in other countries. In fact, about 50 percent of project debt financing in the region is channeled through bonds—a notable shift from the first half of the 2010s when commercial and official loans prevailed. Still, Brazil, Mexico, and Chile account for two-thirds of the bonds issued in the region over the past ten years. None of the other countries, however, have established a regime similar to Brazil's to promote infrastructure bonds. And only Brazil stands out in terms of the prevalence of local currency finance. Colombia is the only other country where infrastructure bonds issued in local currency account for over one-third of issuances, but they are largely restricted to transport projects.

Countries in the region may wish to consider the successful case of Brazil in developing the market for infrastructure bonds denominated in local currency to match the currency of revenues from the projects, especially in sectors such as transportation, water, and telecom. For investors, local currency bonds are also attractive because they embed a lower risk of default.

When firms issue debt, they face tradeoffs in terms of currency composition, indexation, and whether rates are floating or fixed. Issuing debt domestically allows firms to issue smaller amounts in local currency, but at the expense of a term structure that often does not provide liquidity at the long end. Global markets tend to offer better conditions to issuers, as longer-term financing is the norm in advanced markets. Global bonds have had maturities some three years longer on average (Figure 3.9, Panel A). Still, terms vary across countries. In Chile, for example, private bonds issued in the domestic market tend to have significantly longer maturities than in other countries (Figure 3.9, Panel B).

In terms of yields, a declining trend in domestic bonds parallels the sustained reduction of yields in international markets. Figure 3.10 shows

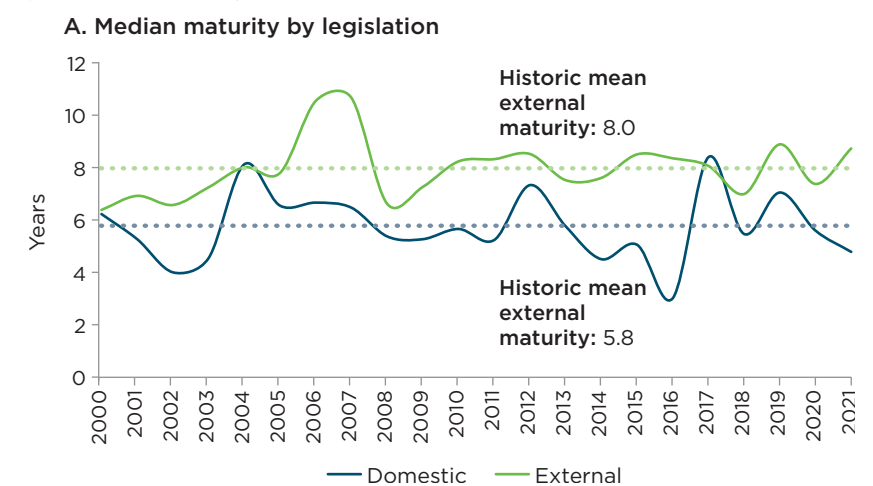
Figure 3.8 Private Sector Median Issue Size in Domestic and Global Markets



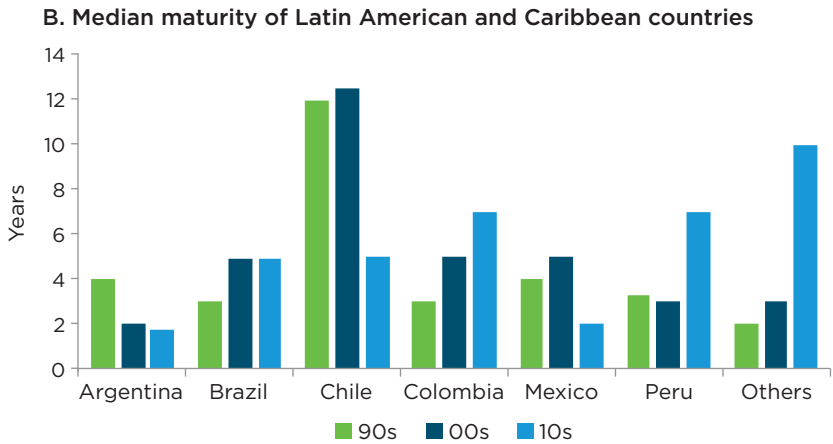
Source: Refinitiv Datastream Bond database.
Note: Simple average of the median issue size for all countries in each year. The countries included are Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Others. Others is a synthetic country group that includes Bolivia, The Bahamas, Belize, Costa Rica, Dominican Republic, Ecuador, Honduras, Panama, Paraguay, Salvador, Uruguay, and Venezuela.

a differential of about 200 to 300 basis points in recent years, which may reasonably approach annual exchange rate depreciation expectations in many countries. Composition affects the results, however, and the yield differential jumps to about 500 basis points in some years.

Figure 3.9 Maturity of Private Sector Bonds

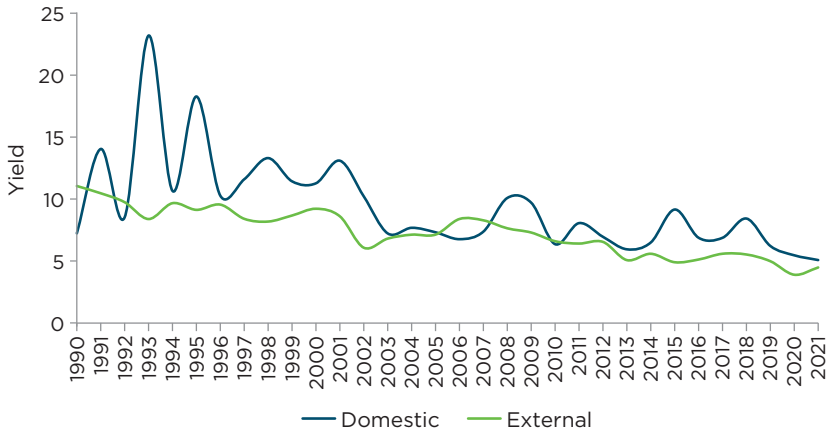


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Figure 3.9 Maturity of Private Sector Bonds *(continued)*

Source: Refinitiv Datastream Bond database.

Note: Simple average of the median issue size for all countries in each year. The countries included are Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Others. Others is a synthetic country group that includes Bolivia, The Bahamas, Belize, Costa Rica, Dominican Republic, Ecuador, Honduras, Panama, Paraguay, Salvador, Uruguay, and Venezuela.

Figure 3.10 Private Sector Median Yield in Domestic and Global Markets

Source: Refinitiv Datastream Bond database.

Note: Simple average of the median yield for all countries in each year. The countries included are Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Others. Others is a synthetic country group that includes Bolivia, The Bahamas, Belize, Costa Rica, Dominican Republic, Ecuador, Honduras, Panama, Paraguay, Salvador, Uruguay, and Venezuela.

Drivers of Domestic Bond Market Development

The diverse degree of bond market development across countries, both globally and within the Latin American and Caribbean region, results from

factors spanning legal frameworks, country characteristics, and policies. An empirical analysis of those determinants, mirroring that of Borensztein, Eichengreen, and Panizza (2006), shows that Latin American and Caribbean countries have achieved high levels of market capitalization after accounting for those factors, some of which are outside their control.

The determinants of domestic bond market development can be grouped in three categories. A first group of variables encompass the scale of economies and financial markets and their degree of development. A second set of variables are indicators of financial market soundness and stability, and the degree of openness of the economy. The third group of variables determines the robustness of the legal and institutional framework. Finally, a set of regional dummies captures local characteristics not reflected in the explanatory variables, and year fixed effects control for global economic developments. Data on bond market capitalization are from the BIS and comprise the 32 countries for which information is available for the period 1990–2020.¹⁴

Taking into account all the variables in the analysis, Latin American and Caribbean private bond markets are deeper than might be expected because the regional dummy variable is positive and significant for private bonds and the overall market (Table 3.3). In the original estimate of 2006, the regional dummy variable was negative and highly significant for Latin America and the Caribbean. On the one hand, the sign change for the regional dummy estimate might be seen as good news. On the other hand, the smaller size of the markets compared to their Asian counterparts suggests there is still room to grow. The variables indicating the scale of the economy are highly significant and explain much of the bond market capitalization. The results show that when per capita GDP reaches about \$70,000, market growth reaches a plateau. Among the financial stability and openness variables, the volatility of the interest rate is significant for all three definitions of the bond market. Capital controls affect the private bond market, but the effect on government bonds is not statistically significant. Controls on inflows reduce the size of the market, probably by discouraging international investment, and controls on outflows increase it, probably by creating a captive demand. Institutional factors also explain a lot. The index of law and order is significant for both the market as a

¹⁴ The group of countries covered in the current BIS data set is somewhat different than the one available in 2006, which may affect the comparison with the estimates in Borensztein, Eichengreen, and Panizza (2006). The most important change is in the group of advanced economies, where data are not available for the United States, United Kingdom, and Germany, among other differences.

Table 3.3 What Drives Bond Market Capitalization?

Group	Variables	Total domestic debt	Government domestic debt	Corporate domestic debt
Economic and financial market size	GDP	16.77***	9.01***	5.42***
	GDP squared	7.31***	4.08***	3.56***
	GDP per capita	16.58***	7.15*	7.83***
	GDP per capita squared	-4.20	-5.01*	-0.10
	Private credit	0.65***	0.14	0.30***
	Private credit squared	-0.00***	-0.00	-0.00**
	Domestic savings	-0.90***	-0.66***	-0.25**
Macroeconomic factors	Exports	-0.06	0.10**	-0.18***
	Capital control inflows	-2.67	4.61	-6.91**
	Capital control outflows	10.87*	-0.18	9.67***
	Average interest rate	-0.49	-0.12	-0.24
	Volatility interest rate	-0.69***	-0.35**	-0.36***
	Spread interest rate	0.92***	0.51**	0.20
	Intermediate exchange rate	2.04	1.02	0.28
	Fixed exchange rate	-2.18	4.04	-4.86**
Institutional factors	Public balance	-0.70***	-0.14	-0.25**
	Law and order	8.50***	1.05	5.15***
	Latitude	-0.01	0.08	-0.07*
	French law	-28.85***	-0.72	-32.60***
	German-Scandinavian law	-2.56	-0.61	-4.81
Regional dummies	Socialist law	-94.05***	-48.60***	-41.43***
	East Asia and Pacific	31.63***	-13.12	33.68***
	Europe and Central Asia	39.30***	-1.88	28.15***
	Latin America	33.76***	-17.23**	40.21***
	Other	17.91	3.26	0.40
Observations		350	350	350
Number of countries		25	25	25
Year FE		YES	YES	YES
Region FE		YES	YES	YES

Note: *** indicates significance at 1% , ** indicates significance at 5%, and * indicates significance at 10%.

whole and the private segment; and an English origin for the legal system helps achieve more developed markets. Overall, these results are similar to those in Borensztein, Eichengreen, and Panizza (2006).

Beyond the empirical findings, some policy initiatives are harder to evaluate directly within the framework of a cross-country regression but

still deserve to be studied in the countries that have implemented them. International coordination of efforts to create and nurture an integrated local currency bond market is perhaps at the top of the list. This could potentially overcome the small scale of individual economies, which is a factor preventing stronger bond market development. Coordinated efforts can also help improve the operational market infrastructure and the legal and regulatory framework faster and more efficiently. Thus, the Asian Bond Markets Initiative deserves close study in the Latin American and Caribbean region (see Box 3.2). The progress achieved by countries

Box 3.2 Multinational Initiatives: Asia and Latin America

The Asian Bond Markets Initiative (ABMI) was launched in 2002 to develop domestic, local currency bond markets as a policy response to the currency and maturity mismatches that were a trigger of the Asian currency crises in the late 1990s. A second objective was to promote the regional integration of bond markets, with the prospects of taking advantage of the large pool of regional savings to finance long-term investment projects. The member countries were the ASEAN+3 group (the Association of Southeast Asian Nations plus China, Japan, and Korea).^a

The initiative was strengthened in 2008 and again in 2012 with a focus on improving bond market infrastructure and regulations in a coordinated manner and providing stronger incentives for both demand and supply of local currency bonds. This included creating a regional credit guarantee facility to boost the credit rating of issuers, especially those in the infrastructure sector. With support from the Asian Development Bank, the group created a website rich in information about Asian bond markets, including a data base, policy research papers, and a technical assistance program for the less developed markets within the group (see ADB, 2017).

Asian domestic bond markets have grown dramatically since the introduction of this initiative. Overall, in Emerging Asia (which the group defines as comprising Indonesia, Korea, Malaysia, the Philippines, Singapore, Thailand and Vietnam), the stock of outstanding domestic-law, local-currency bonds grew by a factor of five to almost \$4.3 trillion. Including China in this group, outstanding local currency bonds reach almost \$20 trillion. Measures of market liquidity—like bid-ask spreads and market turnover ratios—have improved steadily since the start of the initiative.

The Asian Bond Markets Initiative seems to have been less successful in integrating regional bond markets. An investment fund created in 2005 to craft a portfolio of local currency bonds from various countries and make it easily accessible to regional investors did not elicit much enthusiasm from investors.

(continued on next page)

Asian investors may be interested in a wider diversification of their portfolios when reaching for international assets, and may focus predominantly on U.S. and European securities.

In Latin America, some market exchanges and regulators have discussed integrating markets, but no initiative has emerged. The discussions involved mainly the Pacific Alliance countries and Brazil. The effort stalled because neither investors nor borrowers showed much interest. In part, the lack of interest stemmed from “buy and hold” investors who do not see the value of bonds that would be exchange traded and more liquid. Nevertheless, new avenues may be opening to foster integration of bond markets. Some countries, notably Colombia, are sponsoring Exchange Traded Funds (ETFs) of their government bonds. ETFs trade in exchange markets, offer higher liquidity and diversification across maturities, and may attract retail and foreign investors. Government bond ETFs could be subject to the MILA^b regime across the Pacific Alliance countries and traded seamlessly in the four markets. This could be a first step towards integrating domestic bond markets across the whole region.

^a ASEAN is formed by ten Southeast Asian countries: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.

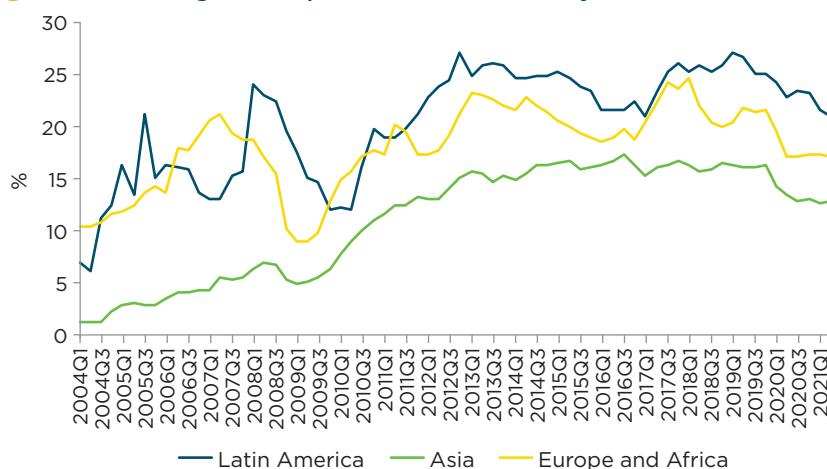
^b MILA is the *Mercado Integrado Latinoamericano*, which comprises the stock markets of Chile, Colombia, Mexico, and Peru.

participating in this initiative is likely to be a reason for the large positive boost provided by the Asian economies dummy in the econometric study. Another policy initiative that deserves study is the approach of offering enticing (but temporary) incentives to start and develop a market and help overcome the coordination and information failures that often prevent a new financial instrument from being adopted. The example of infrastructure bonds in Brazil is a case in point.

Foreign Investors: A Mixed Blessing in Domestic Debt Markets

The paucity of domestic savings means the typical Latin American and Caribbean country has to import capital from the rest of the world to finance fiscal deficits and private investment. However, reliance on foreign capital inflows carries some risks. In particular, economists and policy-makers have zeroed in on the foreign currency denomination of Latin American and Caribbean economies' debts as a factor that increases vulnerability to crises.

Over the past 10 to 15 years, Latin American economies appear to have reduced vulnerabilities as they attracted more international investors to

Figure 3.11 Foreign Participation in Local Currency Bonds

Source: Arslanalp and Tsuda (2014) and updates.

Note: Simple averages.

local currency debt instruments mainly through domestic debt markets. The phenomenon was not exclusive to Latin America and the Caribbean. Holdings of local currency sovereign instruments by international investors rose in three regional groupings from 2004 to 2021 (Figure 3.11).¹⁵

Various factors may have contributed to the upward trend. At a fundamental level, monetary and exchange rate frameworks were strengthened when many countries adopted floating exchange rates and inflation targeting, which reduced inflation rates and vulnerability to exchange rate crises. Low interest rates in advanced economies in the post global financial crisis period widened interest differentials in favor of local currencies. As the domestic bond market grew in size and liquidity, local currency instruments became more enticing and differentiated in the eyes of many global investors. In addition, some countries made concerted efforts to facilitate access to local currency instruments for foreign investors as part of a strategy to de-dollarize their government debts. Uruguay is a case in point (see Box 3.3).

The greater participation of foreign investors via local currency debt instruments reduces the risks stemming from international financial volatility, but it does not eliminate them.¹⁶ For example, with COVID-19,

¹⁵ The upward trend has come down lately as global shocks including the COVID-19 pandemic have induced some home bias in investments; however, foreign participation remains above 2010 levels in all regions.

¹⁶ See Carstens and Shin (2019) on the “original sin redux” effect.

Box 3.3 Uruguay: The Road to De-Dollarizing Government Debt

Reducing dollarization has been a longstanding objective of debt management in Uruguay. Exchange rate depreciations tend to come at times of lower growth, when government tax revenues shrink, exacerbating fiscal and financial pressures. At the time of the 2002 crisis, 96 percent of government debt was denominated in U.S. dollars. Uruguay has reduced dollar debt markedly since that time, and continued de-dollarization would reap further benefits by reducing risks and improving the effectiveness of monetary policy. Assuming no change in total sovereign debt, de-dollarizing requires issuing greater quantities of peso-denominated debt either in local markets or internationally. Considering the case of Uruguay, the jurisdiction of issuance has several important implications for both the government and investors:

- Uruguayan Global Bonds are settled in U.S. dollars, and investors can use an international securities depository (such as Euroclear) for clearing, custody, and settlement purposes. For investors, these are desirable features that lower transaction costs.
- Global bonds require a relatively large minimum size (at least \$500 million), which involves some execution risks for the sovereign. Domestic issues may be considerably smaller but can be offered much more frequently. This helps manage liquidity in the secondary market.
- Global bonds are more likely to be included in indices such as JP Morgan's Government Bond Index-Emerging Markets (GBI-EM), which attracts investment from benchmark investors that target the index return. Domestic bonds may be included in the GBI-EM as well, but the size and liquidity conditions for inclusion in the index may be hard to meet.
- Global bonds are subject to the laws and regulations of the relevant jurisdictions where they are issued, such as New York law, which increases potential litigation costs and uncertainty for the government but may provide the perception of lower risks for investors.

On balance, governments may see advantages to issue under domestic jurisdiction, while for investors the pros and cons would come down to the level of expected returns net of transaction costs including exchange rate spreads and the perception of risks.

An early step in the drive to de-dollarize sovereign debt in Uruguay was the introduction in the international market of debt instruments denominated in Indexed Units (UI), which are linked to the Uruguayan Consumer Price Index. The UI was an appropriate denomination to reduce concerns about a rapid depreciation of the Uruguayan peso at a time when inflation was still high, and the monetary framework was in transition. The first Global Bond denominated in UI

(continued on next page)

had a maturity of 12 years and an interest rate of 5 percent (real). The second Global UI Bond, issued in 2007, had a 30-year maturity. These long maturities contrasted with those prevailing in the domestic market. The domestic market demand is dominated by Pension Funds (AFAPs) and insurance companies that have typically been reluctant to invest in long maturities.

Lower inflation and a stronger monetary framework allowed the government to issue peso-denominated bonds in international markets without indexation in 2017. The peso yield curve in global bonds expanded to ten years. The tenor of domestic peso bonds has tended to be shorter, but the international yield curve connects to the domestic one with little discontinuity.

In 2021, Uruguay continued to expand the range of government bonds denominated in pesos that are placed with foreign investors by offering a domestic law Treasury Note that foreign investors can access through a Credit Linked Note (CLN). In this case, it is a Global Depository Note (GDN, which is the brand name offered by Citibank). Under this structure, the commercial bank purchases the bonds in Uruguay and uses them to back the issue of GDNs to investors. GDNs are settled in U.S. dollars and enjoy clearing, custody, and settlement from international depositories. In other countries, such as Chile and Perú, CLNs or GDNs were the first stage to attract foreign investors until the market structure was adjusted to create a bridge to international depositories.^a The bridge to international depositories, however, may take time because it requires changes to laws and regulations.

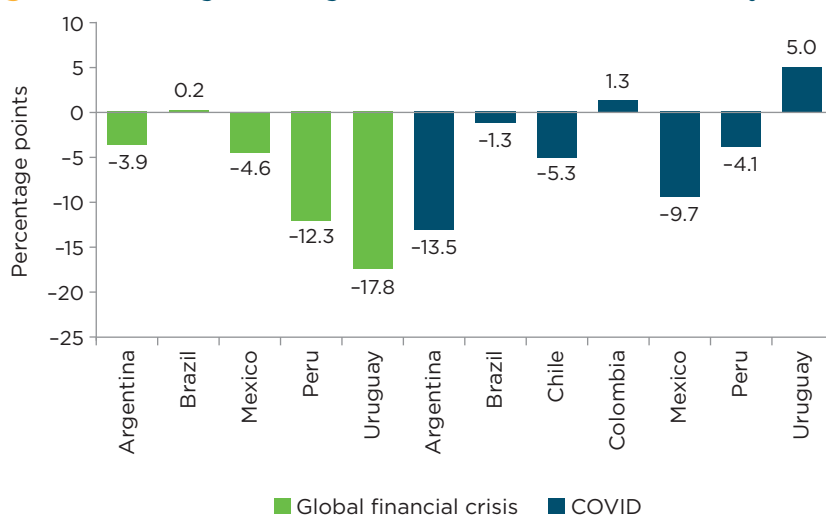
^a See Velandia and Secunho (2020).

international investors retrenched from their positions in local currency emerging bonds globally, which resulted in higher spreads, capital outflows, and depreciation pressure on exchange rates.

In 2018, the BIS surveyed investors about the expected effect of an increase of some 10 percent in the share of holdings by foreign investors in emerging economies. About 80 percent of respondents thought it would lower yields, 84 percent thought it would raise corporate issuance, 65 percent thought it would lengthen maturities for new bonds, and 86 percent thought it would increase market liquidity. However, 52 percent of respondents thought the increase would cause higher volatility, and the same proportion expected greater exchange rate volatility.¹⁷

The data around episodes of global turmoil appear to be consistent with a mixed blessing view of the increased participation of foreign investors in domestic debt markets. Figure 3.12 shows the change in the

¹⁷ See BIS (2019).

Figure 3.12 Change in Foreign Investors' Share of Local Currency Debt

Source: Arslanalp and Tsuda (2014) and updates.

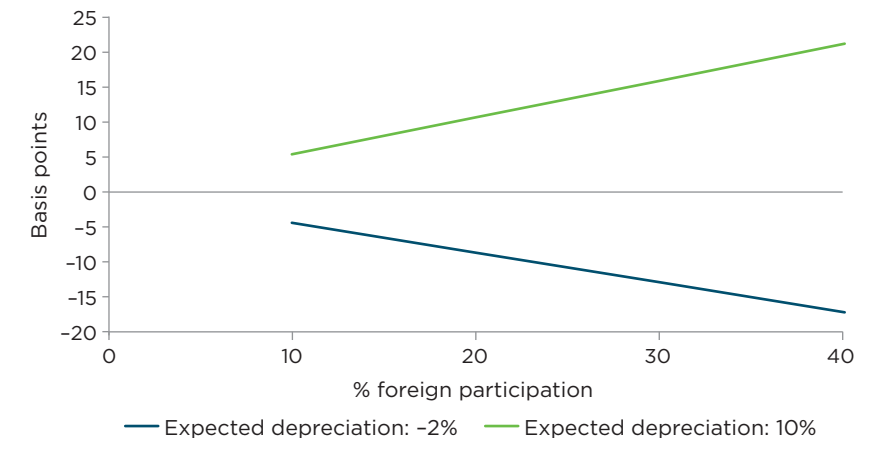
Note: Global financial crisis, 2008Q3–2009Q3; COVID-19, 2019Q2–2021Q4.

share of foreign investors' holdings of local currency sovereign debt from just before episodes of global shock and just after them. The two episodes included in the figure are the global financial crisis (GFC) and the COVID-19 epidemic that hit in early 2020 and was ongoing at the end date of this sample (mid-2021). While the effect is unequal across countries, foreign investors retrenched significantly during both episodes.

The econometric model used to further investigate this effect follows Ho (2019), who examined how foreign investors responding to uncertainty magnify the effect of global shocks on local currency instruments in a sample of East Asian economies. Ho (2019) finds that foreign investors' sensitivity to expectations of depreciation of the local currency has a significant effect. The situation presents a “double-edged sword”: a larger share of foreign holdings lowers interest rates on local currency instruments because it increases demand and liquidity under normal circumstances; but when depreciation expectations are high, the effect is reversed, and a larger share of foreign holdings results in higher local interest rates. As global investors are interested in the return measured in U.S. dollars, a local currency depreciation would affect them especially hard.

The econometric model herein measures the impact of the share of foreign investors' holdings of local currency government debt in seven Latin American countries for which data are available. Through an interaction of

Figure 3.13 Interest Rate Spreads Rise with Expected Currency Depreciation



Source: Baumann Fonay (2022).

the explanatory variables, the specification searches for a “double-edged sword” effect.¹⁸

The results for Latin America are consistent with the results for East Asia. Figure 3.13 shows that when the exchange rate is expected to appreciate, the larger the level of foreign participation in the market, the lower the spread of local currency bonds. Instead, when a depreciation is expected, a higher level of foreign participation results in larger spreads of local currency yields.¹⁹

The Path Forward

Latin American and Caribbean domestic bond markets have come a long way since the 1990s, but substantial challenges remain. While the operational and institutional requirements, as described in the six building blocks of the IMF-WB guidance, are well understood, they are just the components of well-developed markets. Countries have no well-defined, universal blueprint to follow to create and develop bond markets. Market creation, in particular, can arise in different ways. A security can achieve a robust market after decades of extensive government intervention, such

¹⁸ For full details see Baumann Fonay (2022).

¹⁹ The effect is stronger when expected depreciation is among the highest levels recorded in the sample; indeed, Figure 3.13 shows the case in which expected depreciation is at the highest one percentile of the sample distribution of the expected depreciation variable.

as the mortgage-backed securities market in the United States. But major market segments have resulted from the personal vision, and large financial gambles, of individuals as well—to wit the high-yield, or junk, bond market, and even cryptocurrencies.²⁰ The reasons have been studied at a theoretical level as well.²¹ There is an infinite number of possible securities to share risk in different ways, and establishing a market for any of them requires concerted action by many stakeholders and may imply large risks for the first adopters of a new security.

However, useful lessons can be applied when designing a strategy for domestic bond market development. For example, there is broad agreement on the enabling conditions that support healthy bond markets. These include, most importantly, macroeconomic stability, a strong legal system, and sufficient financial liberalization. It has long been understood that a robust macroeconomic policy framework, with low inflation, credible central bank policy, and a stable foreign exchange market, is an essential foundation for financial markets in general. The strength and fairness of the legal system and the degree to which laws are rigorously enforced are needed to reassure investors and firms and encourage them to engage in bond markets. Also, markets need to be sufficiently free from “financial repression” to attract participation and channel financing to the most profitable uses. Examples abound of countries using regulations or “moral suasion” to compel banks and pension funds to hold government debt. While this strategy can help cover the financial needs of the government in a pressing situation, in the long term it may increase the temptation to resort to inflationary finance and harms the chances of developing healthy and reliable bond markets.²² Again, progress has been uneven in the region in these areas.

The empirical analysis suggests that indicators of financial stability, openness of the economy, and the strength of the legal and institutional framework play a large role in explaining the differences in bond market development across countries and over time. But indicators of the scale of the economy and the degree of economic development are equally important in explaining bond market size. The influence of these factors tapers as economies become larger and richer, but it is still powerful for the typical Latin American and Caribbean country. This creates challenges for the smaller markets in the region and the relatively less advanced economies, as these conditions cannot be modified or may only change slowly over time.

²⁰ See Borensztein and Mauro (2004).

²¹ See Allen and Gale (1994).

²² See Panizza and Taddei (2020).

These difficulties suggest that gains from regional cooperation and integration of bond markets could be large. The example of the successful Asian Bond Markets Initiative should be studied carefully, despite the important differences between the two regions. Moreover, international forums such as the G20 express widespread support for this kind of initiative. With a technical assistance component, the benefits of a regional initiative would also reach countries that face larger obstacles and lag in their progress toward developing bond markets. Perhaps smaller steps toward cooperation could pave the way for full-fledged integration later on. The Debt Market Harmonization program in Central America is an example of a promising first step.

Another avenue to boost market development in the lagging economies is to attract greater participation of international investors who have shown increasing appetite for local currency instruments. The strategy followed by Uruguay (detailed in Box 11.3) of moving gradually through different types of instruments and custody and settlement arrangements offers a useful experience. However, increasing the share of local currency debt does not ensure stable holdings by foreign investors, as was illustrated during the COVID crisis, for example. While trying to attract foreign investors to domestic bond markets makes sense, the question of what advisable safeguards should be applied deserves further study and should not be ignored.

While the lessons learned provide guidance for policymakers, countries must still find their own way to make progress. The development of bond markets may require an extra nudge from policymakers—a more proactive policy. The example of infrastructure bonds in Brazil (discussed in Box 3.1) is a case in point. While tax incentives have proven effective in jump-starting the market, a number of difficult decisions remain: when is the right time to phase incentives out? and how should this be done to avoid bringing market dynamism to an end?

Innovations such as the issuance of green, social, and sustainable (GSS) bonds can provide another push to develop domestic bond markets. These securities are certified to comply with environmental and social objectives and are appealing to many investors, including investment funds with explicit GSS objectives. Chile, in particular, has taken advantage of strong international demand for this type of securities in 2019 and 2020, issuing GSS bonds at the level of sovereign debt; Colombia, Mexico, and Peru have also tapped this market (Gautam, Goel, and Natalucci, 2022). While the vast majority of the GSS bond issues to date are denominated in U.S. dollars, the currencies of these instruments have become increasingly diversified. Many bonds issued by the private sector in Brazil with a GSS

label, for example, are denominated in local currency.²³ Whether this will be a passing fad or a successful financial innovation remains to be seen.

Finally, while the resurgence of local currency government debt markets has boosted financial resilience, governments should not assume deep domestic debt markets solve all problems. They must continue to pursue sound monetary and fiscal policies, provide a framework where the various stakeholders will work together to build markets, and take advantage of constructive international cooperation. Then, the benefits of deeper domestic markets can be consolidated and extended across the region.

²³ See Climate Bonds Initiative (2021).

Understanding the Rise in Debt

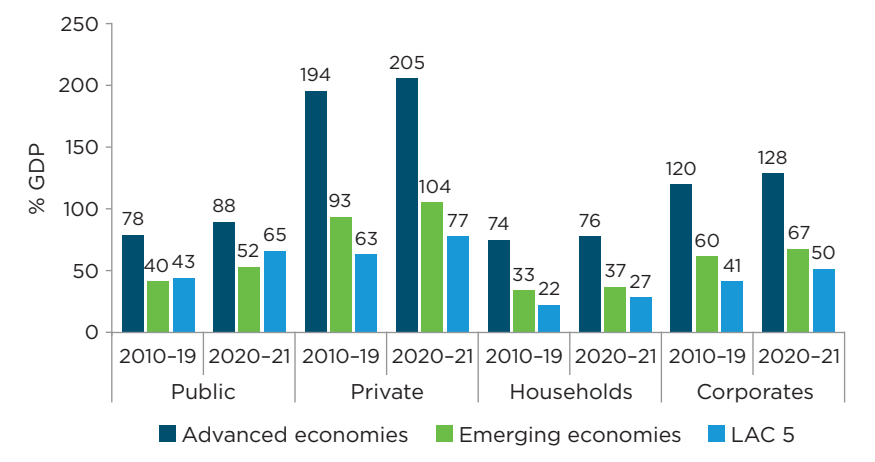
The recent rise in global debt is a serious concern. Global debt increased by 44 percentage points (p.p.) of GDP over the years 2009–2021. Public debt grew by 25 p.p. of GDP while private debt grew by 19 p.p.¹ During the COVID-19 crisis, governments pursued unprecedented expansionary fiscal policy to cushion the economic decline. Now, they face the challenge of gradually withdrawing stimulus and attempting to minimize the impact on growth while facing persistent supply chain disruptions, rising global inflation, tighter financing conditions, and global security concerns.

Debt levels in Latin America and the Caribbean have increased in recent decades. Households, firms, and governments in the region have all taken on more debt. While households borrow to smooth consumption, firms need to finance investment and working capital to support production. Governments borrow to finance investment and pursue countercyclical fiscal policies. Still, a rapid growth in debt levels without a matching increase in the ability to generate current and future revenues can lead to liquidity and solvency problems (see Chapter 5 on public debt sustainability, and Chapters 8 and 11 on public and private debt overhang issues). High indebtedness also exposes economic agents to risks associated with asset price volatility, resulting in macroeconomic instability.

Figure 4.1 illustrates the increase in household, corporate, and general government debt across the world. Sovereign and private debt levels tend to be higher in advanced economies, a pattern reinforced during the pandemic. In comparative terms, countries in Latin America and the Caribbean had slightly lower debt levels, which then rose at a slower pace than in other emerging economies. In relative terms, the region has higher public debt when compared with other emerging economies.

¹ IDB staff calculations using the Bank for International Settlements' (BIS) database on credit to the nonfinancial sector, <https://www.bis.org/statistics/totcredit.htm>.

Figure 4.1 The Rise in Public and Private Debt Across Countries



Source: IDB staff calculations based on BIS data.
Note: Averages were calculated for the second quarter of the respective year. There are 27 advanced economies, 11 emerging economies (which exclude Latin America and the Caribbean), and LAC 5 consists of Argentina, Brazil, Chile, Colombia, and Mexico.

Understanding the source of the rise in debt is important to devise a strategy to manage debt levels; knowing whether debt levels depress investment and growth (a debt overhang) and whether current debt levels are sustainable, are critical to determine the urgency of debt reduction.

A Portrait of Debt in Latin America and the Caribbean

Public, private, and household debt each have different dynamics. Public debt (also called sovereign debt) has grown in waves, with spikes in each wave. Decomposing these spikes reveals the main drivers of the rise in debt. For instance, the COVID-19 pandemic caused a significant spike to support exceptional fiscal packages to provide household transfers, liquidity to firms, and tax breaks. Corporate debt had risen before the pandemic, but COVID sparked another sharp increase to boost liquidity at a time of low interest rates. Household debt also rose during the pandemic but remains relatively low in the region compared to other middle- and high-income countries.

Sovereign Debt Waves in Latin America and the Caribbean

Debt has risen in three distinct waves since 1980 in the region.² The first wave runs from 1980 to 1995, including the lost decade of the 1980s and the 1994–1995 Tequila crisis. The second wave started in late 1996 and encompassed

² See Kose et al. (2021) for a more general analysis of debt waves.

the economic crises of the late 1990s and early 2000s. Finally, the third wave began with the 2007–2008 global financial crisis, including the commodity price crash in 2014 and the health and economic crisis triggered by the COVID-19 pandemic in 2020.

Debt Wave Number One: The Lost Decade, with a Shot of Tequila

After a decade of sustained growth, abundant liquidity, and low interest rates, the rise in oil prices in 1973 and 1979 led to higher inflation in oil-importing economies. In response, the U.S. Federal Reserve raised the federal funds rate, leading to a stronger dollar, higher global interest rates, and higher borrowing costs for emerging economies. In addition, commodity prices plummeted in the early 1980s, weakening export demand and provoking a sharp deterioration of the terms of trade (Powell, 1989; Kose et al., 2021).

Countries in the region, especially those running high fiscal deficits when international markets were awash in liquidity, began to face debt sustainability problems (IDB, 2007). The spark for the crisis came in August 1982, when Mexico stopped servicing its debt. The crisis quickly spread to other countries and prompted significant exchange rate depreciation; as most debts were denominated in U.S. dollars, real depreciation pushed up debt ratios by over 20 percentage points of GDP.³ At the same time, fiscal deficits rose to an average 2.5 percent of GDP between 1987 and 1989. Overall fiscal deficits pushed up debt-to-GDP ratios by 3 percentage points of GDP, while growth—small but still positive—reduced the ratio by 7 percentage points (see Valencia et al., forthcoming a). Under these circumstances, many countries struggled with fiscal and external account adjustments, and inflation rose—to hyperinflation levels in some cases. Debt ratios rose from an average of 57 percent of GDP in 1980 to a peak of 110 percent in 1989 (Figure 4.2).⁴ Over the course of the 1980s, some 56 countries defaulted, 21 of which were in the Latin American and Caribbean region (Caselli et al., 2021).

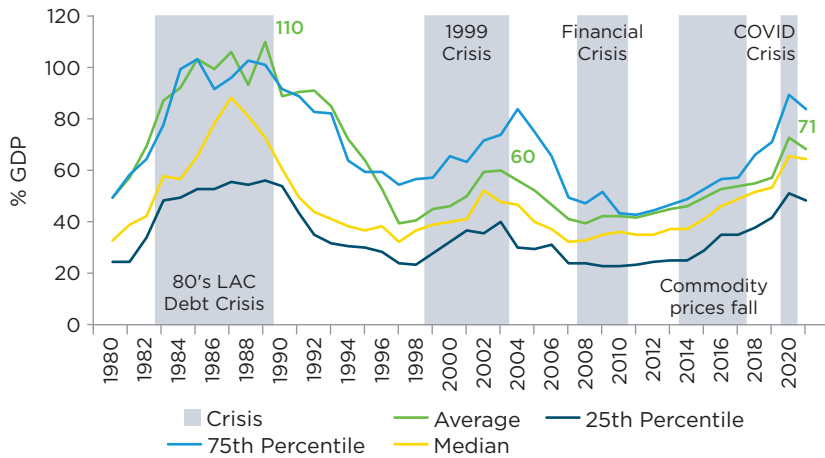
The Brady Plan was launched in 1989 to tackle the debt crisis. It involved offering bonds to replace bank loans (see Chapter 10 for more on debt restructuring). Mexico was the first country to implement the plan in 1989.⁵

³ Bank loans in the 1970s tended to be short- or medium-term, at variable interest rates, and denominated in U.S. dollars so borrowing countries assumed both currency and interest rate risks (see Chapter 10 and IDB [2007] for further discussion).

⁴ For the definition of debt employed in this analysis, please see Valencia et al. (forthcoming a) and the discussion on the debt perimeter in Chapter 5.

⁵ Existing loans could be swapped for any of three options: “debt reduction bonds,” 30-year bonds at full value with a substantially below-market interest rate, or new loans equal to 25 percent of their existing exposure over three years (Cline, 1995).

Figure 4.2 General Government Gross Debt in Latin America and the Caribbean



Source: IDB staff calculations based on IMF (2022).
 Note: Latin America and the Caribbean includes all IDB borrowing countries except Venezuela.

The program boosted the confidence of international creditors and contributed to the growth of international capital markets (Cline, 1995; Dooley, Fernández-Arias, and Kletzer, 1996) and a return to bond financing for Latin American countries (IDB, 2007). As part of a comprehensive package of reforms known as the Washington Consensus (Williamson, 2005), many countries liberalized current and capital accounts at this time (Catão, and Sutton 2002), and the lower fiscal burden allowed for a shift toward greater central bank independence (Kose et al., 2021).

Financial market liberalization and the opening of capital accounts in several advanced economies in the 1980s and 1990s also allowed more capital to flow to emerging economies.⁶ Building on the market kick-started by the Brady Plan, the 1990s also brought greater use of sovereign bonds for general budget financing purposes. Slowing growth and falling interest rates in the United States encouraged investors to seek higher yields, thereby increasing demand for emerging country bonds from U.S. investors. Some countries issued larger amounts of short maturity dollar debt, including in their jurisdictions, believing roll-over risks to be contained. Mexico suffered a speculative attack on the so-called *tesobonos* and on the peso that eventually escalated into a full-fledged currency

⁶ Advanced economies started to liberalize capital markets in the 1980s and continued in the 1990s. Emerging economies mainly liberalized in the 1990s, but not to the same extent as advanced economies (Prasad et al., 2003).

crisis in 1994⁷ and required assistance from the United States and the IMF (Laeven and Valencia, 2018).⁸

Argentina was the other country most affected by the crisis in Mexico. The sudden stop in capital flows, compounded by weaknesses in the domestic financial system, sparked a run on bank deposits.⁹ The currency board arrangement ensured backing of the monetary base with reserves, but those reserves plus banks' liquidity held elsewhere were considerably less than total deposits.¹⁰ Reserve requirements were high on sight deposits, but most of the run came from large-value time deposits. The bank runs ended with a reduction in political uncertainty after the presidential election of March 1995 and an IMF agreement that provided confidence and additional liquidity. Over the subsequent months, more than 70 financial entities were closed or resolved in some fashion. Argentina's GDP fell steeply—2.8 percent in 1995—but recovered relatively quickly, expanding 5.5 percent in 1996.

Brazil, in the middle of a Brady Plan debt restructuring, was also negatively impacted by the Tequila crisis. In February 1994, the government announced the Plan Real stabilization program to control spiraling inflation. In June, inflation fell from 50 percent monthly in June to less than 2 percent in the fourth quarter, and private capital began to flow back (Boughton, 2012). Brazil showed growth rates above 3 percent for the rest of the decade.

Other countries in the region continued to record primary surpluses near 2 percent, declining inflation rates, and GDP growth rates of 4 percent per year on average. These factors reduced debt from 85 percent in 1990 to 42 percent of GDP on average in 1997 (see Valencia et al., forthcoming a).¹¹

⁷ At the beginning of 1994, as the government sought to defend the peso, reserves dropped rapidly. In December, the central bank announced a devaluation of the peso of 15 percent, which resulted in further capital flight. Mexico abandoned its peg in late December 1994, allowing the currency to float, which was followed by a further 15 percent depreciation. GDP in Mexico fell 6.2 percent in 1995, while inflation rose to 35 percent.

⁸ Of the US\$50 billion bailout package, US\$20 billion were from the United States, which made a \$500 million profit on the deal (Greenspan, 2007).

⁹ See D'Amato, Grubisic, and Powell (1997) and Powell (2021) for comment.

¹⁰ The *Ley de Convertibilidad del Austral*, or "convertibility law," pegged the Argentine austral to the U.S. dollar (initially at 10,000 to 1 and then 1 new peso to US\$1 between 1991 and 2002). The law also required backing the monetary base with international reserves, which in practice increased over time and eventually exceeded 100 percent. The Tequila crisis provoked the adoption of a "systemic liquidity policy," and the additional liquidity built under that program helped Argentina survive a series of bank runs before eventually abandoning the currency board in late 2001 (see Powell, 2021).

¹¹ The factors associated with sovereign debt reductions are analyzed in Chapter 8.

The Second Wave: Contagion and Commodities

By 1997, several Asian countries had excessive short-term external borrowing and sizeable current account deficits. As a result, in July 1997, Thailand's government could no longer prop up its currency and abandoned the peg, setting off the Asian financial crisis that quickly spread to Indonesia, Korea, Malaysia, and the Philippines.¹² The Asian financial crisis was followed by Russia's default in 1998 and a crisis in Turkey in 2001. The fallout, particularly from the Russian default, took its toll on capital flows and commodity prices, impacting many countries in Latin America and the Caribbean. Domestic weakness in Brazil in 1998, Colombia in 1999, and Ecuador in 2000, exacerbated the situation.¹³ Argentina fell into a major crisis in the final months of 2001 and 2002, which brought the end of the currency board, a maxi-devaluation, and a default on its sovereign debt. That then impacted Uruguay, which restructured its public debt and adopted an IMF program; Brazil also fell into a crisis alleviated by a large IMF rescue package. At the height of these crises, average economic growth in the region was below 2 percent in 2001 and 2002. Between 1997 and 2003, real depreciation in the region affected the valuation of foreign currency debt and interest payments, and by 2003 debt had risen to 60 percent.¹⁴

The commodity boom from 2000 to 2014, spurred by exceptional growth in China, led to higher economic growth and fiscal surpluses.¹⁵ Between 2004 and 2008, the region achieved primary surpluses of around 2 percent of GDP. Debt fell from 60 percent of GDP in 2003 to 40 percent in 2008. Relatively high growth rates (4.7 percent on average for the region) and inflation rates (close to 7.5 percent per year) contributed to reducing the debt-to-GDP ratio.

¹² Despite substantial intervention by monetary authorities, these countries all experienced sharp currency depreciations (Kawai, Newfarmer, and Schmukler, 2005). Corporates were unable to finance their foreign currency debt payments, resulting in large loan losses for banks and triggering banking crises.

¹³ Before their respective crises, Brazil was suffering a banking crisis (Ayres et al., 2019); Colombia had a mortgage credit market with loans indexed to the nominal interest rate that soared when the Central Bank increased them after the sudden stop caused by the Southeast Asian and Russian crises (Perez-Reyna and Osorio, 2018); and, Ecuador, suffering from the El Niño phenomenon that affected agriculture, and low oil prices—the country's main export, experienced a banking crisis, recession, fiscal deficit, and high inflation in 1999 (Cueva and Díaz, 2018).

¹⁴ Another key factor in this increase in debt was the banking system bailouts in the crisis episodes of Argentina, Ecuador, Colombia, Mexico, and Paraguay.

¹⁵ See Powell (2015) on the long run behavior of commodity prices.

From 1999 to 2008, several countries advanced their policy frameworks, adopting inflation targeting regimes and gaining more exchange rate flexibility. Colombia, Guatemala, Mexico, Peru, and Uruguay joined Chile and Brazil as inflation targeters over this period (Jahan, 2012), and several countries adopted fiscal rules (e.g., Brazil, Chile, Peru, and Uruguay) (Davoodi et al., 2022). Many countries also improved financial regulatory frameworks, adopting enhanced Basel rules for bank capital. Three countries restructured their debts (Argentina, Ecuador, and Uruguay), and debt relief was extended to Bolivia (see Chapter 10 for lessons from debt reduction episodes).

The Third Wave: The Global Financial Crisis and COVID

The 2007–2008 global financial crisis provoked a recession in most countries in the region. Thankfully, the downturn was short-lived, and none of the larger economies in the region suffered a financial crisis. Many countries followed expansionary fiscal policies to react to the global events and the local drop in growth. Central banks in the United States, the United Kingdom, and the Eurozone adopted policies known as quantitative easing that significantly boosted capital flows to emerging economies (Fofack, Aker, and Rjoub, 2020).¹⁶ High growth resumed as the crisis faded, China continued to grow strongly, and commodity prices rebounded. But most countries in the region did not reverse their expansionary fiscal policies and, thus, did not run significant surpluses. Since a truly countercyclical fiscal policy implies an expansionary policy in response to a downturn and reciprocal savings when growth is relatively high, claims that emerging economies had escaped procyclicality and adopted countercyclical fiscal policies seemed premature. As a result, average debt levels rose to 46 percent of GDP by 2014.¹⁷

By this time, China had begun to slow down. The country grew at an average 10 percent per year between 2002 and 2012 to become the world's second largest economy.¹⁸ Such exceptionally high growth rates could not be sustained. At the same time, commodity production had steadily risen on the

¹⁶ Quantitative easing is a direct policy, including the purchasing of sovereign and corporate bonds or other assets, as opposed to an indirect instrument of monetary policy such as manipulation of a policy interest rate (see Ricketts, 2011).

¹⁷ See Powell (2016) for analysis and discussion of procyclicality.

¹⁸ The Chinese economy became the second largest in the world at market exchange rates, measured using purchasing power parity exchange rates, surpassing the United States as the largest economy.

back of investment spurred by high prices. Most major commodities were at record global production levels. The oil market also received some positive supply-specific shocks, including the return of Libya and Iraq and the benefits of new extraction techniques such as shale and horizontal drilling. Consequently, commodity prices fell sharply, led by the collapse in oil prices. Governments in the region continued with their expansionary fiscal policies, even though the structural changes in China and the world economy suggested the decline in prices would likely persist (Powell, 2015). Fiscal deficits averaged around 3.5 percent of GDP and, coupled with slow growth and depreciating exchange rates, pushed debt-to-GDP ratios to 58 percent by 2019.

In 2020, the COVID-19 crisis pushed up sovereign debt levels significantly to 73 percent of GDP. To mitigate the adverse effects of the lockdowns and health crises, governments substantially increased spending on health systems and income support measures to households. The average fiscal package across countries in the region was 8.5 percent of GDP, although magnitudes varied across countries (Cavallo and Powell, 2021). In addition, lower fiscal revenues led to deficits that averaged 7.6 percent of GDP. The fall in economic activity and currency depreciation further contributed to the sharp rise in debt.

Much like sovereign debt, private debt also increased during the pandemic and now represents a larger share of GDP in Latin American and Caribbean countries than during the pre-pandemic period (Figure 4.1). Private debt as a share of GDP rose from 63 percent in the 2010–2019 period to 77 percent in 2020–2021, and was more than 10 percentage points higher than public debt as a share of GDP. Recent evidence points to a close link between sovereign and corporate debt. Gómez-González, Valencia, and Uribe (2022), for example, find that Latin American indices of spreads for the two markets are closely linked; the series are practically indistinguishable, and they peak around the same events—the global financial crisis, the European crisis, and COVID-19—albeit reaching different heights.

More broadly, historical evidence suggests three mechanisms through which sovereign debt and corporate balance sheet performance are interlinked. First, when private sector balance sheets are resilient, they can become an additional source of revenue for the sovereign so that countries with higher net private wealth can sustain higher levels of public debt. Second, sovereign debt crises may be triggered by distressed banking sectors, which in turn may be prompted by a crisis in the corporate sector. Third, a sovereign debt crisis may provoke distress and defaults in the private sector, partly since when sovereign defaults occur, the government temporarily loses the ability to issue bailouts, and as banks' credit to the private sector

declines, eventually output and consumption follow suit. Finally, measures to support the private sector may boost fiscal deficits and push debt to risky levels; in other words, private debt might translate into public debt (Mbaye, Moreno, Badia and Chae, 2018). Private and public debt also tend to be countercyclical, that is, they tend to increase during recessions (Bernardini and Forni, 2020).

What effect does a more conservative fiscal policy have on corporate sheet soundness and performance? Recent studies posit that a more conservative fiscal policy does, in fact, impact private sector investment, and that these effects vary in the short versus the long run. Corporate investment tends to decline immediately in the wake of unexpected reductions in public spending; however, this effect is short-lived and is worse for smaller and highly indebted firms since it is driven by changes in public consumption rather than cuts in public investment. In the medium term, on the other hand, greater fiscal space at the country level, expanded exchange rate flexibility, and fiscal predictability are important drivers of corporate investment in the aftermath of fiscal shocks (Magud and Pienkagura, 2022). Economic activity suggests that the long-term benefits of contractionary fiscal adjustments outweigh their short-term cost.

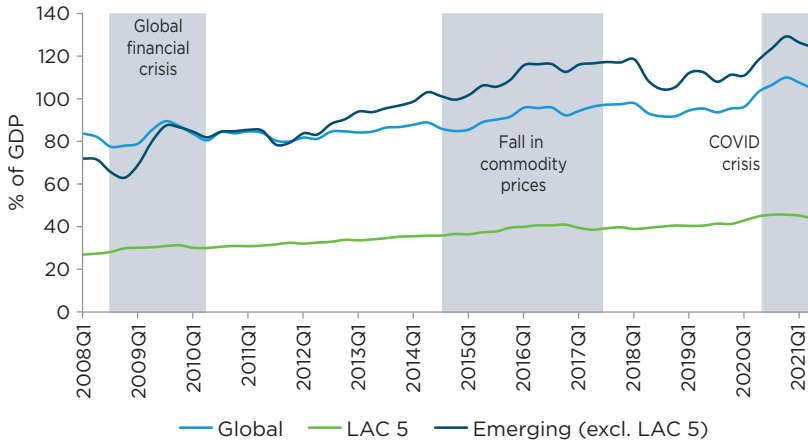
The Steady Climb of Corporate Debt

Corporate debt in Latin America and the Caribbean has been increasing steadily since the end of the global financial crisis of 2008–2009, peaking during the COVID-19 crisis, and then returning to pre-pandemic levels.^{19,20} These trends are similar to those in other emerging economies and across the world. The ratio of corporate debt to GDP was 20 percentage points larger at the beginning of 2020 than it was at the outset of the global financial crisis (Figure 4.3).²¹

¹⁹ The methodology to analyze debt spikes, applied to sovereign debt, is not followed in this section as the corporate debt series follows a functional form closer to a monotonic increase, rather than one explained by waves. Even though the financial sector debt constitutes a large share of private sector debt (BIS, 2022), this chapter focuses on the nonfinancial component of private sector debt—borrowing by households and nonfinancial corporates—mainly because the COVID crisis, unlike previous ones, did not originate in the financial sector; the banking sector helped meet liquidity needs and absorb rather than amplify the initial impact of the pandemic on the real economy, thanks in part to policy support across the region (see, for example, Bolzico and Prats Cabrera, 2022).

²⁰ Credit here is the sum of loans and debt securities on the balance sheet of nonfinancial firms. Trade credit (and other accounts payable and receivable) is excluded from this analysis given the questionable quality of the data.

²¹ These data come from the Bank for International Settlements, see Dembiermont, Drehmann, and Muksakunratana (2013) for more details.

Figure 4.3 Credit to Nonfinancial Corporations across the World

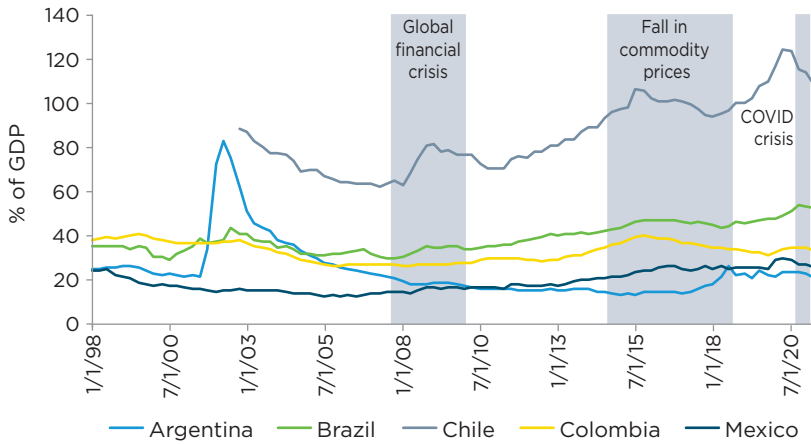
Source: BIS and WEO.

Note: Weighted by nominal GDP of current year; for 2021, weights of year 2020 or latest. LAC 5 includes Argentina, Brazil, Chile, Colombia, and Mexico. Gray bars indicate the global financial crisis, the collapse in commodity prices, and the COVID-19 period (2020Q2 and 2020Q3). Emerging economies excluding LAC 5 are China, Hong Kong, Hungary, India, Indonesia, Malaysia, Russia, Saudi Arabia, Thailand, Turkey, and South Africa.

Several factors contributed to the boom in lending in the pre-COVID period, including i) an extended period of low global interest rates, ii) the availability of alternative private capital sources (pension and sovereign wealth funds), and iii) the overall increased risk appetite for emerging-market investments.²² Still, the experience varies across countries, and higher sovereign ratings appear to be associated with more borrowing, suggesting the terms of access were an important driver (Figure 4.4).

Both debt as a percentage of GDP and leverage (debt divided by firms' assets) have increased. Debt has increased for every dollar of corporate assets since the early 2000s, followed by a further increase as firms sought liquidity in the pandemic. Debt has since dropped back to near pre-pandemic levels. When looking at data from publicly listed firms, corporate leverage grew significantly more in Latin American and Caribbean countries than in the rest of the world that year (Cavallo and Powell, 2021). The average debt-to-asset ratio increased from 0.35 to 0.40 in just two quarters (from fourth quarter 2019 to second quarter 2020) while in the United States it peaked at just 0.32. This contrasts with other regions, where firms and households entered the COVID-19 crisis on a stronger footing after a

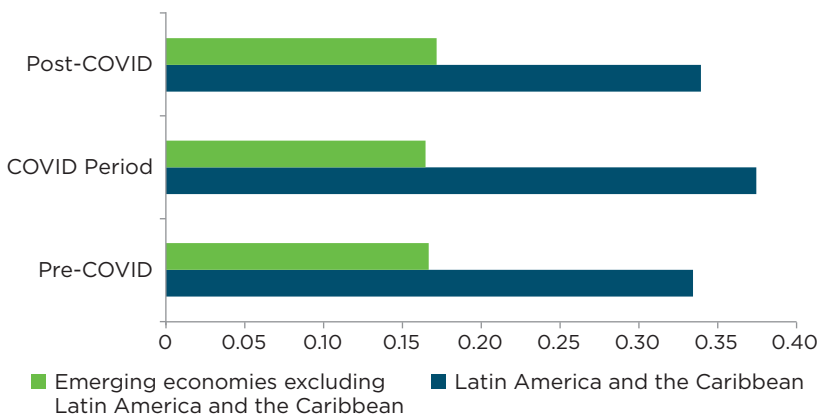
²² See World Bank (2022) for discussion.

Figure 4.4 Credit to Nonfinancial Corporations

Source: BIS and WEO.

Note: Weighted by nominal GDP of current year; for 2021, weights of year 2020 or latest.

deleveraging process following the global financial crisis. Figure 4.5 compares the median level of corporate leverage in the region's listed firms to those in other emerging economies before and during the COVID period and the most recent data point available (second quarter 2021). Although corporate leverage has mainly declined to pre-pandemic levels in the region, it remains above the level of other emerging economies.

Figure 4.5 Evolution of Corporate Leverage during COVID

Source: IDB staff estimates based on data from Refinitiv.

Note: The figure illustrates median corporate leverage, defined as debt over assets, during the pre-COVID period (first quarter of 2018 to the first quarter of 2020), the COVID period (second and third quarters of 2020), and the most recent data point (third quarter 2021). Figure includes data from Brazil, Chile, Colombia, Mexico, and Peru for listed firms only.

Increased leverage implies greater vulnerability to financial stress. High leverage can deprive firms of access to liquidity when faced with adverse shocks. In addition, debt covenants could accelerate debt such that more and more matures under stress. Mitigating factors in the COVID-19 context were lower global interest rates than in previous crises, compressed spreads in the credit market, as well as numerous interventions by governments in the region (Powell and Rojas-Suarez, 2022). Those factors have now largely disappeared.

Household Debt: A Distant Third

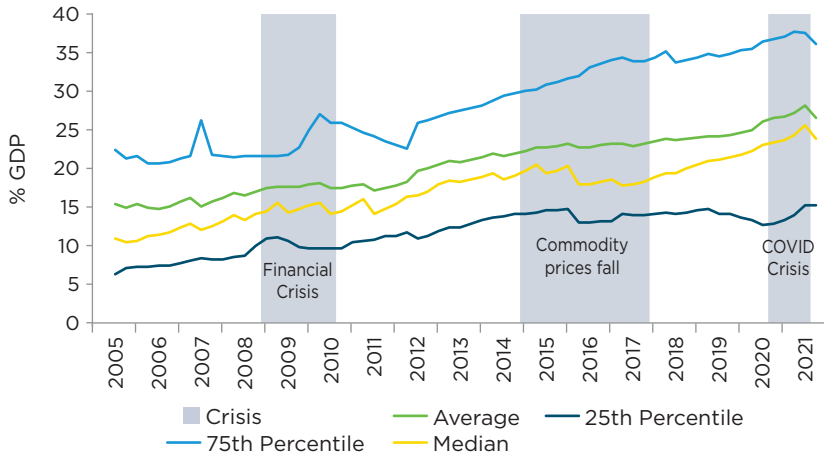
Households borrow to buy durable goods (e.g., an appliance, a car, or a house), to finance health or other exceptional expenditures, or to smooth consumption. Household borrowing is around 77 percent of GDP in advanced economies compared to just 35 percent in emerging economies.²³ Since financial markets tend to be less developed in poorer economies and firms and households borrow less from formal sources, lower financial inclusion is not surprising. Additionally, in emerging economies, households and firms face more restrictions to take out a loan, interest rates are higher, and household income is more uncertain. Promoting higher borrowing should go hand in hand with policies that better protect borrowers and lenders.

Household debt in the region is 22 percent of GDP on average—even lower than in other emerging economies.²⁴ Households in the median country (Colombia or Ecuador) borrow on average just 15 percent of GDP (see Figure 4.6). On the other hand, households in Barbados and Panama borrow between 40 and 60 percent of GDP, while in Argentina and Paraguay that figure drops to between 4 and 5 percent of GDP.²⁵ Almost every country in the region has seen the household debt-to-GDP ratio increase over time. Household borrowing increased most significantly in Chile—from 27 percent in 2005 to 50 percent in 2021. In Ecuador, household debt also rose rapidly from 11 percent to 29 percent in the same period. The variation across countries

²³ The advanced economies and emerging market data correspond to the “Total credit to households (core debt) as a percentage of GDP” from 2005 until the latest data available at the Bank for International Settlements.

²⁴ The data used in this section come from a special survey completed by central banks in the region (see Valencia [forthcoming a] for more details).

²⁵ Again, note that the survey focuses on formal borrowing; thus, borrowing from family members or informal savings schemes may not be captured by this data.

Figure 4.6 Household Debt in Latin America and the Caribbean

Source: IDB staff calculations based on IDB data and a recent survey completed by Central Banks in the region.

Note: The data correspond to Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, and Uruguay.

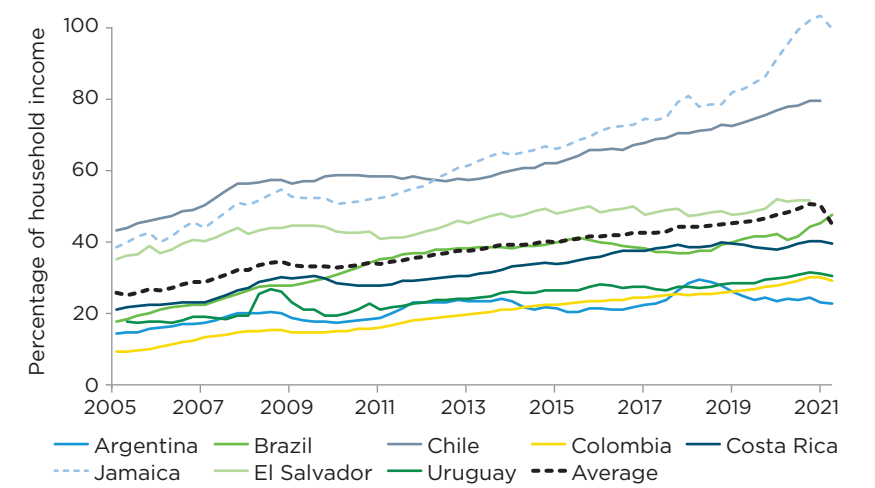
reflects different degrees of development of financial markets, as well as different policies for promoting borrowing and protecting lenders and borrowers.

The COVID-19 pandemic led to greater household borrowing, but by the end of 2020, borrowing had begun to fall. Extensive government subsidies during this period also likely allowed households to avoid borrowing to compensate for income losses. Still, the speed at which the household debt-to-GDP ratio increased in the entire 2005–2021 period is slower than in other emerging economies, posing a challenge to financial inclusion in Latin America and the Caribbean.

Household debt to income (as well as debt to GDP) has also risen in recent years in most countries (see Figure 4.7). In some countries including Jamaica, by 2021, this ratio had risen to 100 percent. The household debt-to-income ratio was below 80 percent for other countries in the region by the end of 2021. The increasing trend, rather than waves, contrasts sharply with the behavior of public debt.

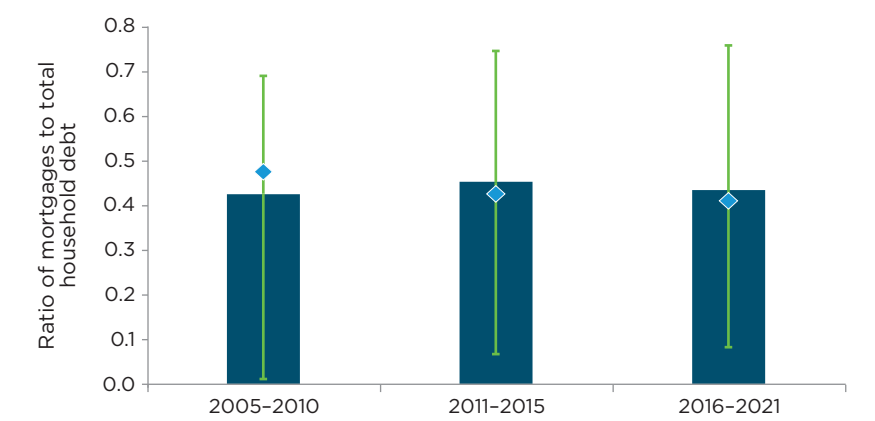
The share of mortgages in household debt in the region has risen to close to the level of the United States (Figure 4.8). For a family, a mortgage is usually its largest loan, and a home purchase is normally its largest outlay. In the United States, mortgages represent around 70 percent of total household debt, while the household debt-to-GDP ratio is around

Figure 4.7 Household Total Debt-to-Income Ratio



Source: IDB staff calculations based on data from a recent survey completed by central banks in the region.

Figure 4.8 Household Mortgage Debt as a Ratio of Total Debt

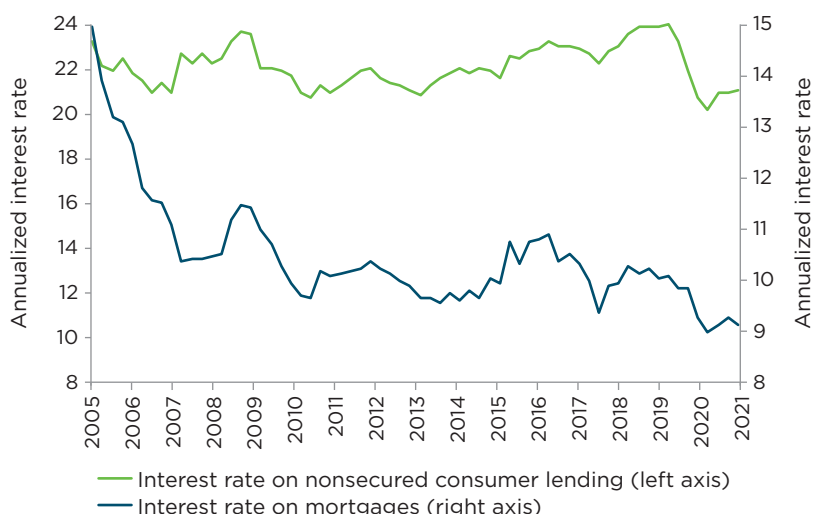


Source: IDB staff calculations based on data from a recent survey conducted by central banks in the region.
Note: The figure includes data from Argentina, The Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Suriname, Trinidad and Tobago, and Uruguay. The bars correspond to the average for the period, the vertical lines include the maximum and minimum average of each country by period, and the diamond shows the median value.

80 percent.²⁶ Bolivia, Guyana, and Mexico have the highest percentage of mortgages to household debt—on average 74 percent, 73 percent, and 68 percent, respectively—reflecting government programs to subsidize

²⁶ See <https://www.newyorkfed.org/microeconomics/hhdc.html>.

Figure 4.9 Average Interest Rates on Mortgages and Nonsecured Consumer Lending



Source: IDB staff calculations based on data from a recent survey conducted by central banks in the region.

Note: The interest rate on nonsecured consumer lending corresponds to the average of data from Argentina, The Bahamas, Belize, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Jamaica, Panama, Paraguay, Peru, and Uruguay. The interest rate on mortgages corresponds to the average of data from Argentina, The Bahamas, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, and Uruguay.

mortgage lending. However, many other countries have little housing debt: Paraguay (5 percent) and Argentina (11 percent).

Interest rates on mortgages and consumer loans followed global trends, falling markedly up to and through the COVID-19 pandemic (Figure 4.9).

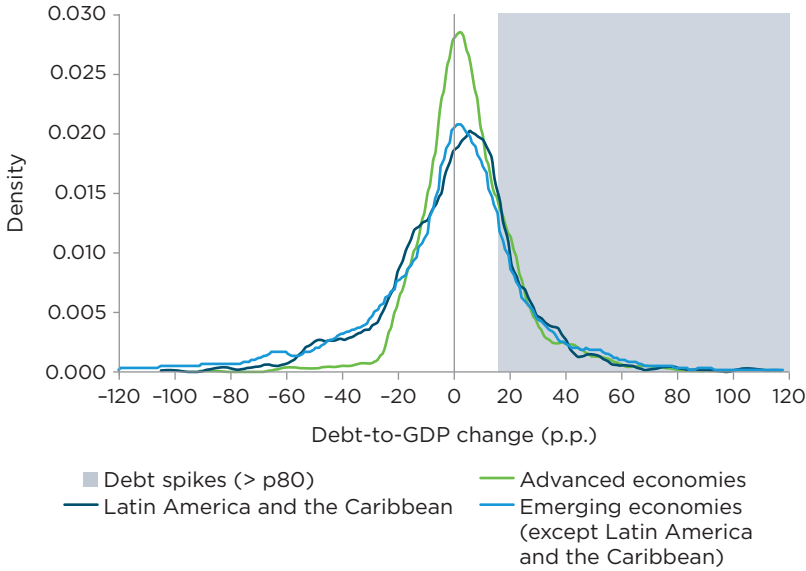
Inside the Waves of Public Debt

Since debt spikes account for most of the increases in public debt, a more granular analysis of them sheds light on why debt rises and what are the contributing factors. A debt spike episode i) begins with an increase in debt in five years above the 80th percentile (equivalent to changes greater than 17 p.p.)²⁷ and ii) ends with a decrease in debt in the following year.²⁸ For example, if the five-year change in debt is above the 80th percentile

²⁷ Results are robust to using 70th, 80th, or 90th percentile.

²⁸ In this section we use information based on IMF (2022), with 184 countries between 1985 and 2021. Among the country sample, 25 are from Latin America and the Caribbean, 119 are emerging economies, and 40 are advanced economies.

Figure 4.10 Distribution of Debt Changes in Five-year Windows, 1985-2021



Source: IDB staff calculations based on IMF (2022).

Note: This figure plots the nonparametric distribution of five-year debt-to-GDP changes (censored at -120 p.p. and 120 p.p.) for advanced economies (green line), emerging economies (teal line), and for countries in Latin America and the Caribbean (navy line). The shaded area indicates debt growth over the 80th percentile of the distribution and the solid vertical line the mean value for the total sample. The 80th percentile for the total sample (17.0 p.p.) does not differ significantly from Latin America and the Caribbean (17.1 p.p.), emerging economies (16.9 p.p.), and advanced economies (17.4 p.p.).

in 2005 but then falls in 2006, it accounts for a debt spike in 2005. Figure 4.10 shows the changes in the distribution of five-year public debt/GDP changes for Latin America and the Caribbean and all (emerging and developed) countries. Both distributions are similar, indicating that changes in debt in the region do not vary much from the rest of the world. However, debt spike drivers in the region have particular characteristics.²⁹

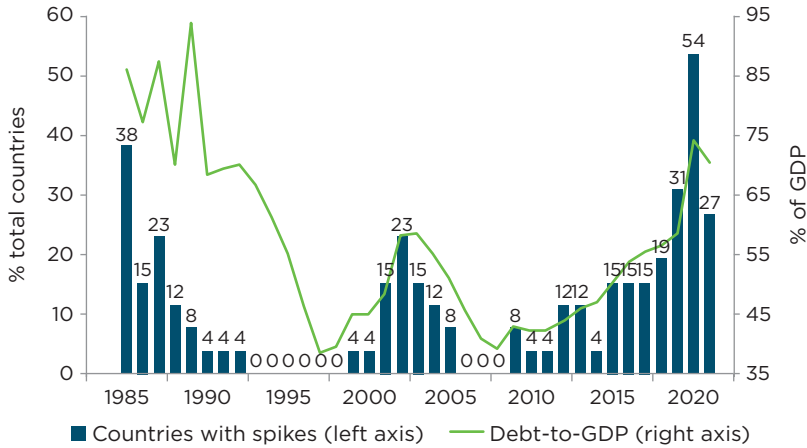
Debt spikes are highly concentrated in the three debt waves described above (see Figure 4.11, Panel A). In 1985, nearly 40 percent of countries suffered a debt spike. In 2002, that figure dropped but remains relatively high at 23 percent. The share of countries with spike episodes increased to 31 percent in 2019 and then 54 percent in 2020, before dropping back

²⁹ Mean for the total sample is 1.2 p.p. and the standard deviation is 26.8 p.p., while for the region the corresponding statistics are 1.1 and 26.4 p.p. To eliminate outliers, observations with 5-year growth above 120 p.p. or below -120 p.p. were not considered.

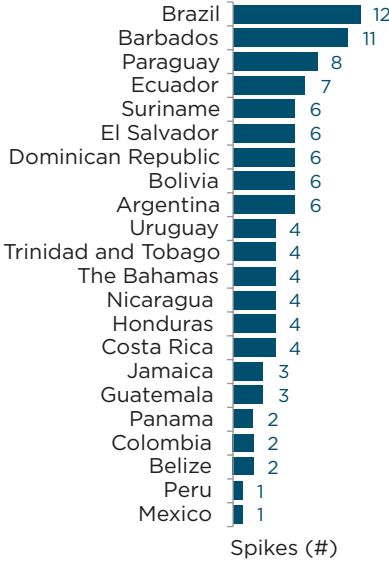
to 27 percent in 2021. The average increase in the debt-to-GDP ratio over a five-year window was 32 percentage points in each spike episode. Still the frequency and size of the spikes varied across countries (Figure 4.11,

Figure 4.11 Spike Episodes in Latin America and the Caribbean, 1985-2021

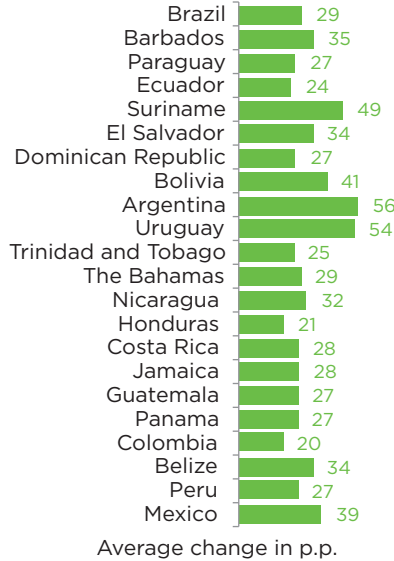
A. Share of countries with spikes by year



B. Total number of spikes by country



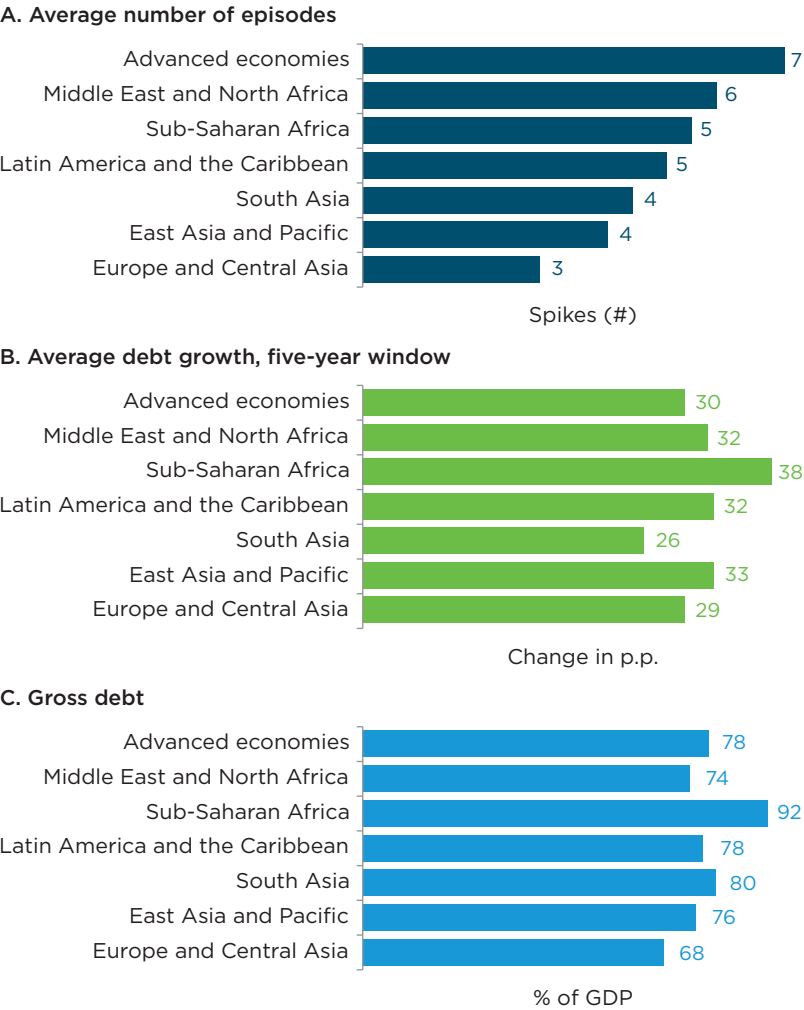
C. Average debt five-year window change in spike episodes



Source: IDB staff calculations based on IMF (2022).

Note: Latin America and the Caribbean includes all IDB borrowing countries except Venezuela, Guyana, and Haiti due to data availability.

Figure 4.12 Regional Characterization of Spike Episodes, Average 1985–2021



Source: IDB staff calculations based on IMF (2022).
Note: The averages are calculated in two steps: i) calculation of total spikes (Panel A), average debt change (Panel B), or average debt-to-GDP (Panel C) by country between 1985 and 2021 and then ii) the average by region. Latin America and the Caribbean includes all IDB borrowing countries except Venezuela, Guyana, and Haiti due to data availability. The other country groups follow the World Bank's regional classifications.

Panels B and C). Two patterns emerge: countries with a high spike frequency but relatively low average growth, such as Brazil; and, countries with lower spike frequency but higher growth rates, such as Uruguay. Brazil had 12 spikes over the period, and the average five-year debt variation was

29 p.p.³⁰ In contrast, Uruguay had only four episodes, but an increase in debt of 54 p.p., which ended up in episodes of default and debt restructuring (1986, 2002–2003) (Kehoe and Nicolini, 2021).

The number of debt spikes in Latin America and the Caribbean falls in between that in other regions. Latin America and the Caribbean has had an average of five episodes, lower than in advanced economies (seven) but higher than in Europe and Central Asia (three) (Figure 4.12, Panel A). The average change in debt also does not vary much from other groups (Figure 4.12, Panel B). However, these debt increases are not necessarily associated with high debt levels, as some regions had large or small debt increases but kept a similar average debt-to-GDP ratio. In the case of Latin America and the Caribbean, debt-to-GDP was 78 percent, which is comparable to advanced economies, a group with a slightly lower average debt change (Figure 4.12, Panels B and C).

Decomposing Debt Spikes: What Can Be Learned?

A decomposition of the debt spikes is a useful technique to reveal the main drivers for the increases in debt. One driver, known as the stock flow adjustment (SFA), represents the changes in debt that cannot be reconciled by the other dimensions of the decomposition. Box 4.1 describes in more detail the SFA. One potential contributor to the SFA is a bailout of subnational governments. Box 4.2 provides more information on subnational debt in the region. Further discussion of contingent and realized liabilities that may contribute to the SFA are included in Chapter 6.

The results of the decomposition analysis are that interest payments, exchange rate depreciation, primary deficits, and the SFA were the main factors associated with debt increases, while GDP growth and inflation served to moderate the increase in debt (Figure 4.13). Compared to other regions, interest payments contributed the most to the increase in debt, at a level comparable to South Asia, and East and North Africa. Most of the debt during the 1980s and 1990s was in foreign currency at variable interest rates.³¹

As the spikes occurred in times of crisis, difficulties adjusting fiscal accounts led to primary deficit accumulation, and low economic growth

³⁰ In 1988 and 1989, after a default in 1987; 1991 and 1992, after low to negative GDP growth; 1999, after the sudden stop in 1998; 2001 and 2002, after the 2001 crisis in Argentina and rumors of default; and from 2017 to 2020 when the fiscal deficit increased substantially from 8 percent to 13 percent.

³¹ In recent decades, a similar trend has emerged in low-income countries, such as Sub-Saharan Africa (Moreno Badia, Xiang, and Gamboa-Arbelaes, 2021; Panizza and Taddei, 2020; Griffiths, Panizza, and Taddei, 2020).

Box 4.1 Stock Flow Adjustment and the Evolution of Public Debt

What is stock flow adjustment (SFA) or stock flow reconciliation? The SFA is the residual in the equation that explains the evolution of debt (as a percentage of GDP). In other words, the SFA is the component that reconciles (or adjusts) the level of debt observed each year with the elements that explain its evolution (past debt, growth, inflation, exchange rate depreciation, interest payments, and the primary balance). Thus, unobserved elements in the data that affect the evolution of debt are collected by the SFA.

Several studies have identified the relevance of the SFA in the impact of debt growth (IDB, 2007; Campos, Jaimovich, and Panizza, 2006). Its importance relies on unobserved elements in the data that affect the evolution of debt, including valuation effects through the impact of exchange rate depreciation on foreign currency-denominated debt, defaults, debt relief episodes, and contingent liabilities^a (Campos, Jaimovich, and Panizza, 2006; Moreno Badia, Xiang, and Gamboa-Arbelaez, 2021). Other large SFA factors may stem from problems related to the public accounting system. For instance, poor accounting and budgeting systems may create incentives to distort public spending. Thus, sudden increases in SFA can reflect these hidden deficits (IDB, 2007; Aizenman and Powell, 1998). Regressions show that the exchange rate valuation effect, default, and debt relief episodes strongly correlate with the size of stock flow adjustment.

^a Examples include the injection of capital to banks or bailouts of state-owned enterprises.

Box 4.2 Subnational Debt: On the Decline

Over the last 20 years, subnational indebtedness in Latin America and the Caribbean has gradually declined, reducing fiscal risks. This dynamic emerged against the backdrop of debt overhang and financial bailouts to subnational governments (SNGs) in some of the region's largest countries (Argentina, Brazil, and Colombia). Between 2002 and 2019, the average subnational debt of 12 of the largest countries in the region fell from 7.0 percent to 3.9 percent of GDP. Central governments established subnational fiscal responsibility frameworks with greater supervision of SNG fiscal conditions contributing to this decline.

Given the specter of financial bailouts due to over-indebtedness, fiscal responsibility frameworks may serve as early warning systems to identify potential sustainability risks (and thus bailouts) and trigger preventive measures to avoid them (as in Colombia's early warning system). Institutional capacities in central and subnational governments are essential to effectively implement these frameworks. Fiscal rules should be simple, transparent, and appropriate

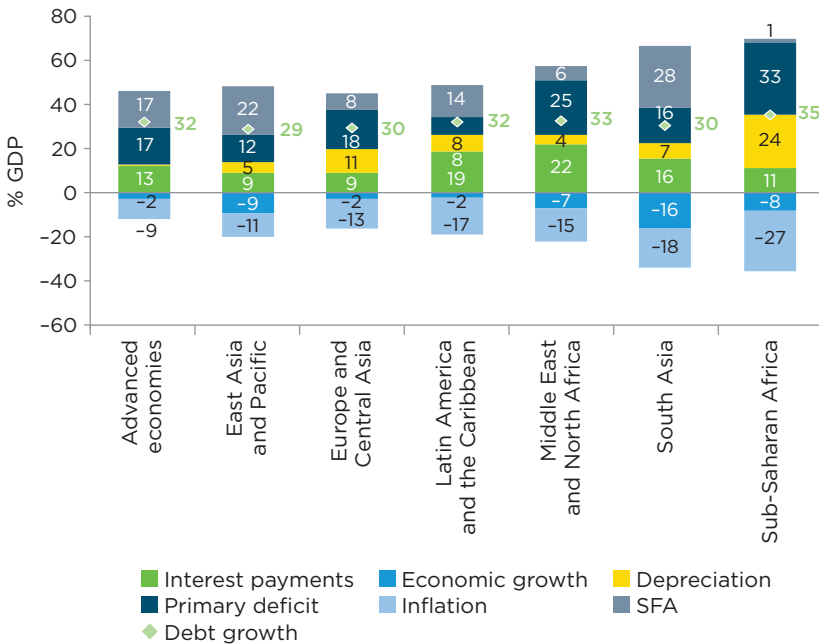
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to SNG compliance capacities, and thoroughly and permanently monitored by the central government. This monitoring should include all subnational debts (including debt to suppliers and other public agencies) and contingent liabilities (of subnational public enterprises and public-private partnerships). Strengthening subnational fiscal transparency is also key and should include integrated financial management systems, adapting accounting to international standards, and technical assistance to SNGs for financial reporting.

In light of subnational fiscal sustainability risks, realistic and timely corrective actions that seek to gradually incorporate the operation of a bankruptcy or insolvency system should be set up (Canuto and Liu, 2013).

Effective implementation of a subnational fiscal responsibility framework, coupled with a warning system that provides timely information on emerging fiscal risks, can help subnationals gain access to financing on a sustainable basis. Subnational debt may then play a valuable role and finance critical infrastructure to boost economic development at a regional level. Despite progress, there is still room to expand access to responsible borrowing for subnationals, especially in the larger countries in the region.

Figure 4.13 Decomposition of Debt Spikes, 1985-2021, Five-Year Window



Source: IDB staff calculations based on IMF (2022).

Note: Latin America and the Caribbean includes all IDB borrowing countries except Venezuela, Guyana, and Haiti due to data availability. The other country groups follow the World Bank's regional classifications.

contributed little to deflate the debt-to-GDP, even less than in other regions. High inflation and real appreciation in most crises helped moderate debt growth in all regions. In addition, during debt spike episodes, sovereign credit ratings declined significantly.

Finally, the SFA is more significant for the region than for other groups of countries, mainly reflecting cases of materialized contingent liabilities, such as the bailouts of subnational governments, SOEs, or the financial system. The SFA was about 7.4 p.p. of GDP in Argentina in 2003–2004, 0.9 p.p. of GDP in Brazil in 2001, 4 p.p. of GDP in Chile in 2010–2013, 6.3 p.p. of GDP in Colombia in 1998–2000, 21.7 p.p. of GDP in Ecuador in 1998–2002, 1.6 p.p. of GDP in Mexico in 1997, and 20 p.p. of GDP in Uruguay in 2002–2005.³²

Although decomposition exercises are helpful, there are caveats. Decompositions are an ex post accounting exercise, not an explanation of the underlying causes of the increase in debt. Changes in some of the determinants are likely to be linked, and there are interactions between the drivers. Also, decomposition disregards the duration of the spike episodes. In the next section, a regression analysis addresses some of these concerns.

Debt Spike Determinants: What Regressions Reveal

A statistical regression analysis can help determine which macroeconomic variables are most closely associated with a debt spike (see Valencia et al., forthcoming a).³³ For example, if a country runs a relatively high fiscal deficit, what is the likelihood that it will result in a debt spike? The results suggest that the primary balance, GDP growth, and the SFA are the main macroeconomic variables associated with debt spikes (see Figure 4.14).³⁴

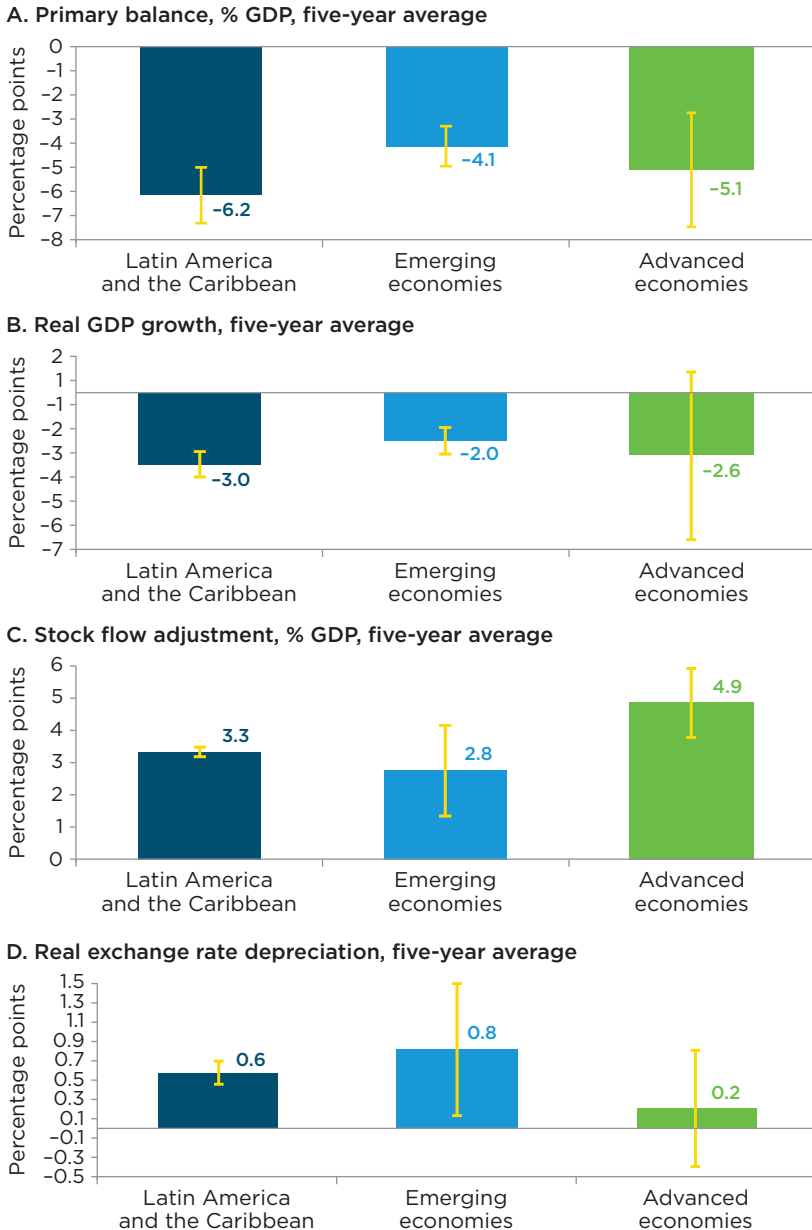
Larger primary fiscal surpluses and higher growth rates are correlated with a lower probability of a debt spike in Latin America and the Caribbean than in other emerging economies but a similar probability as in advanced economies. A possible explanation is the relation between primary balances and interest rates. Higher primary surpluses tend to be associated with lower interest rates. Conversely, a higher primary deficit tends to come with higher interest rates and, hence, a greater probability of a debt spike (see Chapters 5 and 8).

³² These findings are in line with the growing literature about stock flow adjustments (see Afonso and Jalles, 2020; Jaramillo, Mulas-Granados, and Kimani, 2017; Bova et al., 2016; Weber, 2012; IDB, 2007; Campos, Jaimovich, and Panizza, 2006).

³³ The methodology employs a debt spike dummy as a dependent variable in a linear probability model.

³⁴ These results are robust to alternative definitions of debt spikes.

Figure 4.14 How Macroeconomic Variables Are Associated with the Probability of a Debt Spike



Source: IDB staff estimates.

Note: The figures illustrate how changes in the probability of a debt spike are associated with macroeconomic variables. The primary surplus and the stock flow adjustment are measured in percent of GDP while growth and the exchange rate depreciation are measured in percent. Five-year averages are used for all variables in the analysis. The sample of countries includes all 26 IDB borrowing countries except Guyana, Haiti, and Venezuela. The other country groups follow the standard IMF classification.

The sudden materialization of contingent liabilities is associated with a higher SFA, and hence a higher probability of a debt spike. Real currency depreciations also increase the probability of debt spikes. The magnitude of this correlation is virtually the same in Latin America and the Caribbean and other emerging economies.

Fiscal institutions may play a significant role in decreasing the likelihood of debt spikes (see Figure 4.15). Better institutional arrangements that strengthen fiscal rules are associated with a lower probability of debt spike episodes in Latin America and the Caribbean (Valencia et al., forthcoming a). Fiscal rules with solid legal foundations, enforcement mechanisms, independent fiscal councils, flexibility, and well-defined escape clauses allow governments to adjust their fiscal balances while avoiding explosive debt trajectories (Andrian et al., 2022; Valencia, Gómez-González, and Sánchez 2022; Afonso and Jalles, 2020). In particular, better fiscal institutions (for example, well defined expenditure ceilings) are associated with a lower probability of debt spikes.

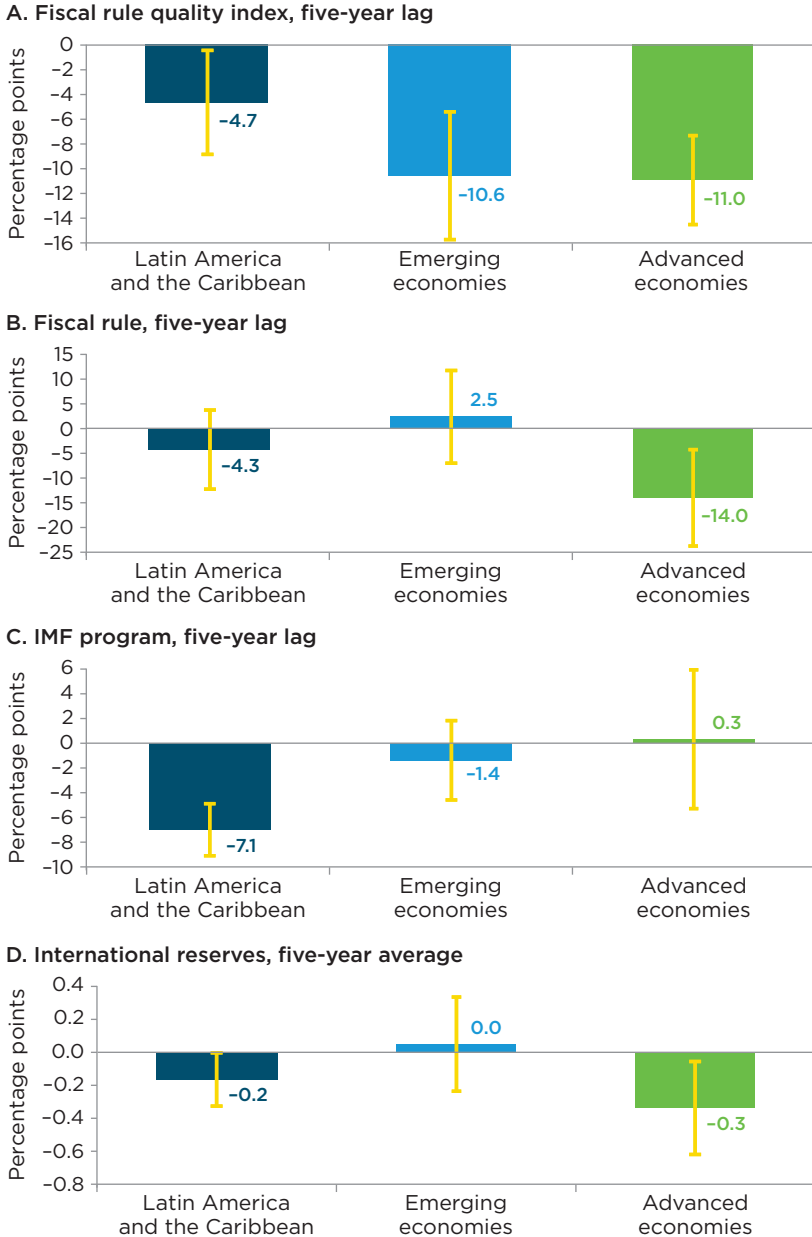
Alternatively, implementing IMF programs in Latin America and the Caribbean lowers the probability of debt spikes through improvements in the fiscal balance and structural institutional reforms (David, Komatsuzaki, and Pienknagura, 2020; Balima and Amadou, 2019). Of course, the success of these programs in warding off debt spikes may depend greatly on the strength of economic fundamentals and institutions (Jorra, 2012).

Strong international reserve positions tend to significantly lower the probability of debt spikes (Valencia et al., forthcoming a). This trend is consistent with the empirical evidence on the role foreign reserves play in preventing debt crises (Calvo, Izquierdo, and Loo-Kung, 2012); results are significant in Latin America and the Caribbean as well as advanced economies. In addition, reserves relate to lower spreads and a lower probability of reversals in the current account (Hernández, 2018; Ben-Bassat and Gottlieb, 1992; Calvo, Izquierdo, and Loo-Kung, 2012; Tavares, 2015).

Finally, the initial debt level of countries is a key predictor of a debt spike for emerging economies (Figure 4.16). When debt levels are below the 25th percentile, the probability of a subsequent debt spike is lower, especially in emerging economies. In contrast, if the initial level is relatively high (above the 75th percentile), the probability of a debt peak is higher.

However, these results do not seem to apply to advanced economies, implying that this determinant is largely a function of a country's ability to pay. Countries with high initial debt-to-tax revenue ratios are more likely to experience debt spikes. Advanced economies with higher initial debt-to-GDP levels also have higher tax revenues and deeper financial markets, allowing broader access to financial markets.

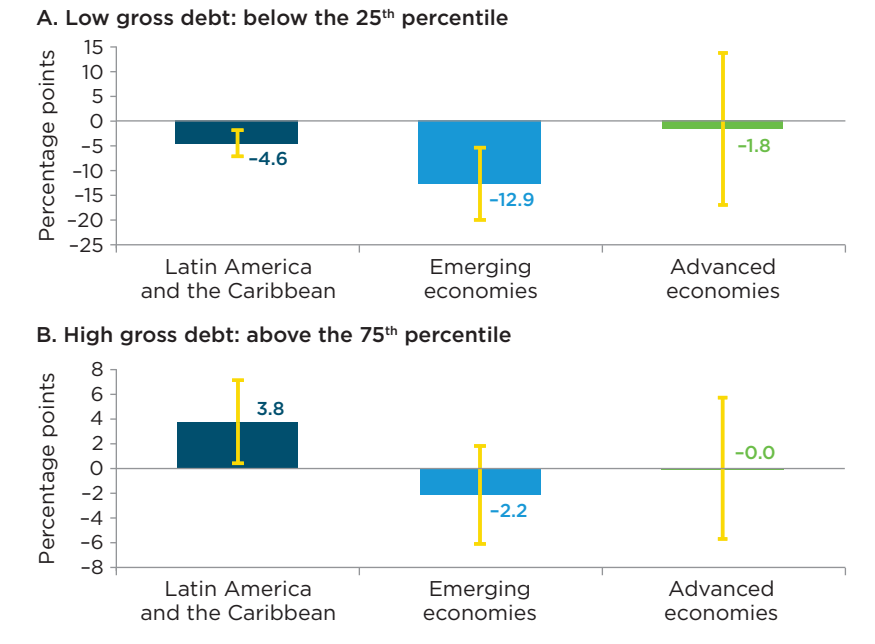
Figure 4.15 Impact of Fiscal Institutions and International Reserves on the Probability of Debt Spikes



Source: IDB staff estimates.

Note: The figures illustrate how the probability of a debt spike is reduced with higher quality fiscal institutions and higher reserves. The variables in Panels A to C are included with up to 5-year lag; for Panels B and C, it is a binary variable; and for Panel D, international reserves are a 5-year average and expressed as a percentage of GDP. Latin America and the Caribbean includes all IDB borrowing countries except Guyana, Haiti, and Venezuela. The other country groups follow the IMF classification.

Figure 4.16 Debt Levels and the Probability of Debt Spikes



Source: IDB staff estimates.
 Note: Latin America and the Caribbean includes all IDB borrowing countries except Venezuela, Guyana, and Haiti due to data availability. The other country groups follow the IMF classification.

Learning from the Past

The recent history of public debt in the region reflects the tumultuous economic history of the region: the 1980s debt crisis; the Tequila shock; the Asian and Russian crises culminating in regional crises of the early 2000s; the global financial crisis of 2007–2008; the COVID-19 pandemic, and the Russian invasion of Ukraine. Latin American and Caribbean countries can turn this crisis into an opportunity. While commodity exporters can use higher revenues to improve their fiscal finances and offset debt growth during the pandemic, commodity importers should drive greater efficiency of fiscal spending (Cavallo et al., 2022). Though this chapter lays the groundwork by analyzing how debt has grown, the multiple lessons evident in this turbulent history can help improve governments’ approach to public debt (see Chapters 5 and 6). Public debt has risen largely in spurts, often accompanying economic crises. Interest payments, exchange rate depreciation, primary deficits, and other factors (known as the stock flow adjustment term) are the main drivers. In addition, the probability of a debt spike rises when deficits grow, economic growth dips, and fiscal rules are of low quality.

Corporate leverage in the region (debt per dollar of assets) rose very strongly in 2020. While leverage then fell back, it remains high relative to the level of other emerging economies. Firms borrowed to boost liquidity, but investment collapsed. Fixed assets (normally considered productive capital) declined, and yet firms have the same level of debt as at the start of the pandemic. This suggests it may take considerable time to rebuild the capital stock (Chapter 12).

Another feature in the evolution of corporate debt is the rise in dollar-denominated financial obligations. Since low-interest rates in advanced economies made foreign rather than local currency debt more attractive over the past decade, many firms in the region increased their dollar-denominated debt. This poses balance sheet risks, especially for firms that are not exporters and thus lack a natural hedge against currency fluctuations. In turn, this may pose risks for financial systems and governments that rely on larger firms for tax revenues, and may also constitute a contingent liability.

Household debt remains the missing link; although it has been increasing steadily in the past 17 years, it is still relatively low in the region compared to other emerging market economies. The development of financial markets for consumers has varied considerably in the region and, thus, so too have the levels of household debt. Interest rates on mortgages and nonsecured consumer lending, the two big areas in which households borrow, have declined over time, helping maintain the steady path of borrowing in the region. However, the region needs to deepen its financial markets to allow more households to borrow for exceptional circumstances like health shocks, finance housing and other durables, and smooth consumption.

Better fiscal institutions are essential. More robust macro-fiscal frameworks and high-quality fiscal rules can prevent debt surges, potential crises, and greater fiscal policy procyclicality (Gómez-González, Valencia, and Sánchez, 2022). Better fiscal institutions and transparency would also impact the evolution of the stock-flow adjustment. For example, provisioning for contingent liabilities would improve the predictability of future obligations and provide governments with instruments to mitigate the impact on the debt. One of the critical factors in avoiding debt spikes is prudent management and prevention of hidden liabilities by promoting appropriate regulations and oversight of subnational and SOE liabilities. Better institutions may also ensure that spending is put to good use. Simply improving spending efficiency could generate substantial savings.³⁵

³⁵ Izquierdo, Pessino, and Vuletin (2018) estimated these savings at 4.4 percent of GDP.

Several policy implications arise from this analysis. Successive debt spikes lead to large increases in public debt. These spikes tend to occur when fiscal balances deteriorate and interest rates rise concurrently; large stock flow adjustments and exchange rate depreciations, in the presence of dollar debts, add to the woe. Good fiscal institutions are critical to limit debt spikes as well as to ensure debt is sustainable over time (see Chapter 5). In turn, debt sustainability should prevent sharp and simultaneous deteriorations in fiscal balances and rises in interest rates. As discussed in Chapter 3, developing local markets can help diversify away from debt in foreign currency.

Debt Sustainability: More Important than Ever

Debt sustainability is one of the fundamental pillars of public finances. Adequate and responsible management of the public debt is necessary for the efficient and smooth provision of public goods. The countercyclical management of fiscal policy requires that countries access finance in moments of fiscal stress while generating confidence in their ability to repay in the future. Debt had been increasing gradually in the region until the COVID-19 crisis, when countries issued substantial amounts of debt to finance fiscal responses. The region needs to lower debt levels to reduce risks. The best way to adjust, to minimize the impacts on growth while bringing down debt service payments, will vary depending on each country's characteristics.

In recent decades, with the rise in public debt, sustainability has been central in discussions among academics, policymakers, and financial market participants. Beginning with its definition, several recent academic papers have attempted to refine its meaning, analyze the concepts, and apply them to the region.¹

This chapter reviews the concept of debt sustainability, the reasons why fiscal sustainability has become a challenge for the region, scenarios of debt dynamics in the post-pandemic period, and the sources of risk that new shocks brought during 2022. It concludes by laying out the choice between making moderate corrections to debt levels, and making additional efforts to reach prudent levels in order to reduce risk and improve debt affordability indicators.

Public Debt Sustainability: A Nuanced Definition

Analyzing debt sustainability is far from straightforward. The definition employed in this chapter is that public debt is sustainable if it can be

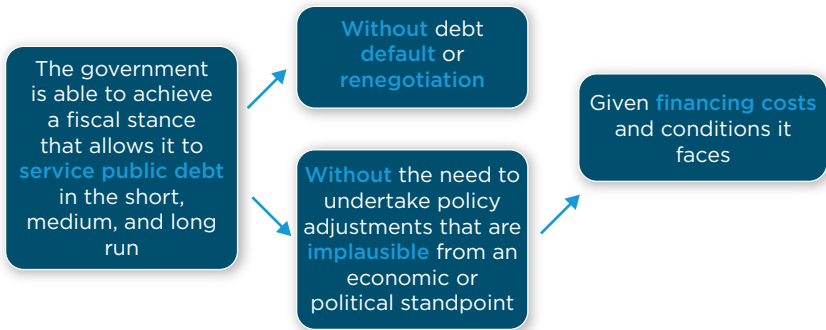
¹ These include D'Erasmus, Mendoza, and Zhang (2016), Debrun et al. (2019), Blanchard (2022), González and Hernández (2022), Valencia, Angarita, and Arellano (2022), and Valencia, Díaz, and Parra (2022).

served in the short, medium, and long run, taking financing conditions into account, and without the need for any implausible policy adjustment or default on the liabilities.² This definition echoes that used in Neck and Sturm (2008); IMF (2003); D’Erasmus, Mendoza, and Zhang (2016); and Debrun et al. (2019), and is illustrated in Figure 5.1 below.

Importantly, sustainability is not quite the same as claiming that a sovereign is solvent. Solvency implies that the value of assets is greater than the value of liabilities. This is then a simpler concept, except that in the case of a sovereign, it is challenging to put valuations on many assets such as highways, buildings, or natural biodiversity as well as liabilities such as guarantees that may or may not be triggered or other contingent claims on the state. Still, as asset values are closely related to the cashflows they generate, solvency is a close cousin to sustainability; if asset values are sufficiently high and exceed the value of liabilities (which reflects their payments’ schedule), then the cashflows should be enough to cover debt repayments.

The literature on sovereign debt often draws a distinction between solvency and liquidity. A sovereign may be solvent, in the sense that the value of assets exceeds that of liabilities, but illiquid: the sovereign does not have the resources in the current period to meet a debt payment coming due. This is more likely to occur when the sovereign has lost access to international markets and cannot roll-over (borrow again) part of the amount due. While this chapter focuses on sustainability, solvency and

Figure 5.1 Debt Sustainability Characteristics



Source: IDB staff.

² Default here includes any restructuring that reduces the present value for creditors, whether that be pushing out maturities (reprofiling) or restructuring with a nominal haircut (see Chapter 10 for further discussion).

liquidity cannot be totally separated, as financing conditions affect both. For example, if investors believe a sovereign is likely to face liquidity problems in the future, they will demand higher interest rates. If those interest rates increase too much, then the sovereign may also become insolvent. Thus, liquidity problems can provoke insolvency. At the same time, if investors perceive a sovereign as likely to be insolvent in the future, they may curtail current financing, thereby triggering a liquidity crisis.

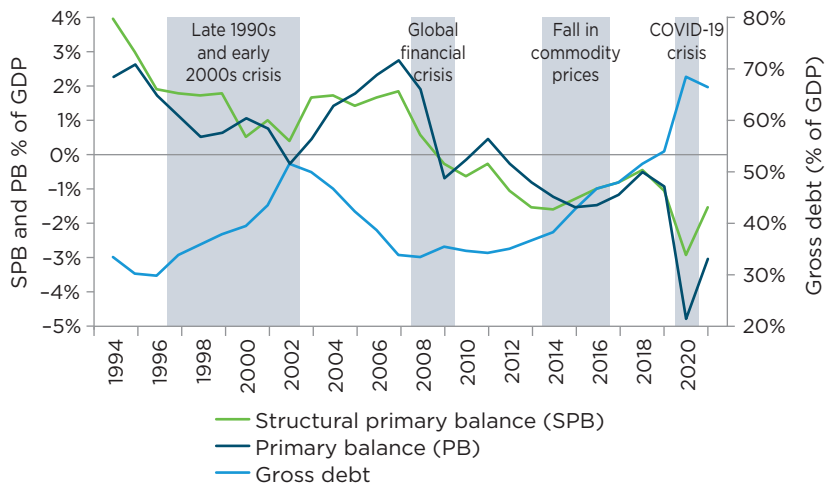
Current financing conditions for the sovereign depend on *perceived future* solvency and liquidity risks, opening the possibility of self-fulfilling crises. If economic fundamentals are strong (such that even if interest rates rise the sovereign clearly remains solvent), then a sovereign may be sustainable without risk of a debt crisis. At the other extreme, if fundamentals are weak, a debt crisis might be unavoidable. Self-fulfilling crises may occur in an intermediate zone; if creditors worried about the future charge a higher interest rate today, which then makes the debt unsustainable, then the creditors' high interest rate becomes justifiable. However, if creditors had been satisfied with a low interest rate, then the debt would have remained sustainable, again justifying the creditors' lower rate. In this case, there is a multiple equilibrium (see Calvo, 1988; Cole and Kehoe, 2000; and Ayres et al., 2018, for analysis). With multiple equilibria, it is hard to predict when a crisis might actually occur as it depends on whether creditors coordinate on the good (low interest rate and sustainable debt) or the bad (high interest rate and unsustainable debt) equilibrium.³ This chapter considers public debt to be sustainable but vulnerable to liquidity risk if the sovereign remains solvent only under an equilibrium with lower interest rates. Liquidity risk management is, then, critical and is considered in more detail in Chapter 6.

Challenges to Fiscal Sustainability

Prior to the global financial crisis, Latin America and the Caribbean managed to run primary fiscal surpluses. However, after that shock, the region accumulated deficits every year, pushing debt levels higher and higher (see Figure 5.2). Similarly, the structural fiscal balance (a measure of the fiscal

³ This depends on the creditors' beliefs and what they know about each other's beliefs (see the literature on global games such as Morris and Shin (2003) for a possible framework). Possible multiple equilibria also provide a strong rationale for an international lender of last resort. For example, if the IMF can provide resources to a vulnerable but solvent country in the context of a program, then it may reduce the likelihood of a liquidity crisis (bad equilibrium); see Corsetti, Guimaraes, and Roubini (2006) and Powell and Arozamena (2003) for analysis.

Figure 5.2 Structural Primary Balance and Gross Debt



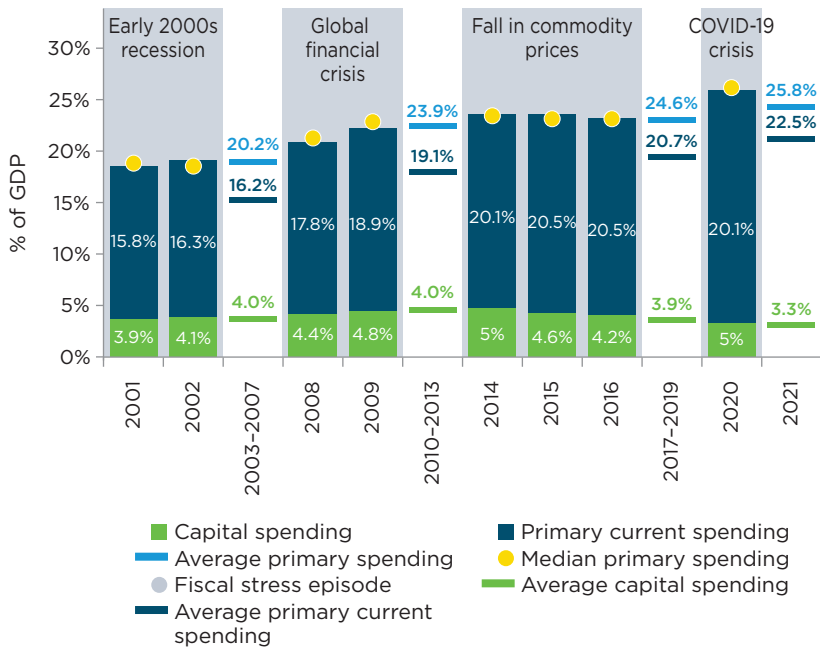
Source: IDB staff calculations based on data from IMF (2021).

balance that takes out temporary factors such as high commodity prices or high growth) has remained negative since the global financial crisis.

What is the main factor explaining the region’s deteriorating fiscal performance? Spending grew in each period of economic stress (the crises of the early 2000s, the global financial crisis, the fall in commodity prices, and finally the COVID-19 shock), providing support to economies in those bad times. But that spending was not pared back symmetrically in periods of strong growth (see Figure 5.3). As a result, spending rose from 17 percent of GDP in the period 1990–1995 to 28 percent of GDP in 2020. An underlying problem is tax and benefit systems that by design lack automatic fiscal stabilizers; hence, governments have relied on discretionary fiscal spending in downturns that has then proved difficult to remove.⁴ This pattern has meant increased spending during each downturn, but little reduction in spending in other periods.

Fiscal frameworks in the region have improved over recent years, but the enhancements have been insufficient to counter the pattern of spending increases. Moreover, the COVID-19 pandemic was unprecedented in terms of both the depth of the recession and its impact on revenues, and the required spending on health and other support measures. The structural fiscal deficit

⁴ Automatic fiscal stabilizers refer to a system of taxes and benefits whereby taxes are reduced and benefits (such as payments to the unemployed or poorer households) automatically increase in bad times, but then automatically fall back when growth is strong.

Figure 5.3 Primary Public Spending Increases during Crises

Source: IDB staff calculations based on data from IMF (2021).

of 1.9 percent of GDP in 2020 fell back in 2021, but only to 1.1 percent, while the growth rebound was larger than expected and inflation rose abruptly (Cavallo et al., 2022). Going forward, governments must not only pursue fiscal consolidation, but also revisit the design of fiscal policies—both taxation and spending—to ensure sustainability through good and bad times.

Balancing Fiscal Policy and Risk after the Pandemic

The COVID-19 pandemic led to an unprecedented recession of 7 percent of GDP for the region in 2020. Country authorities supported households and firms with fiscal packages averaging about 8.5 percent of GDP, but with wide variation across countries (Cavallo and Powell, 2021). Debt increased by almost 15 percentage points, from 58 percent of GDP in 2019 to 72 percent in 2020.

The level of fiscal effort in response to the pandemic was unprecedented, and countries now face the challenge of reducing deficits. But additional shocks have now heightened uncertainty. High inflation has prompted the Federal Reserve to raise policy interest rates, prompting

sharp falls in stock market valuations and a rise in the value of the dollar. That inflation was in part a result of the Russian invasion of Ukraine, which boosted commodity prices (some of which had already risen by the end of 2021), particularly the price of oil. Commodity prices have different impacts depending on whether countries are exporters or importers and whether they maintain significant fuel subsidies.

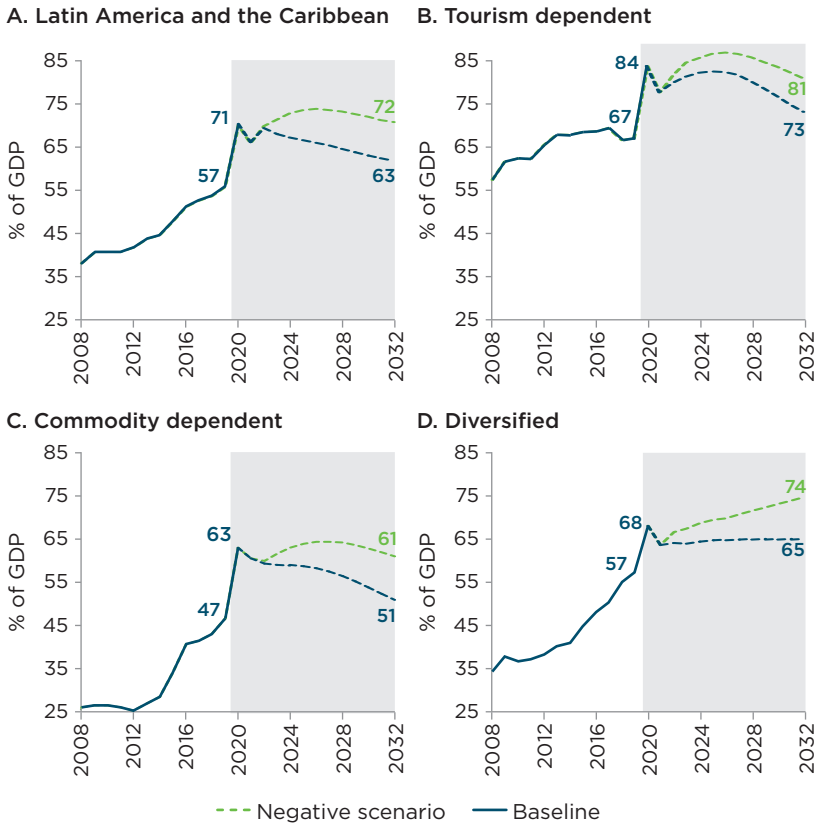
Consequently, the outlook is highly uncertain, and different shocks can impact countries in the region through many channels. This chapter employs an economic model to consider many of these factors to produce scenarios and conduct a set of “what if”-type experiments.⁵ The model estimates the parameters for the typical Latin American and Caribbean economy, as well as the typical tourism-dependent economy, commodity-dependent economy, and diversified economy (Valencia, Angarita, and Arellano, 2022). Scenarios for fiscal revenues, public spending, interest payments, and debt levels are generated depending on a set of assumptions and the estimated parameters of the model.

Figure 5.4 shows scenarios for debt. The baseline assumes paths for growth, inflation, international interest rates, and commodity prices.⁶ The negative scenario assumes lower economic growth, an extra 100-basis point increase in the Federal Reserve interest rates above the baseline projections, and higher inflation and international commodity prices consistent with the additional supply shocks due to the war.

The estimates show that, in the baseline scenario, debt will remain high for the average country in Latin America and the Caribbean in the coming years. In the medium term, debt should decrease as fiscal imbalances adjust. For the tourism-dependent group of countries, which experienced primary surpluses before the pandemic, debt levels also fall in the medium term. The same dynamic is shown in Panel B for commodity-dependent countries, due to higher fiscal revenues. For the diversified economies, however, debt stabilizes to rise in the medium term. In the negative scenario where financial conditions become tighter, for the typical country gross debt would reach a level of 9 percentage points of GDP higher in 2032 than the baseline scenario. Note that these scenarios are based on a set of assumptions and the parameter estimates employed in the model. The model assumes that policy actions taken in the coming years reflect those in the past, given the values of the critical variables. In other words,

⁵ A structural general equilibrium model is employed following Leith and Wren-Lewis (2013) and Walsh (2017). The model is estimated for countries in the region.

⁶ These assumptions come from Consensus Economics (2022), FOMC (2022 Sep), IMF (2022), and commodity futures prices.

Figure 5.4 Gross Debt Projection

Source: IDB staff calculations.

the fiscal adjustment in response to the levels of debt resembles the fiscal policy actions taken by countries previously. Any changes to such policies or changes in other assumptions would impact the accuracy of the scenarios. Another way to think about this is to say that if the typical country reacted to higher debt and other variables as in the past, then debt should fall. Still, the typical country in the diversified group would need a sharper fiscal adjustment relative to previous fiscal responses to bring debt down.

This discussion highlights the importance of defining how countries will react to high debt levels as a determinant of sustainability. An elevated debt level may be perfectly sustainable if there is confidence of a robust fiscal reaction. However, it may be unsustainable if no such reaction is expected. Box 5.1 develops the notion of a fiscal reaction function and provides a more technical discussion regarding debt sustainability and prudent debt levels.

Box 5.1 Fiscal Reaction Functions

The reaction of fiscal policy to high debt levels is a critical determinant of sustainability. If there is widespread belief that a government will react aggressively to bring down debt whenever it rises and threatens sustainability, then the country can support higher levels of debt at lower risk.

A starting point to analyze sustainability is the standard equation that describes how debt evolves from one period to the next. The debt-to-GDP ratio increases from last year ($t-1$) to this year (t) if the interest rate is higher, and decreases if the economy grows faster or if the primary fiscal surplus is higher, as specified in equation (1):

$$d_t = \frac{(1+r_t)}{1+g_t} d_{t-1} - pb_t \quad (1)$$

Where pb_t is the primary balance-to-GDP ratio, d_t is the debt-to-GDP ratio at the end of period t , g_t is the GDP growth rate, and r_t is the interest rate paid on government debt.

For a government to be solvent, debt cannot be higher than the net present value (NPV) of all future primary fiscal surpluses. This intuition gives rise to an intertemporal government budget constraint (IGBC), or so-called no-Ponzi condition. Now consider a fiscal reaction function (FRF) in which the fiscal balance in the current year depends on the debt level in the previous period:

$$pb_t = \mu + \rho \cdot d_{t-1} + \varepsilon_t \quad (2)$$

Where ρ determines the strength of the fiscal reaction (the higher the debt in the previous period, the higher the fiscal surplus in the current period), μ is an intercept, and ε_t is a random shock that may be thought of as any unanticipated change in macroeconomic or other variables that impact the fiscal balance.

A series of papers by Bohn (1995, 1998, 2007, 2008) highlighted the role of the FRF and showed that if the primary fiscal surplus always increases when debt rises ($\rho > 0$), whenever debt is high ($d_t > \underline{d}$), then that would be a sufficient condition for the net present value of primary values to be greater than the current debt.

Theoretically, the country is solvent, the net present value of future primary balances covers the value of current debt, and yet it seems unrealistic to think that the primary balance-to-GDP ratio can rise without limit. Indeed, the literature suggests that *fiscal fatigue* will set in, which implies a maximum attainable primary balance-to-GDP ratio (pb^{max}) and a fiscal reaction that will become weaker as debt levels rise.^a

Moreover, a path on which the debt-to-GDP ratio grows without bounds is destined to fail Bohn's *sufficient* condition eventually and gives rise to a second condition, namely that debt-to-GDP must be bounded.

The existence of a maximum attainable primary balance together with a lower bound in the interest rate (say the risk-free interest rate \bar{r}) generates an upper bound in the right-hand side of the no-Ponzi condition that gives us:

(continued on next page)

$$d_{t-1} \leq \frac{1+\bar{g}}{\bar{r}-\bar{g}} \rho b^{\max} = \bar{d} \quad (3)$$

Where r and g are the interest rate at the rate of growth of the economy in the long run.

The maximum sustainable debt-to-GDP ratio is then \bar{d} .^b It equates the debt interest payments at the maximum sustainable level of debt, adjusted by growth, with the maximum primary balance attainable in proportion to GDP. Any debt ratio greater than this value is unsustainable and fails the no-Ponzi condition, and renegotiation would be unavoidable.

Adding uncertainty and the possibility of default to this discussion implies that interest rates would incorporate a risk premium (such that investors would be ambivalent between investing in a risk-free asset at the riskless rate or buying a bond issued by a sovereign that might restructure) and that the risk premium would rise as debt levels or uncertainty increase, normally lowering the maximum safe level of debt.^c

A safe maximum debt level is also consistent with the idea of “*Debt Intolerance*,” as described in Reinhart, Rogoff, and Savastano (2003). They find the existence of country specific debt levels above which the economy could enter a fiscal crisis, similar to the threshold \bar{d} . They suggest developing countries have lower thresholds than advanced economies.

When will primary fiscal balances keep debt in the safe zone and not breach the \bar{d} threshold when debt rises? A complete response would have to treat interest rates r_t , growth g_t and primary balances (at least in part) as endogenous and react to debt levels each period. Starting from the debt dynamics equation (1) and employing a linear approximation to the FRF, González and Hernández (2022) show that the debt-to-GDP ratio will converge to a stable value when:

$$\left[\frac{(r_t - g_t)}{1 + g_t} - \rho_t \right] < 0 \Rightarrow \rho_t > \frac{r_t - g_t}{1 + g_t} = \widehat{rg}_t \quad (4)$$

where ρ_t is the endogenous marginal effect of debt on the primary balance.

To ensure the debt ratio is stable, the primary balance must increase by more than $\frac{r_t - g_t}{1 + g_t}$, which is known in the literature as the “growth adjusted interest rate,” denoted \widehat{rg}_t . This ensures that if debt rises, then the fiscal response will be sufficient to bring the debt ratio back down again. Note that, as the debt level rises, growth tends to fall, the interest rate may increase with more debt, and fiscal fatigue may weaken the fiscal response. Also, a country that is perceived to be more risky (for example subject to larger shocks) or has weaker fiscal institutions may pay higher interest rates. In such circumstances, safe debt thresholds are reduced.

^a This suggests that the fiscal reaction function will be nonlinear. On fiscal fatigue, see the discussion in Chapter 9, Ostry et al. (2010); Ghosh et al. (2013); Debrun et al. (2019); and Lozano-Espitia and Julio-Román (2020).

^b See IMF (2003); Buitier, Persson, and Minford (1985); Blanchard (1990); Blanchard et al. (1991); Chalk and Hemming (2000); Neck and Sturm (2008; and Escolano (2010).

^c See Chapter 10 for a discussion of debt restructuring.

Looking to the Past for Clues to the Future

Whether today's level of debt is sustainable or not depends on policies adopted today and in the future. The theory of fiscal reaction functions (FRFs) can be employed to analyze sustainability. In particular, the strength of the reaction to increased debt levels (whether fiscal policy reacts aggressively to contain further increases and to bring debt down or not) is critical in determining whether debt levels are sustainable.

This section provides estimates for fiscal reaction functions for countries in the region.⁷ This exercise illustrates how strong fiscal policy has reacted to increases in debt in the past. Then, it considers whether these average reactions are strong enough, or whether a more aggressive approach is required to ensure debt is sustainable today.

The dataset covers all 26 IDB borrowing countries with 731 country and annual observations. Besides primary balances and debt, the full dataset includes a set of macroeconomic variables. The data go back to 1953 for some countries and run to 2019 in order to construct a historical picture and then compare it to the required adjustment after the COVID-19 debt surge.⁸

A first approach to estimating a FRF is to assume a simple linear relation between the debt level in the previous period (generally last year) and the fiscal balance for this year as follows:

$$pb_{i,t} = \mu_i + \rho_i \cdot d_{i,t-1} + \Omega_i x_{i,t-1} + \varepsilon_{i,t} \quad (5)$$

Where $pb_{i,t}$ is the fiscal balance of country i in year t , and $d_{i,t-1}$ is the debt in the previous year.⁹ The parameter ρ_i then determines the strength of the reaction of the fiscal balance to different debt levels. If this parameter is

⁷ See González and Hernández (2022) for further details. The methodology is similar to that of D'Erasmus, Mendoza, and Zhang (2016) that estimate FRF's for the United States for the years of 1791 to 2014, and for advanced and emerging economies from 1951 until 2013. Ghosh et al. (2013) used the FRF approach to estimate fiscal space, the difference between current debt ratios and the estimated debt limit.

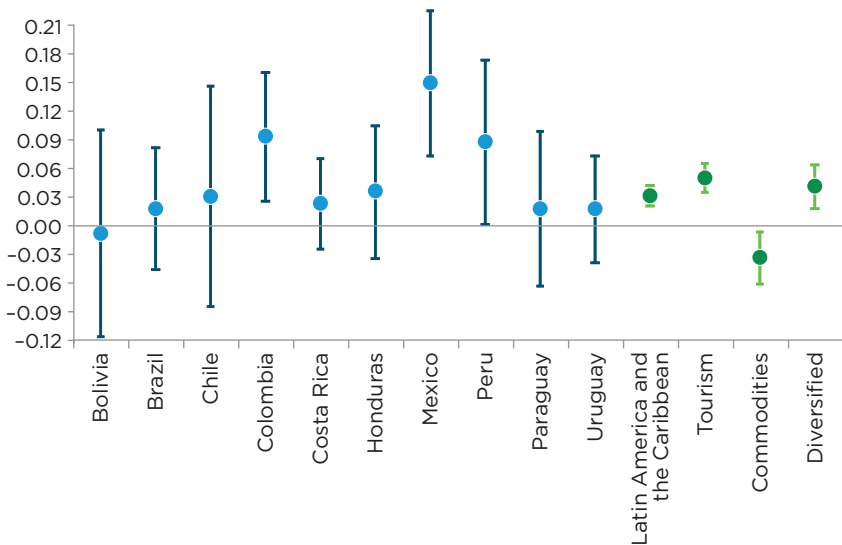
⁸ See González and Hernández (2022) for more details about data availability for each country.

⁹ While FRFs are generically nonlinear, economies tend to gravitate towards the stable long-run equilibrium d^* . That means the estimation of a linear FRF should retrieve, in the ρ coefficient, the slope of the FRF in a vicinity of d^* . A negative ρ means on average the economy is in a declining part of the FRF, suggesting fiscal fatigue and a potentially unsustainable debt path. When positive, it indicates that the sovereign primary balance quickly reacts to higher debt levels. Comparing a positive coefficient with the average growth adjusted interest rate allows to assess whether the economy is converging to a stable equilibrium.

sufficiently positive such that the country would run significantly larger fiscal surpluses if debt levels became high, then those debt levels are much more likely to be sustainable. The variables represented by $x_{i,t}$ are what are referred to as controls such as growth, fiscal variables, inflation, and changes in the exchange rate.¹⁰

Such analyses always involve a tradeoff between including more datapoints to provide better estimates versus excluding those countries or years that are exceptional in some way. In this analysis, countries that entered default during the sample time period are excluded for the periods including default and renegotiation, as are country years with very high levels of inflation. Figure 5.5 shows the results for the coefficient ρ_i , which is the critical variable governing the reaction of the fiscal balance to debt for the 10 countries with more than 30 data points: Bolivia, Brazil, Chile, Colombia, Costa Rica, Honduras, Mexico, Peru, Paraguay, and Uruguay. In three economies (Colombia, Mexico, and Peru) the (ρ_i) point estimate is

Figure 5.5 The Reaction of Fiscal Balances to Debt Levels



Source: IDB staff calculations based on data from standardized databases and national sources.

Note: The point is the estimated coefficient of lag debt, while the error bars are the 90% confidence interval. Tourism group includes: The Bahamas, Belize, Barbados, Dominican Republic, Jamaica, Haiti, Panama, and Uruguay. Commodities group includes: Bolivia, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, and Venezuela. Diversified group includes: Argentina, Brazil, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Trinidad and Tobago.

¹⁰ The error term is assumed to follow an AR(1) process: $\varepsilon_{i,t} = \alpha \varepsilon_{i,t-1} + u_{i,t}$ to account for persistent omitted variables.

positive and significant, satisfying the first condition of sustainability (see Box 5.1). In other countries, the point estimate for the coefficient is generally positive but not statistically significant.

Interestingly, pooling the full sample of 26 countries with a total of 731 country-year observations delivers a positive and significant coefficient. This result represents a regional *average* response of the primary deficit to a change in debt.

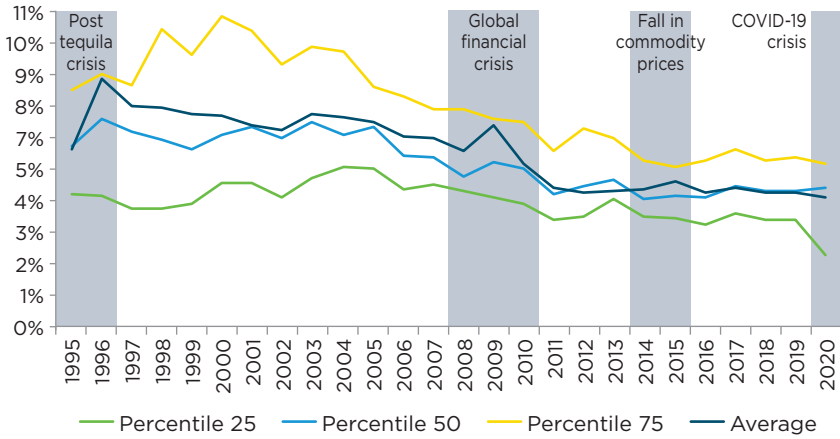
However, countries vary widely across the region. Considering overall economic structure, Figure 5.5 also presents results for country groups depending on whether they are commodity exporters, dependent on tourism, or more diversified.¹¹ The response of fiscal balances to debt for the tourism and diversified groups are positive and significant while the response for the commodities group is negative and significant. Thus, when debt rose in the commodity group, the fiscal response was to increase deficits and not to increase surpluses. And declines in debt were associated with increases in surpluses. The latter reflects periods of commodity booms when spending rose, but commodity income rose by more, while the former coincided with commodity busts, which were optimistically considered to be temporary in nature. In general, commodity exporters in the region did not follow the traditional (conservative) adage that booms should be considered temporary while busts should be treated as permanent.

A positive reaction of the fiscal balance to debt is not sufficient to ensure sustainability. The reaction needs to be greater than a particular level given by a “growth adjusted interest rate,” which takes into account the impact of the level of debt on interest rates and growth.

The Impact of Debt on Interest Rates and Growth

Since debt impacts interest rates and growth, it is important to factor in these effects when considering the required fiscal reaction to ensure a certain debt level is sustainable. But sovereigns contract debt in many different ways: they use a variety of instruments, of varying maturities, in numerous currencies, from different types of lenders. Thus, many interest rates must be considered. Still, a single implicit annual interest rate on debt can be defined as total interest payments divided by total debt. This implicit interest rate is frequently employed in debt sustainability analyses.

¹¹ This classification follows Cavallo et al. (2022). Tourism-dependent countries received at least 15 percent of their total exports from tourism. Commodities are at least 60 percent of goods exports in the commodities group. The rest of the countries are in the diversified group. For more details see the data appendix.

Figure 5.6 Impact of Median and Average Implicit Interest Rates on Debt

Source: IDB staff calculations based on data from Mauro et al. (2013) and IMF (2021).

At the end of the 1990s, the median economy in the region was paying around 7 percent of its outstanding debt in interest payments each year (Figure 5.6). High levels of international liquidity buoyed by expansionary monetary policy in advanced economies brought the median implicit interest rate down to below 5 percent before the COVID crisis.

Elevated levels of debt also impact growth (see Chapter 8). Many growth rates could be employed in debt sustainability analyses. If all debt were in local currency, it could be argued that debt should be analyzed in relation to nominal GDP (and nominal growth) to assess sustainability. At another extreme, if all debt were in U.S. dollars, then GDP (and growth) measured in U.S. dollars would seem more appropriate. In practice, most countries have debt in local and foreign currency and also in domestic currency, but indexed to inflation, in which case real GDP growth would be the natural benchmark.

Akin to the implicit interest rate g_t , the growth rate that appears in the debt dynamics equation (1) is an implicit growth rate and a weighted average of the nominal, real, and dollar GDP growth rates, where the weights are the fraction of debt denominated in each of these units. That growth rate can be recovered implicitly from the debt dynamics equation:

$$d_t = \frac{(1+r_t)}{1+g_t} d_{t-1} - p_{bt} = \frac{d_{t-1}}{1+g_t} + \frac{r_t D_{t-1}}{Y_t} - p_{bt} = \frac{d_{t-1}}{1+g_t} - \frac{OB_t}{Y_t} \quad (6)$$

Where d_t is the debt-to-GDP ratio, $\frac{r_t D_{t-1}}{Y_t}$ is the interest paid on debt in period as a fraction of GDP, and OB_t is the overall fiscal balance (i.e., the

primary balance plus interest payments). From this relationship, it follows that the implicit growth rate is:

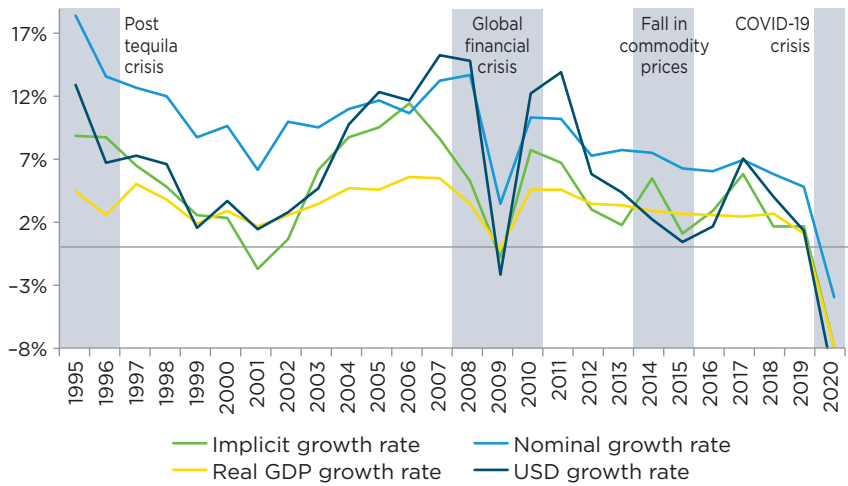
$$g_t = \frac{d_{t-1}}{d_t + ob_t} - 1 \tag{7}$$

where all lowercase variables represent fractions of period *t* GDP.

Figure 5.7 shows the evolution of the median implicit growth rate for the region and compares it with alternative measures of growth calculated by measuring GDP in local currency, in dollars, and in real terms. As can be seen, the implicit growth rate in general is in the middle of the estimates. It tends to exceed the real growth rate, but is less than the growth rate in nominal or U.S. dollar terms.

An important caveat about implicit interest and growth rates is that they assume no debt renegotiations (or default) take place. During default periods, the sovereign does not pay its due interest and principal, but the debt is still accounted for in the debt statistics, which biases the implicit interest rate calculation. Also, debt renegotiation changes the outstanding amount of debt, and thus the debt-to-GDP ratio, without there being any payment or output growth. Therefore, all implicit interest and growth rates reported exclude default periods.¹²

Figure 5.7 Median GDP Growth Rates



Source: IDB staff calculations based on data from Mauro et al. (2013) and IMF (2021).

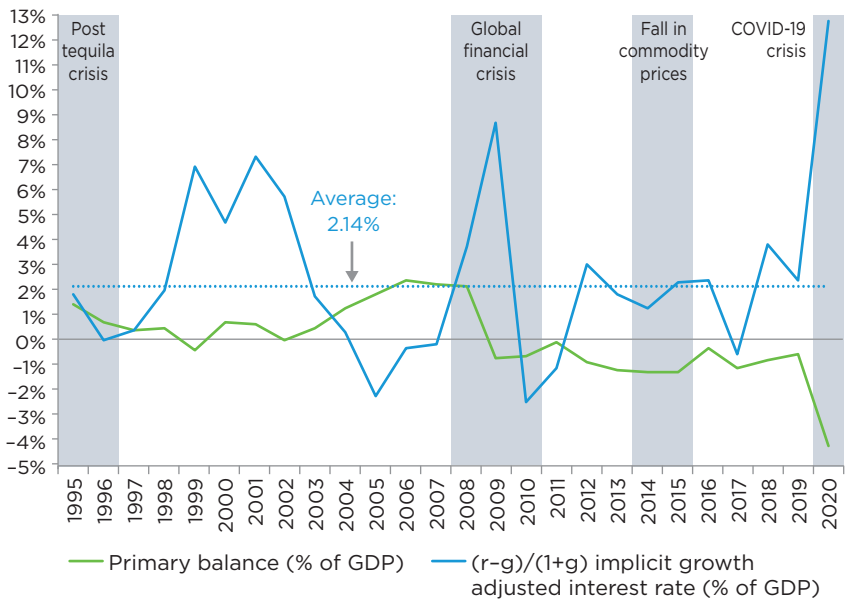
¹² This discussion also assumes away other causes of differences between the change in debt and the components of the debt dynamic equation, such as the stock-flow

Having defined the implicit interest rate and growth rate, the next step is to compare the primary balance with the growth adjusted interest rate to assess whether the region adopted sufficiently aggressive fiscal policy to maintain sustainability given increases in debt. In the region as a whole, and in all country groups (except commodity-dependent countries), the response in the primary balance to a rise in debt is greater than the growth adjusted interest rate at the 95 percent confidence level (see Figure 5.8).¹³ Thus, the fiscal response of the typical country in the region (and in the tourism and diversified groups) implied sustainability.¹⁴

In the case of the commodities group, debt grew rapidly in the last two decades from relatively low levels; the result was a fiscal reaction that was not consistent with a stable debt ratio. This coincided with the

Figure 5.8 Median Primary Balance, Interest Rate and Debt

A. Primary balance and interest rate



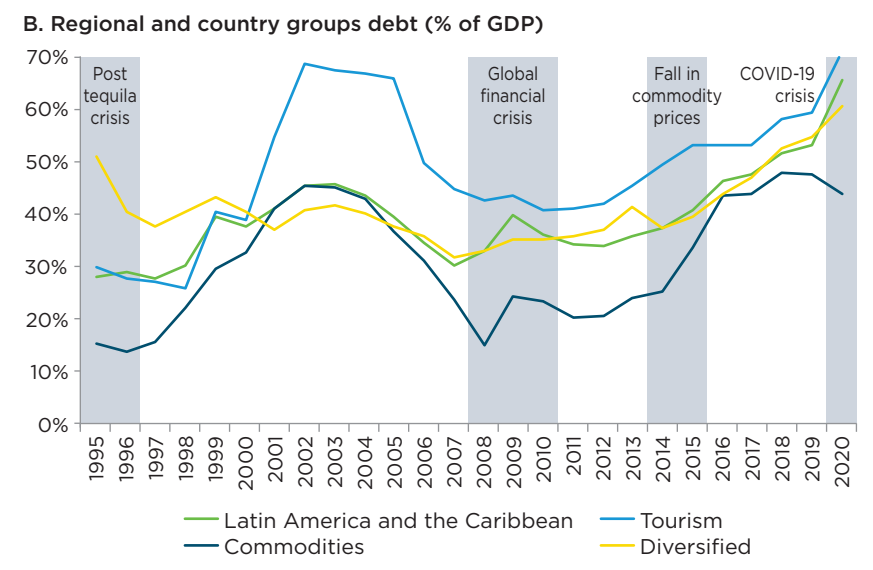
(continued on next page)

adjustment term or “below the line” budget items that provoke changes in debt. In the dataset, periods with very high or low implicit growth rates are excluded. The important point is that the implicit growth rate captures most of the growth components of the debt-to-GDP ratio evolution and is an easy way to approximate the precise weighted average described above.

¹³ The growth adjusted interest rate for the region is 2.1 percent.

¹⁴ The median growth adjusted interest rate was positive for 425 observations in the sample and negative for 305 observations. It tends to increase during crises as primary balances deteriorate.

Figure 5.8 Median Primary Balance, Interest Rate, and Debt (continued)



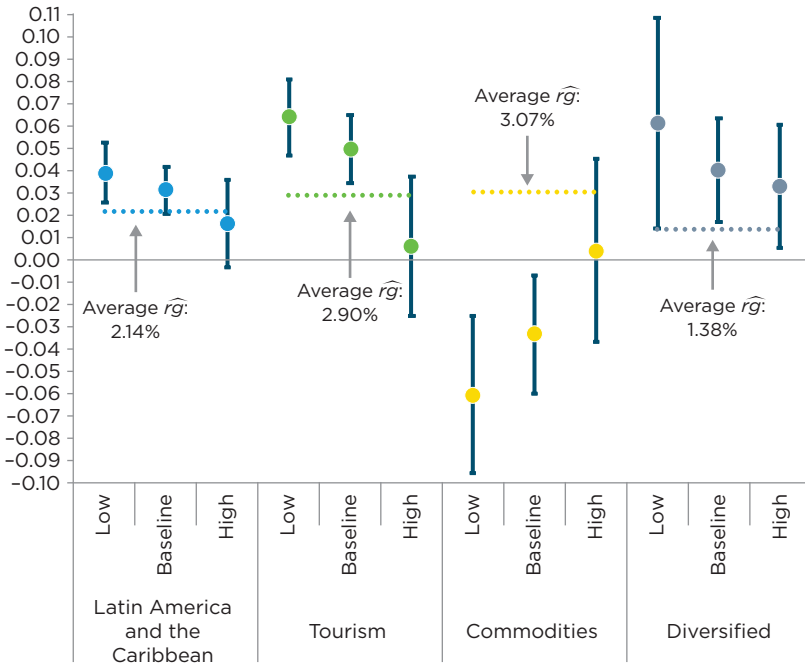
China-induced commodity boom (see Figure 5.8, Panel B and the next section for further comment).

Fiscal Fatigue: Allowing for a Weaker Response at Higher Debt Levels

The results indicated in the previous section assume a constant fiscal response, but in practice this might vary with the level of debt. Fiscal fatigue may set in at higher debt levels, reducing the fiscal response.

Figure 5.9 compares the reaction of the primary balance to debt when debt is above the median to the reaction when debt is below that point.¹⁵ When debt is above the median value, while the fiscal response is greater than the growth adjusted interest rate on average, it is not statistically greater than this critical value at the 95 percent tolerance value. Thus, at high debt levels, the fiscal response was not aggressive enough to guarantee sustainability to a high level of confidence. As debt is now higher than the historical levels employed in this analysis after the COVID-19 crisis, the

¹⁵ González and Hernández (2022) find equivalent results using the 75th and 90th percentiles and using polynomial forms. Default episodes are excluded for the purposes of these calculation.

Figure 5.9 Weaker Fiscal Responses at Higher Debt Levels

Source: IDB staff calculations based on data from standardized databases and national sources.

Note: The point is the estimated coefficient of lag debt, while the error bars are the 90 percent confidence interval. r and g are the implicit interest rate, and the implicit growth rate, respectively. Average (\hat{r}_g) is the time average of the cross-sectional medians from 1995 until 2019 of the implicit growth adjusted interest rate. High levels of debt refer to periods without a default and in which the debt-to-GDP is above the 50th percentile of each country, while low levels of debt refer to periods without a default and in which debt is below that threshold. See Figure 5.5 for a description of the countries included in each group.

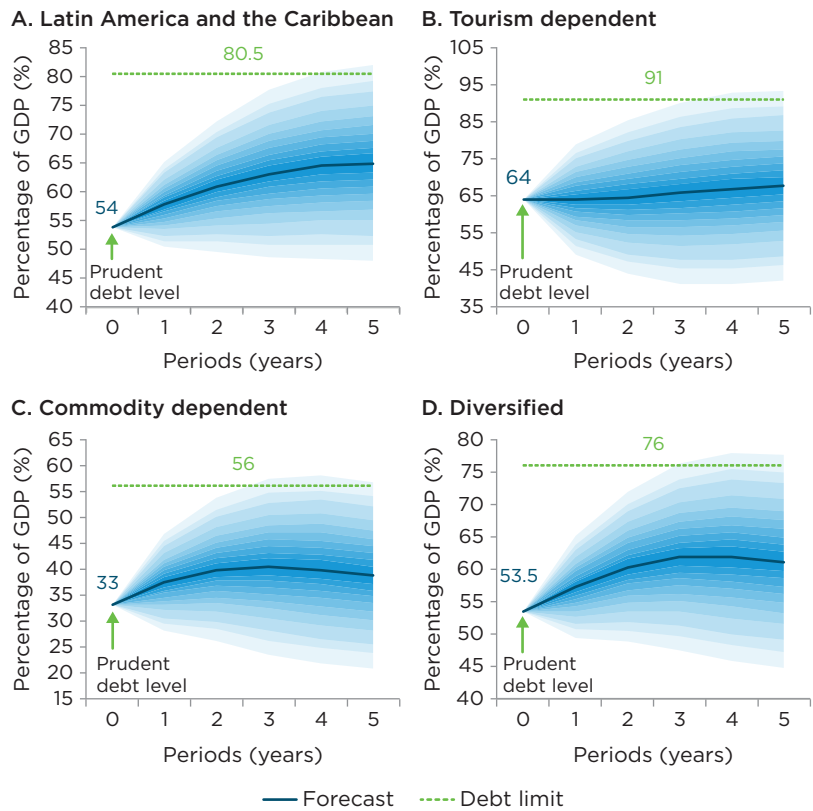
fiscal reaction will have to exceed that of the past in order to ensure debt sustainability.

Preparing for the Worst: Prudent versus Sustainable Debt Levels

Given the costs and difficulties in reducing debt as well as the existence of fiscal fatigue, countries would do well to maintain debt levels below a level that (only) guarantees sustainability. This might be referred to as a prudent level of debt and not just a sustainable one. As shocks can always occur, such a level can be defined as one that ensures debt remains sustainable, even if a wide set of negative shocks were to arise.

Prudent debt levels are estimated such that, with a given probability, debt remains below the maximum sustainable debt level. The methodology employs thousands of stochastic simulations in a type of Monte Carlo analysis that can be illustrated by a fan chart (see Figure 5.10). The risks

Figure 5.10 Debt Limits and Prudent Debt Levels



Source: IDB staff calculations.

encapsulated in the methodology include depreciation of the currency, interest rate hikes, shocks to growth, and fiscal variables, among other factors.

The results indicate that the prudent level of debt for the typical country in the region is about 54 percent of GDP. Considering country groups, commodity-dependent economies have lower prudent debt levels as the shocks that may impact these economies tend to be larger. The typical diversified economy has a prudent debt level similar to that of the typical country in the region, while tourism dependent countries have somewhat higher prudent debt levels.¹⁶

¹⁶ Figure 5.10 shows the calibration results of prudent debt levels in the region over a five-year horizon. For each country group, the prudent level ensures a 90 percent probability that debt will remain below its maximum debt. Note that the full impacts of the COVID-19 pandemic on tourism-dependent countries are not completely incorporated in this analysis.

This methodology of establishing prudent debt levels is based on a prospective analysis. It is useful to compare these estimates to other approaches to test their robustness. The following section reviews past episodes of fiscal crisis and determines the debt levels that triggered those events through an early warning type methodology. The results are then compared to estimate more robust prudent debt levels.

The Value of an Early Warning System (EWS)

Early warning systems (EWS) rely on a set of indicators; if those indicators change values abruptly or enter into red zones, then a fiscal crisis is likely to be triggered. A fiscal crisis is defined as any of the following: i) the risk of facing default (or a liquidity crisis) increases abruptly; ii) IMF financing is agreed on a large scale; iii) very high inflation rates exist; or iv) the country loses access to market financing.¹⁷

Two early warning models include the signaling approach¹⁸ and machine learning (ML) tools. Both types of models allow macro-fiscal risk to be classified according to country-specific characteristics. The signaling model identifies the best predictors of fiscal crises and finds a threshold for each of these variables. A signal is sent to the system whenever an indicator exceeds the threshold. The more variables that send signals, the greater the risk of fiscal stress. However, one of the main weaknesses of this methodology is that it does not allow for correlations between the different variables predicting a crisis. Alternatively, machine learning models allow correlation between variables. The most traditional is the logit model, which estimates the determinants of fiscal stress and the respective debt threshold. However, the results are sensitive to groupings of countries and variables.

This chapter estimates a number of models using a variety of techniques to find a robust grouping of indicators.¹⁹ The models deemed the best at predicting crises are identified using standard tests.²⁰ A safe debt level for the typical country in the region would be about 46–55 percent of GDP according to the methodology (see Table 5.1). The results for diversified group of countries are around 42–43, somewhat higher levels for the

¹⁷ See for example Baldacci, Gupta, and Mati (2011), Hernández de Cos et al. (2014), Gerling et al. (2017), and Beers and de Leon-Manlagnit (2019).

¹⁸ See Kaminsky, Lizondo, and Reinhart (1998).

¹⁹ This includes the signaling approach and several machine learning approaches.

²⁰ See Valencia, Diaz and Parra (2022) for more details. The methodology follows that of Apley and Zhu (2020) and employs the accumulated local effect technique (ALE) to isolate the marginal effects of the variables on the prediction of fiscal crisis, including the level of debt.

Table 5.1 Safe Debt Levels: Comparing Results Across Methodologies (% of GDP)

Methodology		Country Groups			
		Latin America and the Caribbean	Tourism Dependent	Commodity Dependent	Diversified
Early warning model	Signaling approach	55%	70%	42%	43%
	Machine learning	46%	64%	32%	42%
Prudent debt levels (fiscal fatigue)	Monte Carlo simulations	54%	64%	33%	54%
Average prudent debt level		52%	66%	36%	46%
Actual debt level (2021)		67%	78%	61%	63%

Source: IDB staff calculations.

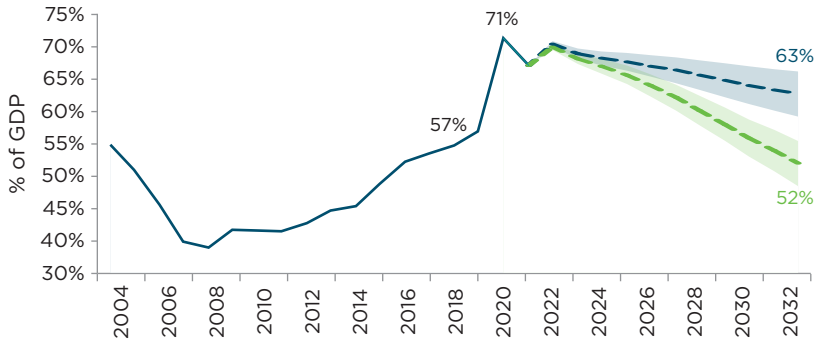
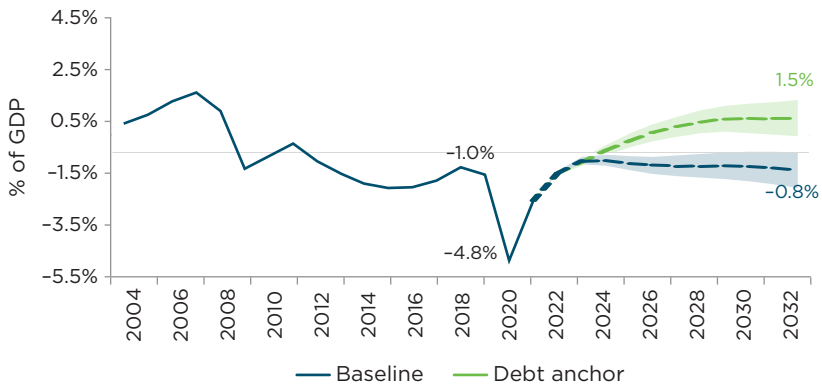
tourism-dependent group, and lower levels for the commodity-dependent group of countries.

Connecting the EWS approach with the debt sustainability framework, it is important to note that the identified debt thresholds relate to fiscal fatigue. These debt levels do not signal an imminent fiscal crisis but rather a significant increase in the likelihood of crisis in the medium term due to a combination of shocks (higher interest rates, lower growth, or fiscal shocks) and fiscal fatigue. The fact that both methodologies produce similar results provides greater confidence in these findings. The estimated safe levels of debt are considerably below current levels after the COVID-19 shock. Therefore, most countries would be wise to adopt policies to bring debt down to safer levels to reduce risks, as well as to boost growth (see Chapter 8) and ease access to finance.

Fiscal Policy to Converge to Prudent Debt Levels

The prudent debt levels estimated above are based on historical data, employ historical fiscal reaction functions and values of salient variables, and factor in country characteristics including the quality of fiscal institutions. To reduce risk, countries could reduce debt to these prudent levels, improve fiscal institutions in order to increase debt carrying capacity at lower risk, or a combination of the two.

As an exercise, consider countries that only reduce debt. Two scenarios are compared. The first is a baseline case in which debt levels are

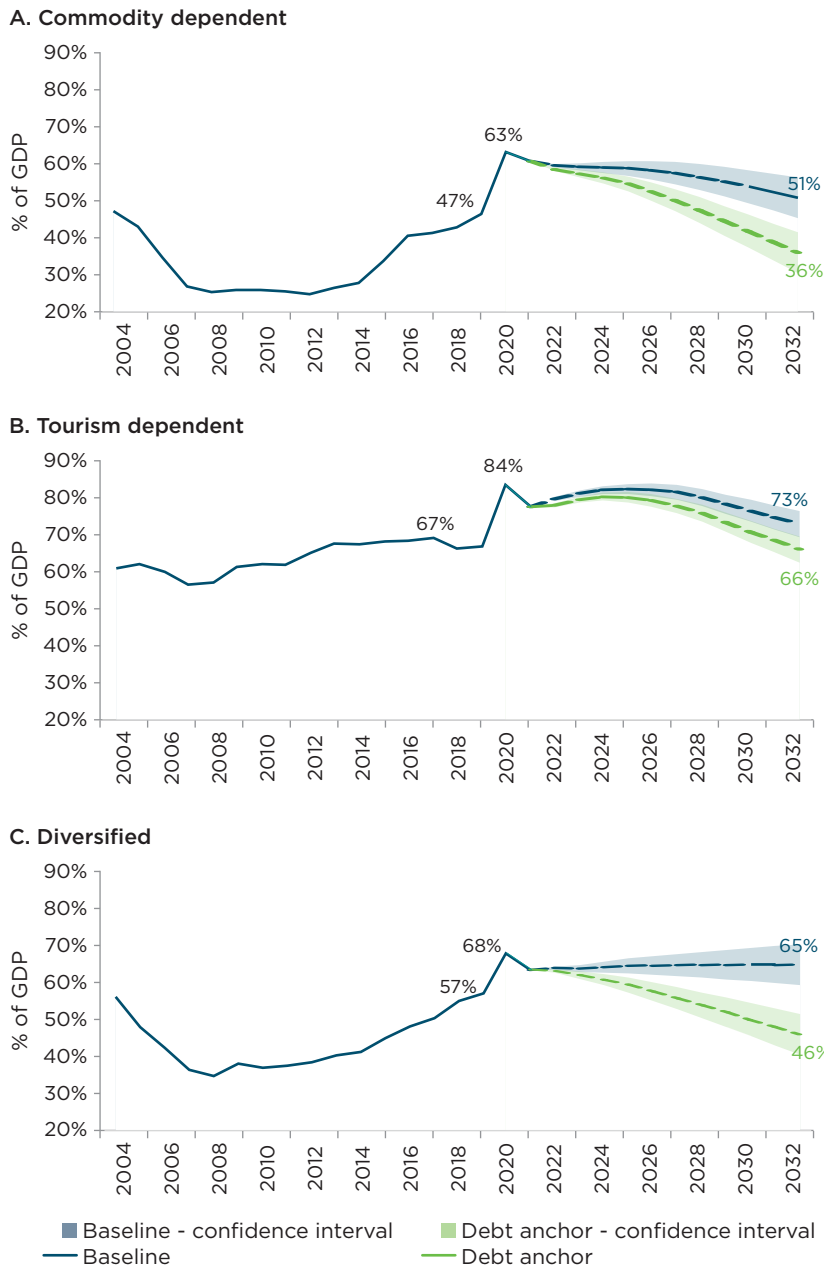
Figure 5.11 Gross Debt and Primary Balance Scenarios for Latin America and the Caribbean**A. Gross debt****B. Primary balance**

Source: IDB staff calculations.

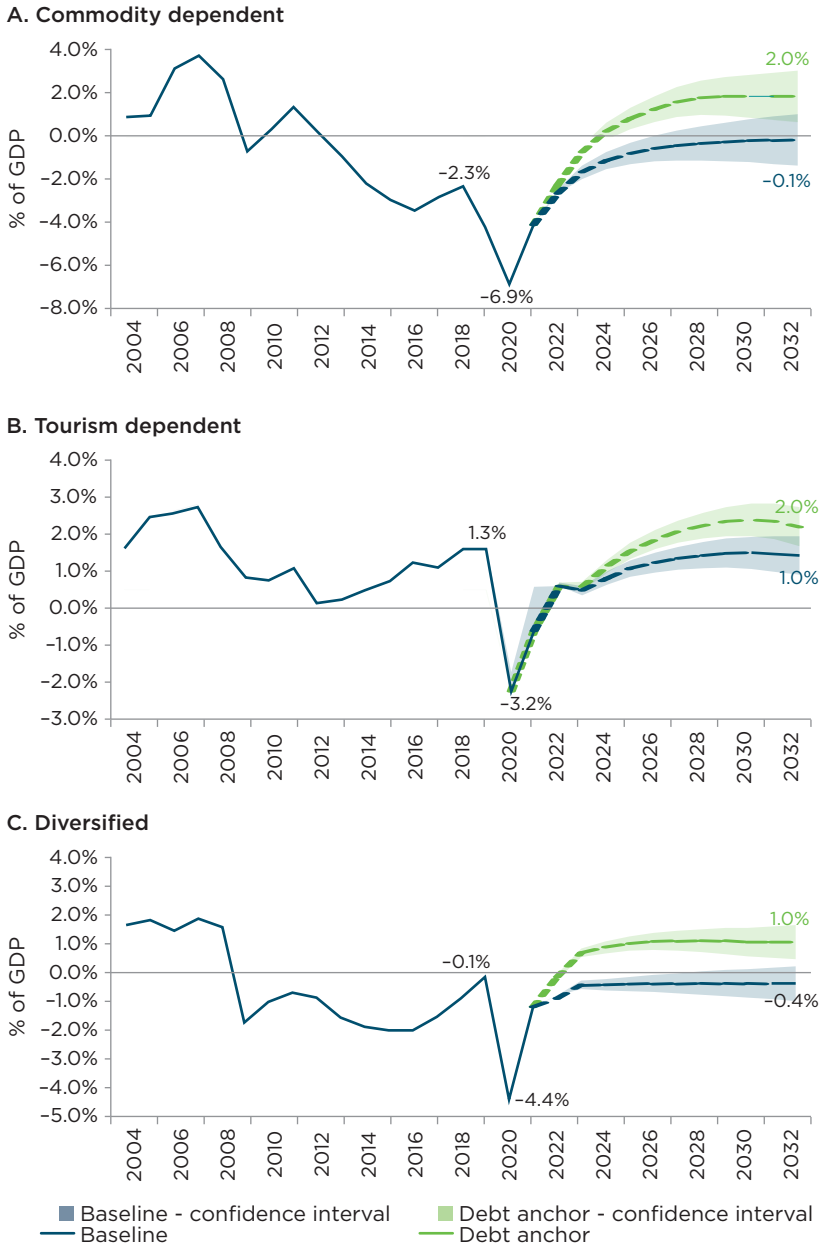
predicted and fiscal policy is endogenous and a function of debt and other macroeconomic variables. A second scenario, labeled the debt anchor case, is based on a fiscal policy designed to have debt converge to the prudent levels estimated above.

In both scenarios, debt increases in 2022 as fiscal policy remains somewhat expansionary, growth declines after the strong recovery in 2021, and monetary policy and financing conditions become tighter. In subsequent years, debt ratios decline. In the baseline, countries run a primary deficit of 0.8 percent of GDP (average 2022 to 2032) and debt declines gradually to 63 percent of GDP by 2032. In the debt anchor scenario, a primary fiscal surplus gradually rising to 1.5% of GDP would bring debt down to prudent levels; at that level, debt comes down more quickly and achieves the prudent level of 52 percent of GDP by 2032. Thus, the region needs to boost

Figure 5.12 Gross Debt Scenarios for Country Groups



Source: IDB staff calculations.

Figure 5.13 Primary Balance Scenarios for Country Groups

Source: IDB staff calculations.

fiscal surpluses by about 1.5 percent of GDP on average (compared to the baseline) to achieve the estimated prudent level of debt within a decade.

These estimates vary by country group. Commodity-dependent countries require a primary fiscal surplus of 1.3 percent of GDP from 2022 to 2032 in the debt anchor scenario to achieve the previously estimated prudent level of debt, which is some 1.8 percent of GDP above the primary balance in the baseline scenario. In tourism-dependent countries, the average fiscal surplus in the debt anchor scenario is 1.6 percent of GDP versus 0.8 percent in the baseline, and in diversified economies, the surplus is 1 percent in the debt anchor and 0.4 percent in the baseline, respectively.

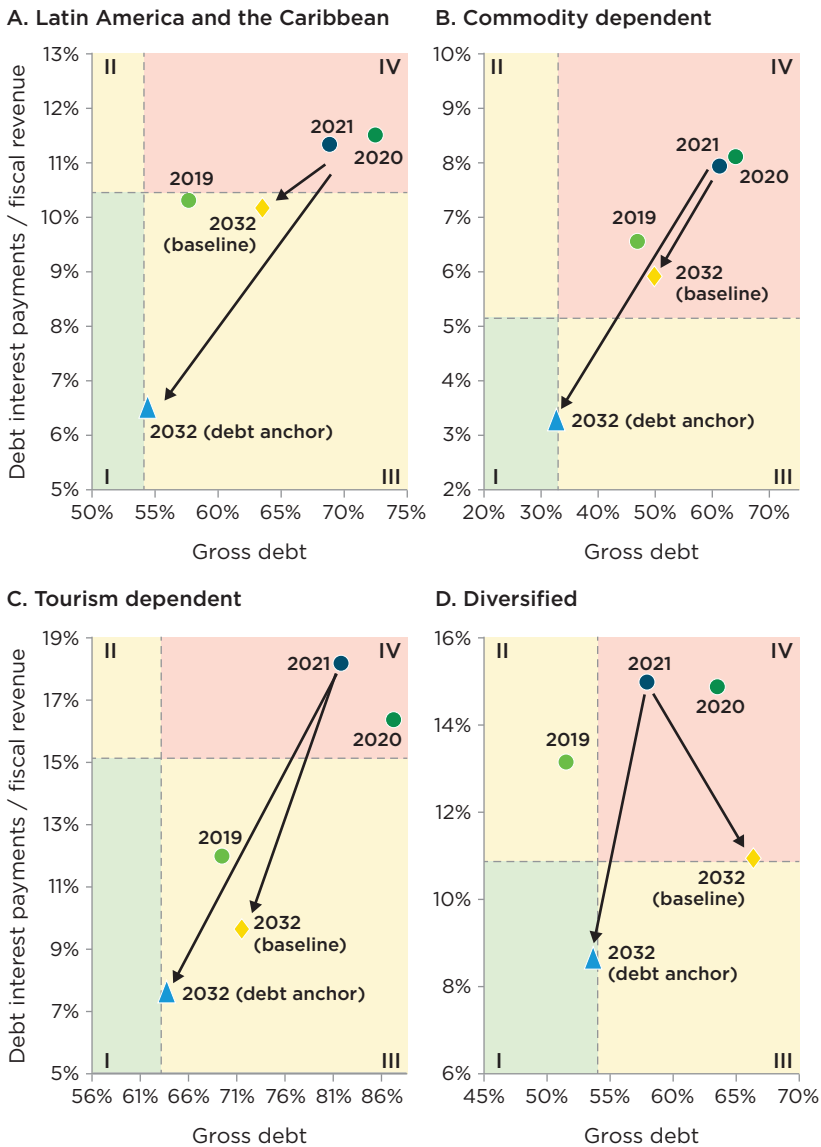
Affordability and Debt Levels

One of the significant advantages of reducing debt more quickly is to reduce debt service, lower risk, and create fiscal space for other types of spending that enhance growth or assist low-income households. The current high debt levels plus increasing interest rates are pushing interest payments higher as a percentage of revenues: that ratio is sometimes referred to as the affordability of debt. The early warning system analysis can also help determine when a lack of debt affordability becomes a problem.²¹

A situation when debt is relatively low and debt service is a relatively low percentage of tax revenues can be described as the safe zone and labeled as Zone I (lower left) in Figure 5.14. Zone II (upper left) is a mixed zone where debt levels are relatively low, but debt service is relatively high. Countries with low fiscal revenue takes (fiscal revenues divided by GDP) will in general need to keep debt levels low and are frequently found in this area of the figure. Zone III (lower right) is also a mixed risk zone where debt levels are high but debt service is relatively low. Many advanced economies are in this zone, as are countries in the region that have relatively high debts but manage to keep interest rates low thanks to high reserves, good debt composition, or superior fiscal institutions. Zone IV is the high-risk area (upper right) where debt levels and debt service are relatively high.

The typical country in the region was on the border between the high-risk area (zone IV) and zone III (mixed risk with high debt but lower debt service) before the pandemic. With the pandemic, debt levels and debt service both rose and pushed most countries into the higher risk zone.

²¹ The early warning system employs the debt affordability ratio as one of the indicators of a potential crisis; the thresholds uncovered are used here to determine the different zones as described in the text. Still these thresholds should be considered as indicative and in general would depend on individual country characteristics.

Figure 5.14 Debt Level and Affordability

Source: IDB staff calculations.

In the debt anchor scenario, countries move to the bottom left and the border of the safe zone with lower debt levels and more affordable debt service. In the baseline scenario, without additional surpluses to reduce debt, the typical country is at best in the mixed risk zone (zone III). This pattern is broadly repeated for the different country groups.

Restoring and Maintaining Sustainability

Many countries in the region would benefit from bringing debt down to prudent levels in order to reduce both risks and the costs of debt service. Debt reduction would also open up fiscal space for greater productive investment and allow for countercyclical fiscal policy given future shocks.

There is no one-size-fits-all recipe for fiscal consolidation, and the best strategy depends on country circumstances.²² Still, all countries should ensure that both public spending and tax systems are efficient. On the spending side, pre-pandemic estimates suggested that 4.4 percent of GDP could be saved on average by improving the efficiency of expenditures.²³ And on the tax side, tax systems could be modernized in numerous ways to improve collection.²⁴ Greater efficiency is more important than ever given the rise in public spending due to the pandemic. It is particularly important in countries that raise large amounts of public revenue and where expenditure is a high percentage of GDP. In 2021, some 15 countries in the region raised more than 25 percent of GDP in public revenue, and public spending exceeded 25 percent of GDP in 16 countries.

In countries that raise large amounts of public revenue from taxes, the negative growth consequences of raising taxes even more is likely damaging.²⁵ Thus, while seeking greater efficiency in how taxes are raised is critical, so too is determining how spending can be reduced. Typically, countries that raise a lot in taxes also spend a lot. Thus, seeking greater efficiency in spending is key. In addition, policies that promote a shift in spending from consumption to investment are beneficial from a growth perspective, as growth multipliers tend to be significantly higher on investment than consumption expenditure.²⁶ Carefully designing subsidies and transfers to ensure they are received only by those who really need such support is crucial to the effort to make spending more efficient.²⁷

In countries with smaller governments in terms of public revenues and expenditures, the main focus may be somewhat different. Nine countries

²² See, for example, the discussion in Powell (2016).

²³ See Izquierdo, Pessino, and Vuletin (2018).

²⁴ See Corbacho, Fretes Cibils, and Lora (2013), and Cavallo et al. (2022) on tax policies and see Manzano, Navajas, and Powell (2018) for a discussion of the efficiency of taxes and royalties on commodity production in the region.

²⁵ See Gunter et al. (2021).

²⁶ See Ardanaz et al. (2021).

²⁷ Fuel subsidies, for example, are a poor instrument from a distributional standpoint as much of the subsidy leaks to those with higher income (see Izquierdo, Pessino, and Vuletin, 2018).

have public revenues of less than 20 percent of GDP, and five raise less than 15 percent of GDP. These countries may benefit significantly from expanding the tax base. New technology has revolutionized tax systems, allowing for better identification of tax payers, monitoring, and collection. Still, the focus should be on improving efficiency in terms of both revenues and spending to ensure that any additional receipts are put to best use.

While recent evidence suggests that growth multipliers are higher for investment spending than consumption, these studies are based on historical data.²⁸ The region has considerable space to improve public investment regimes, and significant savings is possible at all stages, from project identification through project development and operation.²⁹ Enhancements in investment regimes could then result in even higher growth multipliers in the future.

In addition, the timing of consolidation involves a tradeoff. On the one hand, a fast and more aggressive consolidation strategy may yield significant benefits in terms of savings on interest payments and lower risk premia and interest rates, which may benefit private investment. On the other hand, sharp cuts in spending or increases in taxation may lower growth, especially if demand is already weak. A more gradual approach may be less harmful to economic activity, especially if growth is below potential. However, the slower approach implies higher levels of interest payments for longer, meaning more adjustment would actually be required. If the private sector harbors any doubts that the consolidation will actually take place, then the benefit in terms of any immediate reduction in risk may be minimal. Good fiscal institutions that convince the private sector that a multi-year consolidation plan will be executed are key to a successful, gradual adjustment program. If strong fiscal institutions back the credibility of the plan, then a reduction in risk premia and beneficial effects on private investment may be forthcoming sooner.

Public debt had been rising in the region before the pandemic, and the COVID-19 crisis prompted another surge. This chapter argues that in the future, sustainability depends critically on fiscal plans. Most countries would benefit from some degree of fiscal consolidation, and some require a substantial fiscal effort to reach prudent levels of debt with low risk. The best mix of greater efficiency, streamlined spending, and an enhanced tax base will depend on individual country circumstances, including the quality of fiscal institutions and appropriate debt management (see Chapter 6).

²⁸ Still, growth multipliers on government consumption in developing countries are likely higher than in advanced economies (see Izquierdo, Pessino, and Vuletin (2018).

²⁹ See Cavallo, Powell, and Serebrisky (2020).

Sovereign Debt Management

The objective of public debt management is to ensure that government meets its financing needs and payment obligations at the lowest possible cost, at an acceptable level of risk, over the medium term.¹ No single strategy is ideal; the lowest cost for a certain level of risk must be consistent with a spectrum of choices regarding maturity, currency, jurisdiction, instruments, and investor-base, among other dimensions. The right strategy also depends on assumptions on the riskiness of the various elements of the public sector balance sheet, including the liquidity risks associated with debt that must be rolled over.²

Debt management is not an attempt to make money or simply reduce costs. Rather, it seeks hedges against shocks at reasonable cost to reduce the uncertainty surrounding a country's capacity to pay. Once alternative strategies are quantified in the risk-cost space, the final choice should reflect the country's long-run preferences. This implies using well-defined and stable criteria to govern debt management and holding debt managers accountable while giving them a degree of independence.

Debt management should encompass all financial obligations under the control of the central government. However, when analyzing alternative strategies, the debt manager should be aware of explicit and contingent obligations that, while not part of sovereign documented liabilities, may affect future financing needs. Defining the perimeter for calibrating and selecting debt strategies is not always straightforward.

¹ In this chapter, risk refers to the objective of fiscal sustainability, developed in more detail in Chapter 5, namely, to avoid credit events or abrupt and possibly inviable fiscal adjustments.

² As outlined in Chapter 2, for example, developing countries may issue debt to hold reserves to reduce liquidity risks. See also Levy Yeyati (2008).

This chapter follows the definition of debt as discussed in Chapters 4 and 5, but also considers liabilities not normally included in that standard approach.

Debt managers face multiple tradeoffs that are surely harsher in developing than advanced economies. Most notably, they must weigh the tradeoff between hard currency external debt at lower cost and longer maturities, versus shorter and more expensive domestic debt. They also confront choices related to the type of creditors. For example, loans from official creditors may be cheaper, safer from the standpoint of roll-over risk, and less procyclical than bonds held by commercial creditors; however, they may come with strings attached. Still, some private institutions may have long-term objectives and be relatively stable investors while others may have short investment horizons and be highly sensitive to changes in risk. Local regulated institutional investors may behave differently from fickle foreign creditors.

Debt composition refers to the stock of debt. It evolves slowly over time (and more slowly the longer the maturity), and decisions taken today will persist. Thus, targeting a particular debt profile should be thought of as a medium-term exercise. Given unanticipated changes in interest rates, currencies, and other variables, debt composition will change and is unlikely to be at some chosen optimum in each moment in time. Debt managers should incorporate such risks into any strategy.

Latin America and the Caribbean has advanced significantly in terms of both developing institutions to manage debt effectively and improving debt composition. Many countries created Debt Management Offices (DMOs) and improved the quality of technical staff. After the crises of the 1990s, and through the commodity boom of the 2000s, debt dollarization declined, and the emphasis shifted to lengthening maturities in domestic currency. Still, these trends reversed somewhat with the fall in commodity prices after 2012, and the pandemic pushed debt levels up sharply and impacted debt composition.

This chapter focuses on debt management strategies from both a positive and normative perspective. It reviews the standard principles of debt management, defines the debt perimeter, details the evolution of sovereign debt composition over the past 20 years, and discusses the current amortization schedule for public debt. The region faces significant fiscal challenges after the pandemic. Appropriate debt management, with efficient institutions such as DMOs and innovative debt instruments, will be key to meet these challenges.

Managing Risk: The Quest for Optimal Debt Composition

In debt management, current government financing needs are generally taken as a given. The objective is to meet these needs while minimizing expected debt servicing costs, at an acceptable level of risk given the implications for financing in the medium term. Perhaps the most complex part of debt management is optimizing the debt structure over these risks, including market risk (increases in debt service due to changes in market variables such as interest rates and exchange rates); refinancing risk (increases in refinancing costs that, at the limit, may restrict market access; settlement risk (for example, if the government fails to deliver on a debt contract due to technical or legal reasons); and liquidity risk (typically, foreign currency shortages following unanticipated cash outflows or financing hurdles).

These considerations highlight several critical aspects of debt composition: denomination, maturity, liquidity (particularly, access to foreign exchange), and access to (more dependable and less onerous) official lending. Moreover, to the extent that the investment base in part determines the currency of denomination and, in many cases, influences maturity and refinancing risks, the composition of financing sources (private versus official, domestic versus external) is an important dimension of an optimal debt strategy.

There is no one-size-fits-all solution to finding an optimal debt profile. In particular, in many developing economies, some profile choices in terms of currency, creditor base, and maturity may not be readily available. In those cases, the best debt strategy must adapt to the relevant restrictions. For example, countries may lack sufficiently deep domestic markets, forcing the debt manager to choose between short-term, local currency domestic debt and longer-term, foreign currency debt, and leading to a heavier reliance on external (normally dollar) finance. Similarly, partially dollarized economies may face higher costs of issuing debt in local currency, which again may push the debt structure towards a greater degree of dollarization.³ In turn, low-income economies may have access to concessional lending that is preferable to other official sources in terms of cost, risk, and maturity.

³ Instruments in domestic currency may become illiquid as the tenor rises, increasing the costs of issuance, providing incentives to issue more debt in foreign currency; see Chapter 2 for further discussion. Precautionary foreign currency liquidity financed by debt may be valuable, particularly for dollarized economies, to back-stop for short-term liabilities of the banking sector.

Debt ratios and composition move slowly; decisions taken today may have implications for several years. Moreover, debt ratios are tied to changes in the environment: a cyclical appreciation in the real exchange rate tends to decrease debt ratios, and might give a misleading impression of the risks and debt management choices. Debt management should then typically take into account expected medium-term values of the key drivers, and any evaluation of debt policies needs to consider longer windows that allow time for policy to accommodate the impact of shocks.

Therefore, it is impossible to guarantee that debt composition will be optimal given all the constraints at every moment in time. A more realistic objective is to identify desired parameter combinations that yield acceptable cost–risk combinations that try to eliminate excessively risky or costly ones—and ensure that the actual debt composition follows a path within the desired parameters. As there may be many ways to achieve this objective, DMOs must have sufficient technical capacity and institutional independence to establish appropriate targets, monitor progress, and adapt policies when needed.

The guidelines of the Medium-Term Debt Strategy (MTDS) framework developed by the IMF and the World Bank include eight steps for DMOs to select a debt management strategy (DMS) that explicitly recognizes a cost-risk tradeoff that ensures debt sustainability:⁴

1. Define the scope and objectives of debt management;
2. Articulate the current debt management strategy and the costs and risks of the existing debt;
3. Identify potential funding sources, including their cost-risk profiles;
4. Develop baseline projections and identify risks in key policy areas (fiscal, monetary, external, market);
5. Recognize structural factors that may potentially influence the desired debt composition in the longer term;
6. Rank alternative strategies on the basis of the cost-risk trade-off;
7. Understand the implications of candidate strategies for fiscal, monetary, and market conditions;
8. Agree at high levels on the desired debt management strategy.

Specifically, step 6 involves mapping alternative scenarios for the debt dynamics, taking into account the following factors:

⁴ See Balibek et al. (2019) for a detailed description, and Jonasson, Papaioannou, and Williams (2019) for a brief summary of the cost-risk tradeoffs.

- The environment: A set of exogenous real and financial variables such as growth, real exchange rate, terms of trade, external demand, global interest rates, and global risk variables.
- Policy parameters: The response to changes in the environment for specific components of income and expenditures.
- Alternative scenarios: These may be derived from stress tests generated from simulated distributions of exogenous variables.
- Simulations of primary balances: These may be obtained by simulating paths for the exogenous variables and incorporating other factors such as estimated social security payments or estimated cash flows from contingent liabilities.
- Debt service cash flows: For each scenario and debt strategy, the cash flows for debt service may be estimated.
- Debt profile frontier: Using these cash flows, a cost-risk map of each individual debt strategy can be developed, the frontier identified, and then a best option chosen based on preferences.

The MTDS offers a tentative list of possible metrics for cost (e.g., interest payments normalized by GDP or tax revenues) and risk (short-term share, foreign currency share, foreign currency debt service over reserves), as well as the more traditional stock variables (debt-to-GDP and debt-to-government revenue ratios, and the NVP of debt-to-GDP). The MTDS analytical tool (Balibek et al., 2019) ranks a limited number of strategies based on cost-risk analysis that involve a trade-off between the variable's expected value (under the baseline scenario) and the tail value (under stress) to guide the final choice, which may involve multiple comparisons.

Colombia provides an interesting case study for debt management given the excellent documentation of the methodology and challenges faced.⁵ In the Colombian case, the inputs for determining the structure of new issuance under each debt strategy include the government's financing needs, composition of new debt, placement scheme of new issues, financial terms of the new debt, and relevant issuance restrictions. Inputs are reviewed at least monthly. Domestic (local currency) yield curves are modeled and, to reduce dimensionality, macroeconomic variables and yield curves are captured by their principal components. Trends of macroeconomics variables are used to outline the baseline scenario. An 8 percent concentration limit is imposed: if any new debt is issued, no more than 8 percent of total amortizations are concentrated in any particular year.

⁵ Please refer to MinHacienda (2018) for a detailed description of the debt management strategy.

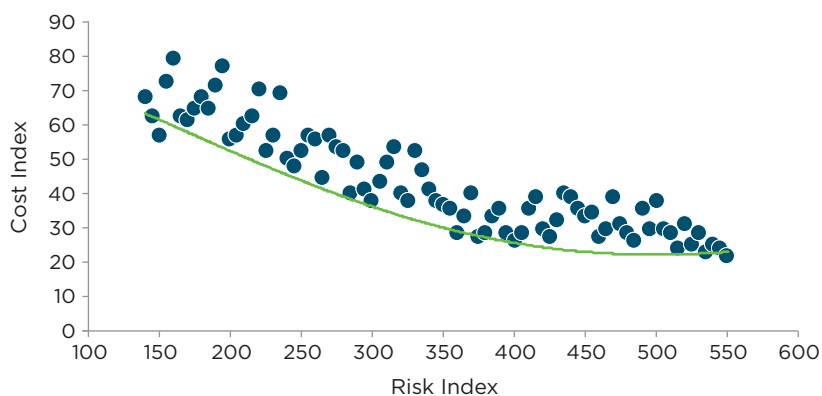
The model to guide debt management strategy optimization proceeds in two stages: first, it optimizes the debt strategy over the currency share and the blend of interest rates. In addition, the methodology simulates, for each debt strategy, a distribution of scenarios based on the empirical correlations between macroeconomic variables and risk sources. This then serves to stress-test the debt dynamics.

The outputs of this exercise are the cost of the debt strategy (proxied by the mean of the present value of the flow of debt service) and its risk (proxied by the conditional value at risk of the present value of the debt service, based on the distribution obtained from the simulation) for a large number of strategies that allow the manager to draw a debt strategy frontier map (Figure 6.1).

Finally, the optimal debt strategy is determined by the optimal cost-risk frontier (namely, the set of strategies for which no alternative strategy renders better values in both dimensions) coupled with the cost-risk preferences of national authorities, characterized by the ratio $\lambda = -\frac{\Delta \text{Cost}}{\Delta \text{Risk}}$. This yields an optimal point in the frontier that then defines an optimal program, the selected strategy will be the point at which the frontier has a slope λ , and that point then maps to choices regarding composition.

The Colombian case highlights how the dimensionality of the complex debt management problem can be realistically reduced to allow for a tractable exercise. The approach focuses on key risks and harnesses a data-driven process to identify good strategies from a cost-risk perspective and eliminate those that might be too costly or risky.

Figure 6.1 Representation of the Debt Strategy Frontier



Source: IDB staff calculations based on MinHacienda (2018).

Defining the Debt Perimeter: Beyond Standard Debt Ratios

The previous discussion assumed it was obvious which debt should be included in the simulations to choose the best strategy. In practice, this is not always the case. Key questions include i) the treatment of debt held by the central bank and other public agencies, ii) whether and how contingent liabilities should be incorporated into optimal debt composition estimates, and iii) how to integrate the analysis of assets and liabilities—a balance sheet approach. The following subsections cover these issues.

To Include or Not to Include: How to Treat Central Bank and Other Public Agency Debt

Different countries have taken different positions on the question of whether the central bank balance sheet should be consolidated with that of the government (see Chapter 4). If central banks are seen as autonomous entities, intended to operate independently in practice and not just in name, then their balance sheets should be treated separately, suggesting that debt levels should be gross and include debt held on central bank balance sheets.⁶ This approach would also highlight governments' liability to central banks, which would expect to receive service on that debt just like other creditors, even if the central bank then transfers profits to the treasury each year. But some central banks issue debt, their balance sheets are typically guaranteed by governments, and in crises, central bank balance sheets have been used to provide needed liquidity. In addition, there may be ways to increase the independence of their actions, even if balance sheets are merged.⁷ These arguments point to consolidating balance sheets and specifically netting out the debt held by the central bank. An intermediate position is when government provides some of the debt held by the central bank specifically to execute monetary policy, meaning the central bank has corresponding liabilities with the government. In this case, part of the balance sheet should perhaps be consolidated, and debt figures should net out those particular bond holdings. Arguably, there is no one right approach, and each has its pros and cons.

⁶ In this case, the debt management office and the central bank should coordinate closely on debt issuance and other issues.

⁷ De jure legal independence does not guarantee de facto independence, but some central banks have institutional structures to enhance their independence, particularly for monetary policy decisions, such as lengthy terms for directors and the central bank president that do not coincide with political cycles, and monetary policy committees that may include external members.

The important point for debt management is that whichever route is taken, the debt management office should take into account the debt held by the central bank when considering optimal debt composition, and the treasury and central bank should coordinate closely. Indeed, even if debt is netted out, it is important to be transparent and to publish not only the net debt but all the details of the debt held by the central bank, along with the full central bank balance sheet. A lack of transparency tends to be met with suspicion by the private sector and weakens the credibility of both monetary and fiscal policy.

Assuming that the debt held by central banks is included in the analysis of optimal debt composition, this debt should perhaps be treated differently than debt held by other creditors. In particular, this debt might be regarded as more stable and less risky with low roll-over risks.⁸ Still, the implied constraints on the central bank might limit the perception of independence.

Similar arguments can be applied to other public agencies. On the one hand, if viewed as integral parts of the public sector that count on government guarantees and make their assets available for use by the government at least in some circumstances, then the balance sheets should be consolidated. In this way, the treasury would have full information on any debt issued by these agencies. On the other hand, if the goal is the independence of those agencies from the government, then their balance sheets should be considered separately. Again, at the expense of limiting the perception of independence, that debt might be considered differently to that of other creditors as it is likely more stable and less subject to a run. These arguments may also apply to private regulated financial institutions such as domestic banks. In practice, their debt holdings have been more stable than those of atomistic, foreign bond holders. However, a government attempt to take advantage of the influence stemming from regulatory authority may lead into dangerous territory. If banks are considered too large, systemic, or politically sensitive to fail, then they may also give rise to significant contingent liabilities.

The treatment of subnational entities (states or provinces in a federal system and cities and municipalities) is another vexing question. While political systems may profess independence, history suggests that subnational agencies often count on government guarantees (either explicit or implicit). Considering gross debt and including such entities is more

⁸ A similar distinction could be made between private bondholders, private banks, and official lenders. Creditor composition and its implications are discussed later in the chapter.

conservative in the sense that debt ratios would be higher and allow the debt management office to obtain information and monitor debt issuance. It would also allow the DMO to optimize over the full extent of the debt outstanding while taking into account its particular characteristics. Even if this is not feasible due to constitutional, political, or other constraints, if these entities issue debt, then they should closely coordinate and share information with the DMO.

Debt issues by state-owned enterprises (SOEs), public banks, subnational authorities, or even private banks considered too large or systemic to fail may also become contingent liabilities of the government.

Treatment of Unfunded and Contingent Liabilities

The analysis so far has excluded certain liabilities that may not be explicitly funded, that are contingent, or that simply appear from time to time, often referred to as skeletons. Examples include obligations due to legal actions against the state, unfunded transfers to subnational governments, obligations arising from public guarantees (explicit or implicit), and unfunded pension system liabilities.^{9,10}

But how should such liabilities be addressed by DMOs? A frequently used criterion is that of actuarial balance, a close relative to the concept of net worth in a firm and net wealth in public accounting:

$$\text{actuarial balance} = E[\text{PV}(\text{inflows} - \text{outflows} \\ - \text{operating expenses})] + \text{reserves}$$

where quantities are in real terms and the discount rate is the real after-tax interest rate on government bonds (proxy for the government's opportunity cost). A contingency program would be actuarially balanced if the expected value of future payouts to all current and future participants equaled the expected present value of the inflows from all current and

⁹ IDB estimates following a survey conducted with government representatives of the eight largest economies in the region suggest that, on average, legal cases have created potential obligations of as much as 17 percent of GDP (this figure may include claims the state has not recognized or that are subject to appeal), guarantees and Public Private Partnerships (PPPs) have created obligations of about 7 percent of GDP, unfunded transfers to subnational authorities about 6 percent of GDP, and natural disasters about 1 percent of GDP on average.

¹⁰ The annual cash flow of pension systems is generally included in budgetary projections, but losses from pay-as-you-go schemes or losses during the transition from a pay as you go to a capitalization scheme may be unfunded.

future participants, plus the value of any reserve fund. As in any debt sustainability analysis (DSA), in addition to targeting actuarial balance (that is, *solvency*), *liquidity* risks should also be factored in, which suggests a more conservative strategy and the likely inclusion of liquidity buffers.

These methodologies can also be applied to contingent debt instruments. Frequently, debt ratios do not include the potential contingencies of these instruments. Dynamic analyses, or simulations that include many scenarios for GDP, commodity prices, or other relevant underlying variables can be useful to model the impact of contingent debt instruments.

To assess quantitatively the fiscal cost of contingencies, Bova et al. (2016) use a dataset that spans 80 countries (34 advanced economies and 46 emerging market economies) over the period 1990–2014. The authors classify contingent liabilities in seven categories (financial sector, SOEs, subnational government, natural disasters, private nonfinancial sector, legal, and PPPs) and used two complementary approaches: i) a stock-flow adjustment: the discrepancy between the annual change in gross public debt and the budget deficit, and ii) the forecast error: regressing the change in the debt-to-GDP ratio on changes in the deficit and growth, and attributing the residual term to increases in debt due to contingent liabilities.¹¹

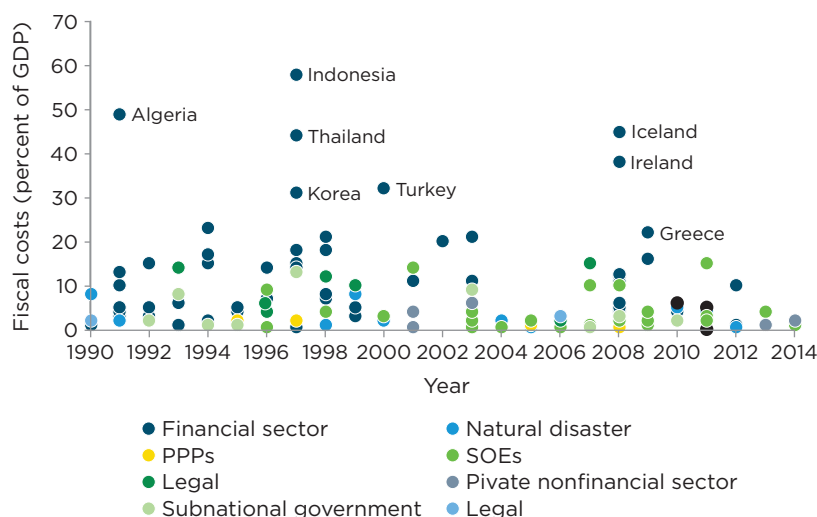
The main finding is that the realization of these liabilities tends to be costly (9.7 percent of GDP on average with many episodes over 20 percent), with a worsening in the fiscal balance, an increase in debt, and a drop in growth. In addition, contingent liability realizations tend to occur in periods of economic and financial sector stress.

In practice, most countries focus attention on explicit contingent liabilities, which are easier to measure and monitor than implicit contingent liabilities which, following the results of Bova et al. (2016), may be infrequent but large and, hence, particularly difficult to measure and incorporate into an optimal debt strategy. Still, quantifying these exposures is extremely valuable and shines a spotlight on them, encouraging governments to take necessary steps to improve monitoring and financial controls.

¹¹ From the stock-flow adjustment equation:

$$\Delta \tilde{d}_t = -\tilde{\lambda}_t d_{t-1} - o\tilde{d}_t + \varepsilon_t$$

where $\tilde{x}_t = x_t - E_{t-1}x_t$ is the difference between the WEO forecast of variable x for year t made in year $t-1$ and outcome for year t based on WEO data submitted in year t . The variable ε_t is the forecast error residual. Additionally, the authors use key word search to control for potential false positives or missed true realizations.

Figure 6.2 Contingent Liability Realizations by Year and Type

Source: IDB staff calculations based on Bova et al. (2016).

A Balance Sheet Approach

A priori, debt management practices aimed at hedging risks and enhancing the ability to absorb exogenous shocks should consider the government's overall balance sheet structure.¹² However, a balance sheet analysis requires a reliable assessment of future public revenues and on- and off-balance sheet liabilities. For example, New Zealand prepares annual consolidated financial statements in accordance with generally accepted accounting practices.¹³

Table 6.1 presents a simplified scheme of the government's balance sheet and the resulting net worth. Measuring each of these components is far from

¹² In principle, a wide spectrum of assets and liabilities should be considered, making the approach closer to the concept of solvency. See Chapter 5, Das et al. (2012), and Levy Yeyati and Sturzenegger (2021). In practice, analyses typically focus on liabilities, and if assets are included, they are often only liquid assets.

¹³ The system is defined in the New Zealand Public Finance Act of 1989 (Part III). In addition to financial statements, statements on borrowings, unappropriated expenses and capital expenditures, emergency expenses and capital expenditures, and on any trusts being administered are prepared, as well as any additional information and explanations needed to fairly reflect the consolidated financial operations and the financial position of the government. Many OECD governments publish integrated financial statements. Brazil, Chile, and Peru among others have been taking steps to adopt these practices, see OECD (2017).

Table 6.1 The Government Balance Sheet

Assets	Liabilities
Liquid assets	Explicit liabilities
Physical assets	Contingent liabilities
NPV assets	(NPV social security)
Net worth of SOE	(NPV health insurance)
	(NPV other expenditures)
	Net worth

Source: IDB staff.

straightforward and entails methodological decisions: Should physical assets be treated as “marketable,” that is, can they be used to finance liabilities? Should debt be valued at face or market value? Should contingent liabilities be taken at their actuarial value? Should the cash flow of SOEs, which typically includes a subsidy component, social security, or tax revenue, be extended forward assuming today’s legislation?¹⁴ Which discount rates should be used and should discount rates on assets and liabilities differ?¹⁵

Table 6.1 implies the implementation of a balance sheet approach. On the asset side, liquid assets should be measured at their current market value. Physical assets are also valued at market value to the extent that they are disposable assets, but are excluded if they are unlikely to be sold on short notice at a reasonable price (roads, government buildings, IMF quotas, etc.). Finally, the net worth of SOEs should approximate their market value, if one is available. The net present value of taxes is somewhat difficult to assess. To compute it, a future path of tax revenues needs to be postulated, usually based on the current tax structure, although alternative (possibly contingent) scenarios can also be tested. Regarding the liability side, in addition to liabilities with a predetermined cash flow (public debt, net social security outlays), government spending can be estimated as a function of a few exogenous variables, including contingent liabilities.¹⁶

¹⁴ An option is to consider projections assuming no substantive changes and to conduct stress tests as a complementary analysis.

¹⁵ Jiang et al. (2019) argue that taxes are more procyclical and apply higher discount rates for revenues than for spending. They estimate the present value of future U.S. public sector cash flow at -155 percent of GDP, a much higher negative value than the nominal values.

¹⁶ As Bova et al. (2013) point out, the lack of consistent balance sheet data makes country comparisons, let alone statistical inferences, quite difficult, but new technologies can improve the speed and accuracy of integrated financial statements

The balance sheet approach is attractive conceptually and from a positive standpoint. It complements the standard DSA based on debt dynamics and liquidity shortages. For example, the debt sustainability debate in emerging markets has often centered on the role of currency mismatches. However, the focus is placed on the currency composition of the sovereign's *explicit liabilities*, abstracting from offsetting effects on the value of public assets, and with no explicit analysis of how the country's assets (and solvency) change with the real exchange rate. Similarly, an increase in oil prices or in proven oil reserves may have a muted impact on traditional debt ratios, even though they enhance the solvency of an oil exporter. By contrast, changes in future liabilities as a result, say, of a pension reform directly impact the government's net worth but not its debt ratios. In a traditional analysis, these effects may be imperfectly captured through their expected impact on primary balances. Thus, the balance sheet approach expands the toolkit to assess fiscal sustainability by providing a workable approach to estimate sovereign solvency.

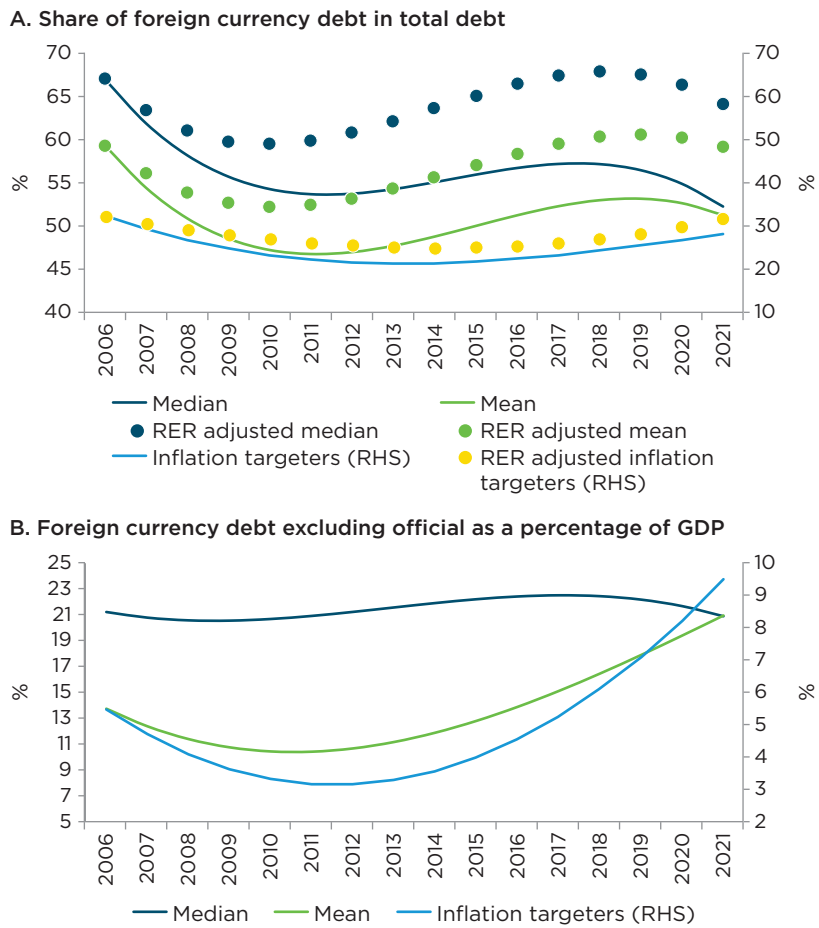
Better, But Not Best: The Evolution of Debt Composition

The region has a rich history of crises and near misses that highlights the risks of debt composition. A heavy reliance on dollar-denominated debt in the 1990s, including external as well as domestic dollar debt, contributed to the Tequila crisis and to stresses from the balance sheet impacts of sharp currency movements. As illustrated in Chapter 4, currency depreciation has been one of the main drivers of debt spikes in the region, provoked by reliance on foreign currency-denominated debt. In the 2000s, aided by the development of local markets and real appreciations induced by higher commodity prices, de-dollarization policies increased the share of local currency-denominated debt. Moreover, the focus was on lengthening maturities, in both foreign and local currency, thereby creating a more complete local currency yield curve.

Still, the collapse in commodity prices starting in 2012, modest growth, higher fiscal deficits, and currency depreciation partially reversed these trends, although ample global liquidity and historically low and relatively flat international yield, allowed countries to maintain relatively long maturities. Then came the pandemic with its many challenges. Governments borrowed in both domestic and external markets, with the net impact on foreign currency shares depending on the case.

and could facilitate the consolidation of financial information within the public sector and establish the balance sheet approach as the standard to analyze fiscal sustainability.

Figure 6.3 Foreign Currency Debt Ratios



Source: IDB staff estimates and the IDB Standardized Debt Database.
Note: Sample includes Argentina, The Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Suriname, Trinidad and Tobago, and Uruguay. Inflation targeters refers to the mean of the five largest economies with inflation targeting regimes: Brazil, Chile, Colombia, Mexico, and Peru. Series are smoothed using a cubic function. RHS indicates the series is plotted on the right-hand scale.

Figure 6.3, Panel A illustrates these trends for the region as a whole and for the five largest inflation targeters in the region.¹⁷ The ratio of foreign currency to total debt fell in the 2000s, from some 67 percent to 54 percent from 2006 to 2011 for the median country. The typical (or average) country had lower foreign currency debt ratios, although the curve has a similar trajectory. Still, after 2011 and with the decline in commodity

¹⁷ LAC 5 inflation targeters are Brazil, Chile, Colombia, Mexico, and Peru.

prices and weaker growth in the region, foreign currency debt started to rise again. By 2018, foreign currency debt had risen to about 57 percent for the median country. The five largest inflation targeters had significantly lower foreign currency debt as a percentage of total debt, with the average falling from 32 percent in 2006 to 21 percent in 2013.

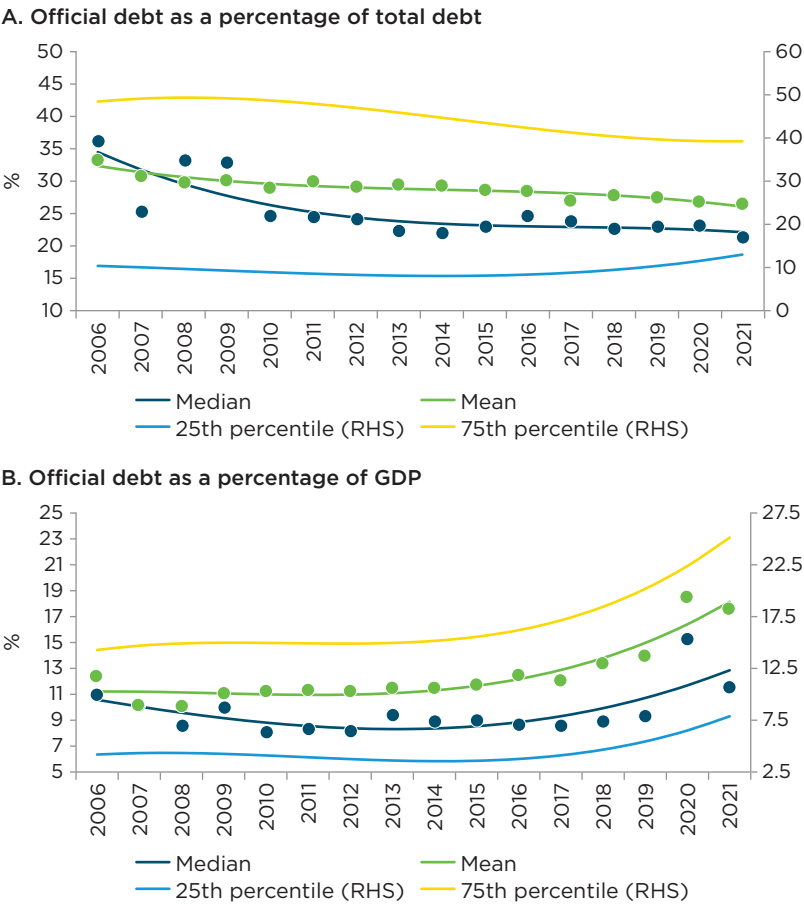
These figures reflect not only decisions on issuance but also changes in exchange rates. Correcting for movements in the real exchange rate provides a more accurate measure of the changes in composition, as a result of the issuance of local or foreign currency debt. Real exchange rates appreciated in the early 2000s; thus, some of the fall in foreign currency debt share was actually due to this real appreciation. As illustrated in Figure 6.3, Panel A, for the real exchange rate adjusted series, the curves are flattened over most years.

Note that during the pandemic, for the median and the typical country, the share of foreign currency debt declined. However, this movement is much less pronounced for the real exchange rate adjusted series, indicating that this decline was largely due to a real appreciation given rising inflation during 2020 and 2021. In the case of the large inflation targeters, this pattern is not evident, as inflation was countered by a significant nominal depreciation. The foreign currency share of debt rises sharply in 2020 and 2021, indicating greater issuance in external markets and greater amounts of official lending.

Excluding official debt and comparing the resulting commercial foreign currency debt with GDP is also instructive and pictured in Figure 6.3, Panel B. This ratio fell in the 2000s for the typical country and for the larger inflation targeters. But this decline was less marked for the median country as some countries that had not tapped international commercial markets issued more external debt. The pandemic pushed up this ratio for the typical country and for the larger inflation targeters, given greater issuance and the decline in GDP, but less so for the median country that is more reliant on official debt.

Interestingly, official debt has been declining as a percentage of total debt, but given the rise in debt ratios, official debt has been growing as a percentage of GDP (see Figure 6.4, Panels A and B, respectively). These figures illustrate the average and the median for the region. While the declining trend is reasonably consistent, as countries have issued greater amounts of debt in private markets, there is considerable variation across the region. Central American and Caribbean countries have more official debt relative to total debt or relative to GDP than the larger economies of the region. While the currency risk of foreign currency debt from official sources is in line with private debt, it tends to be of longer maturity and more likely to be

Figure 6.4 Trends in Official Debt



Source: IDB Standardized Debt Database.
Note: The countries included are the same as in Figure 6.3 plus Ecuador, El Salvador, and Panama. Curves are smoothed using polynomial functions.

rolled over during periods of stress (and in general it is much cheaper than commercial foreign currency debt of a similar maturity). The risks (other than currency mismatch risk) of having a larger share of official debt in foreign currency are then quite different to issuing a similar share of commercial debt in foreign currency.

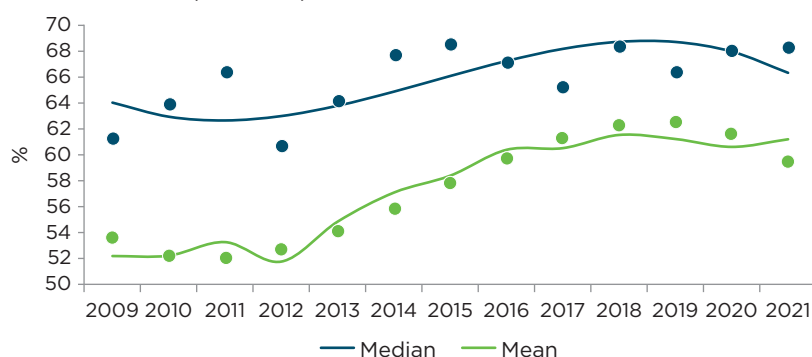
Some countries transitioned from having none or relatively small amounts of commercial debt and greater reliance on official borrowing, to issuing larger quantities of commercial debt, particularly in international markets. The ample global liquidity in the 2000s before and after the global financial crisis fostered this development. Issuing international bonds frequently goes hand in hand with improvements in fiscal

management, greater transparency, and an improved articulation of macroeconomic policies. Still, it carries risks, as changes in risk perceptions, from risk-on to risk-off, may be abrupt and foreign investors may withdraw quickly and heighten roll-over risks. Moreover, greater issuance of bonds abroad and greater borrowing from official sources through the pandemic has been accompanied by an overall rise in debt dollarization (see Figure 6.5).

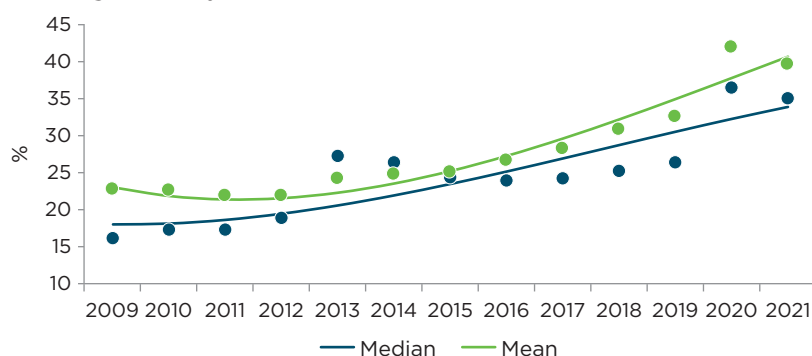
In general, there is a tradeoff between debt issued at longer maturities in dollars versus domestic currency debt that is generally issued at shorter maturity given the higher costs of issuance or the lack of a market at longer tenors. Still, the region managed to extend maturities in foreign currency and local currency instruments to 2019 (see Figure 6.6, Panel A). Since most foreign currency issuance is in external markets and most local

Figure 6.5 External and Foreign Currency Debt

A. External debt (% of GDP)



B. Foreign currency debt (% of GDP)



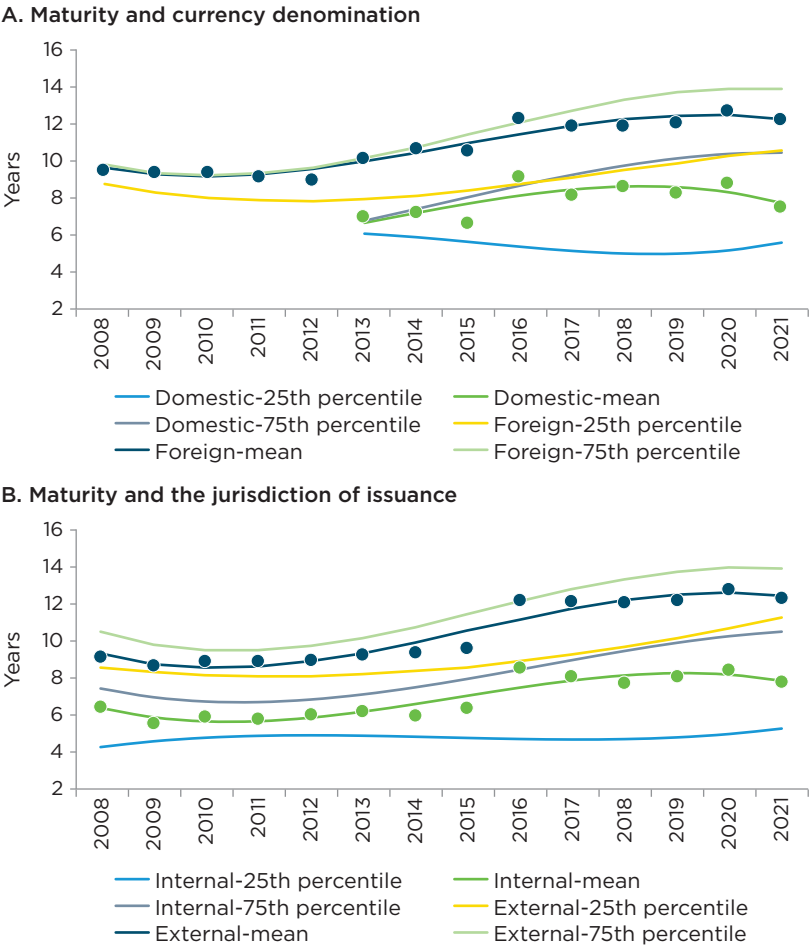
Source: IDB Standardized Debt Database.

Note: The sample of new and larger issuers is Belize, Bolivia, Costa Rica, Dominican Republic, Honduras, Nicaragua, Paraguay, and Trinidad and Tobago.

currency issuance is in the domestic market, the same pattern is evident in maturities in internal and external markets (see Figure 6.6, Panel B). This trend halted and even reversed during the pandemic; maturities shortened somewhat in both internal and external markets and in all currencies. Again, countries vary across the region.

Figure 6.7, Panel A, illustrates the progress of the region from 2006 to 2019 in a set of indicators of the quality of debt composition. Over this period, debt composition has remained remarkably stable for the typical

Figure 6.6 The Evolution of the Average Maturity of Bonded Debt

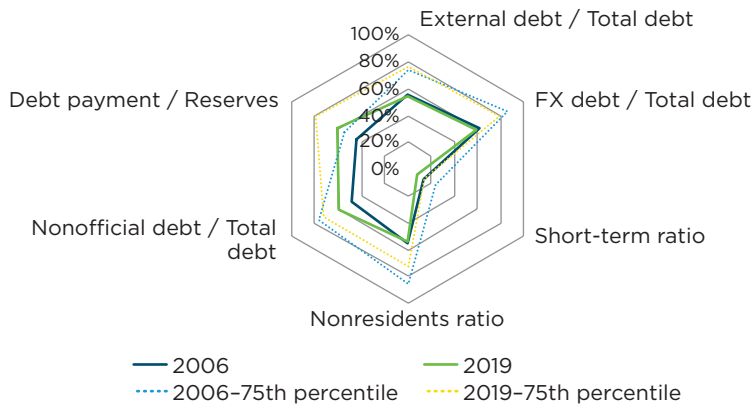


country; the most notable change has been an increase in nonofficial debt while the external debt ratio has remained roughly constant. Thus, governments have relied more on bond issuance or other sources of commercial debt as a percentage of total debt, particularly as new countries entered the emerging market asset class by issuing external debt. At the same time, the proportion of short-term debt, and the reserve-over-total debt ratio, have declined somewhat. The figure also displays the 75th percentile for each indicator across countries. Perhaps most notably, those countries that were more reliant on foreign currency debt reduced that reliance over the period.

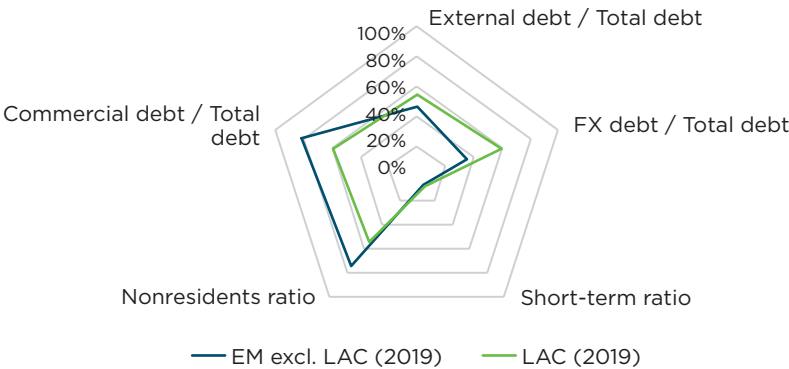
Figure 6.7, Panel B compares the same indicators for Latin America and the Caribbean with other emerging economies. Strikingly, the region

Figure 6.7 A Scorecard for Debt Composition

A. Countries in the region 2006 vs. 2019



B. The region vs. emerging markets 2019



Source: IDB Standardized Debt Database, IMF, World Bank, and Bloomberg.

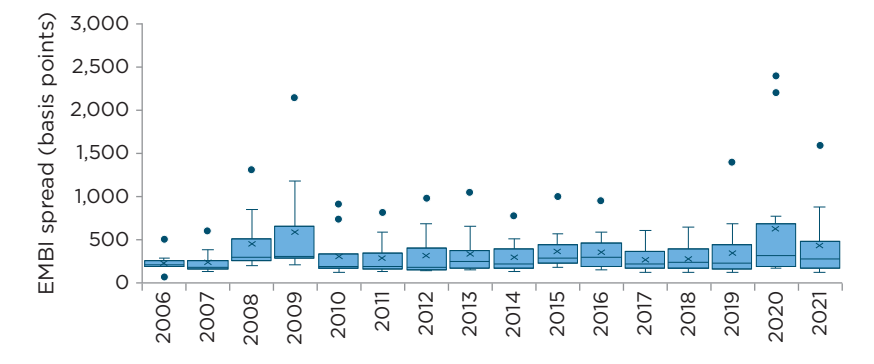
remains considerably more reliant on foreign currency debt than the typical emerging economy, has more external debt, and yet relies less on nonresidents to purchase the debt, implying that nonresidents participate more in the domestic markets of other emerging economies, perhaps reflecting the relatively narrower local market development and investor base that has historically characterized the region. Along the same lines, the region relies less on nonofficial debt than the typical emerging economy.

Together, these figures illustrate that, while the region has improved its debt composition, on average, advances have slowed down—and have sometimes reversed—in recent years. Clearly, the region has room to improve, particularly in terms of further reducing its reliance on foreign currency, nonofficial debt by widening the local investor base.

The COVID crisis was an unprecedented humanitarian and economic crisis that could be expected to have serious impacts on debt composition. Debt ratios soared with the large decline in GDP and the fiscal support measures that were introduced. In the face of a shock, debt composition is unlikely to be optimal. Therefore, it is surprising that the changes in 2020 were relatively mild (see Figure 6.7).

Most countries preserved their access to markets at reasonable rates, as evidenced by secondary market bond spreads through the crisis (see Figure 6.8). Governments tapped domestic and external markets to finance fiscal programs. The net result was a decline in foreign currency debt as a percentage of total debt. But foreign currency debt rose strongly as a percentage of GDP, given the steep recession. Governments issued commercial debt and borrowed from official sources.

Figure 6.8 Sovereign Spreads



Source: Bloomberg.
Note: Blue crosses represent the mean by year, blue dots are outliers. Countries: Argentina, Brazil, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Mexico, Panama, Peru, and Uruguay.

Official debt as a percentage of total debt was relatively stable, although those countries with relatively low ratios of official debt to total debt tapped official sources relatively more strongly—the 25th percentile of the official to total debt ratio rose. At the same time, official debt as a percentage of GDP rose abruptly as GDP collapsed. Maturities in local and foreign currency (and in domestic and external markets) fell, but not dramatically for the typical country.

Interestingly, the demand for new IMF lending was concentrated in emergency facilities (such as the Rapid Financing Facility) and precautionary facilities (such as the Flexible Credit Line).¹⁸ These facilities come with little conditionality, which may explain part of their appeal. Even then, some countries did not make use of the available resources.¹⁹

The demand for lending from multilateral development banks (MDBs) such as the Inter-American Development Bank rose strongly and the level of capital, given capital management and rating agency policies, restricted the supply of lending (see Chapter 7).²⁰ Still, opportunities exist for countries to harness official lending to improve amortization schedules going forward.

The case of Brazil provides a good illustration of how improvements in debt management may enhance financial resilience (see Box 6.1). Debt composition improved in the 2000s which then allowed the country to weather the severe shocks of COVID, the Russia-Ukraine war, and domestic political uncertainties somewhat more easily. While debt composition shifted during the pandemic, debt maturities shortened and debt in dollars increased; low dollarization and lengthened maturities at the outset gave space for these changes to occur.

Like monetary and exchange rate policies, debt management strategies should have sufficient “gas in the tank” and be flexible enough to respond in bad times, and have strong institutional backing—or even operational autonomy—to ensure that the gas is put in the tank during more benign periods. This provides another good reason to reinforce the technical and institutional strength of DMOs.

¹⁸ The new programs in Argentina and Ecuador were already being discussed as the crisis hit.

¹⁹ In the cases of Bolivia and El Salvador, the necessary support from Congress was not forthcoming and Paraguay did not draw down on the resources. Colombia was the only country to actually draw down on a Flexible Credit Line.

²⁰ See Chapter 7 for further discussion and G20 (2022) for ideas on how to boost MDB lending supply given capital constraints.

Box 6.1 Public Debt Management in Brazil

The National Treasury Secretariat (NTS) in Brazil started to modernize debt management in the 1990s, creating a special unit dedicated to that purpose. The process continued in the early 2000s with the objectives of deepening domestic debt markets, increasing the average duration of debt (reducing the share of short-term debt maturing within 12 months), and improving debt composition by substituting fixed-rate and inflation-indexed securities for exchange rate and interest rate-linked debt. The debt profile improved (see Figures 6.1.1, Panel A and 6.1.1, Panel B), while the cost of servicing the debt was maintained in a reasonable range (see Figure 6.1.1, Panel C).

Given the reduction in foreign currency debt and dollar linked domestic debt, exchange rate risk was virtually eliminated.^a At the same time, simplifying regulations and tax exemptions helped boost the share of domestic debt held by foreign investors, from 2 percent at the beginning of 2007 to 20 percent in 2015. As foreign investors favored longer tenors (see Table 6.1.1), the NTS took the opportunity to issue longer-term, fixed-rate domestic debt, with biannual coupon payments and maturities up to 10 years. The NTS’s moves suggest the tradeoff between duration and jurisdiction may depend on the type of investor.

Table 6.1.1 Holders of Federal Domestic Debt Securities

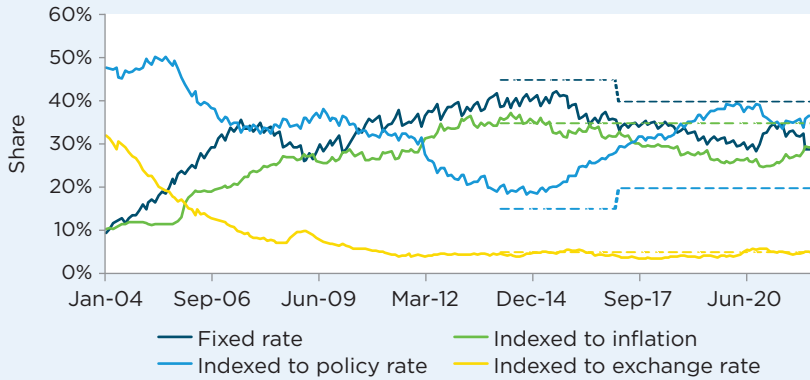
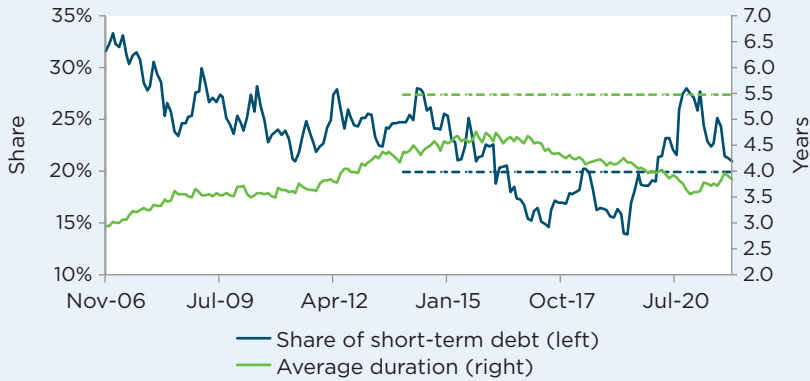
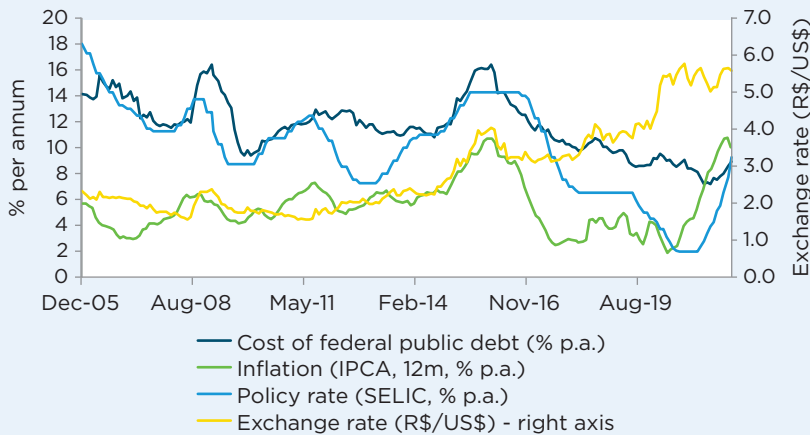
Type of domestic debt security	Averages over the period 2011–2021		
	Duration (years)	Share of the stock held by:	
		Pension funds	Foreign investors
Short-term fixed rate	1.4	10%	23%
Long-term fixed rate	3.4	10%	51%
Inflation-indexed	7.3	39%	5%
Indexed to policy rate	3.1	15%	1%

Source: National Treasury Secretariat (NTS).

Similarly, the placement of inflation linkers to institutional long-term investors such as pension funds—aided by tax reforms to facilitate financial transactions in long-term investment—allowed the NTS to increase the average duration by issuing domestically with maturities of up to a record 40 years.^b

In addition, the NTS implemented a series of reforms to increase liquidity in the market for debt securities, including through the concentration of maturity dates across debt instruments to simplify the pool of debt securities and

(continued on next page)

Figure 6.1.1 Debt Profile
A. Indexation

B. Average duration and short-term share

C. Debt cost


Source: National Treasury Secretariat.

Note: Dotted lines represent long-run targets as reported in the NTS's Annual Financing Plan.

(continued on next page)

facilitate their pairing with other standard financial instruments. This bunching created some refinancing risk, which was offset by maintaining a reserve account for debt management (a liquidity cushion) and more active liability management with frequent exchanges and repurchases of debt securities. As of July 2022, the liquidity cushion was roughly equal to nine and a half months of debt maturities.

Also, the NTS improved communications with investors and enhanced transparency by issuing frequent reports about the debt management strategy and results.^c It also launched *Tesouro Direto*, an online platform to facilitate the purchase of government debt securities directly from personal accounts.

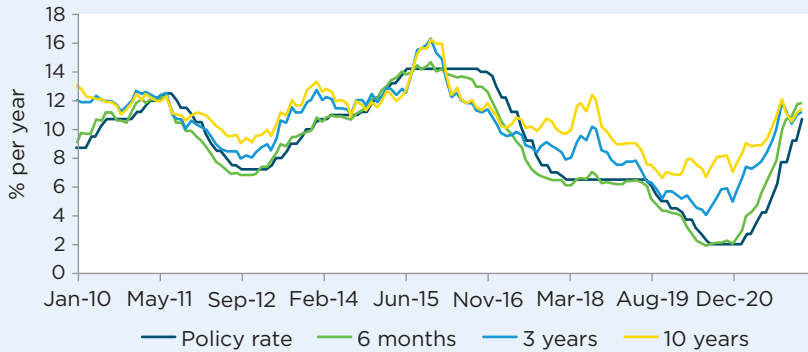
These advances faced a test with the 2014 recession in Brazil and the significant deterioration of its fiscal accounts. As a result, the share of foreign investors fell from a peak of about 24 percent in 2015 to about 15 percent in February 2020. This decline in foreign investors contributed to the sovereign curve steepening and, together with a lower (short-term) monetary policy rate, created incentives to issue shorter debt. It was in this environment that Brazil entered the COVID-19 crisis. The NTS responded by limiting issuance, shortening maturities, repurchasing bonds to provide liquidity to investors and to attenuate the steepening of the yield curve, and introducing shorter-term indexed securities.^d The COVID crisis, the inflationary impacts of the Russia-Ukraine war, and domestic political uncertainty widened credit spreads and increased the cost of debt (see Figure 6.1.2).

The recent history of Brazil's federal debt yields a number of policy implications. First, it points to the success of the Brazilian authorities in implementing a debt strategy that balances cost and risk by increasing maturity and replacing foreign currency and interest rate-indexed debt with fixed-rate and inflation-indexed instruments. The authorities resisted the temptation of short-run gains—for example, by issuing in local currency during the appreciation cycle of the early 2000s. A second lesson relates to the influence of the macroeconomic environment on debt outcomes. An appreciation in real terms translates into a decline in debt ratios and dollar debt shares. Similarly, because external debt and foreign residents tend to demand longer maturities, average duration may decline as domestic debt replaces external debt, or international investors leave the country, as occurred in 2020. Perhaps the most important general lesson is to take advantage of relatively benign economic conditions to improve debt composition as much as possible, to reduce debt in foreign currency and lengthen maturities, and increase financial resilience. Stronger debt management in Brazil and an improved debt composition helped the country face a series of severe shocks.

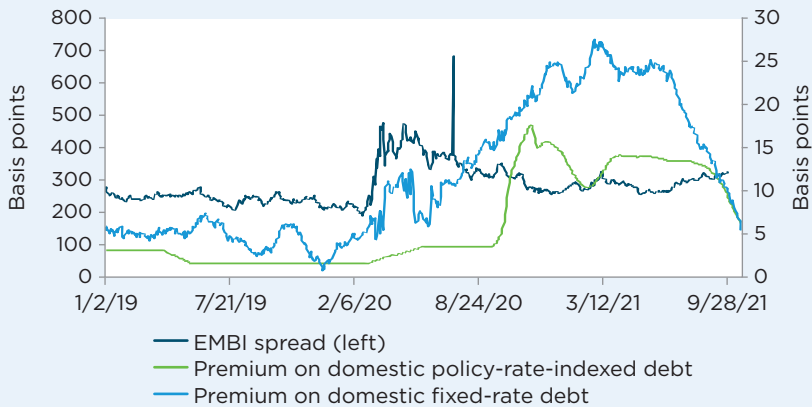
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Figure 6.1.2 Domestic Bond Yields and External Risk Premia for Brazil

A. Domestic yields across maturities



B. Risk premia on external bonds



Source: National Treasury Secretariat, Bloomberg.

^a The remaining external debt serves to keep a liquid yield curve of Brazilian debt in foreign markets.

^b CPI-indexation allowed local markets to deepen as an alternative to financial dollarization.

^c For example, the NTS releases the annual federal public debt borrowing plan with objectives and guidelines <https://www.gov.br/tesouronacional/en/federal-public-debt/federal-public-debt-management/objectives-and-guidelines> and borrowing requirements and targets <https://www.gov.br/tesouronacional/en/federal-public-debt/federal-public-debt-management/borrowing-requirements-and-targets> and a monthly debt report <https://www.tesourotransparente.gov.br/publicacoes/monthly-debt-report-mdr-ingles/2022/7>.

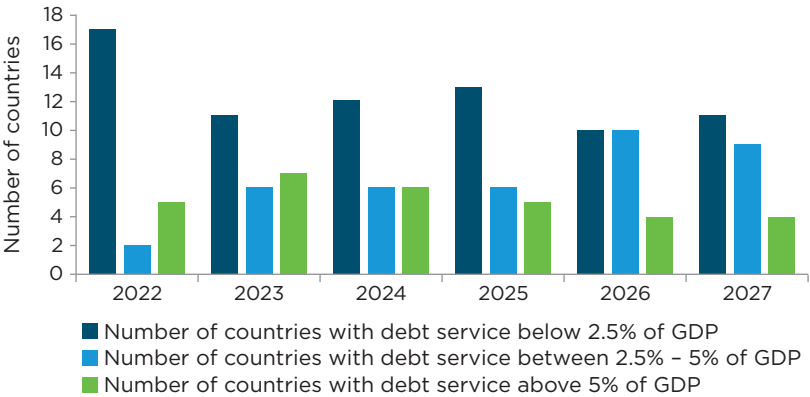
^d Whereas indexation had been limited to longer term securities, the NTS exceptionally introduced 1-year interest rate linkers and 3-year inflation linkers.

Debt Service and the Amortization Profile

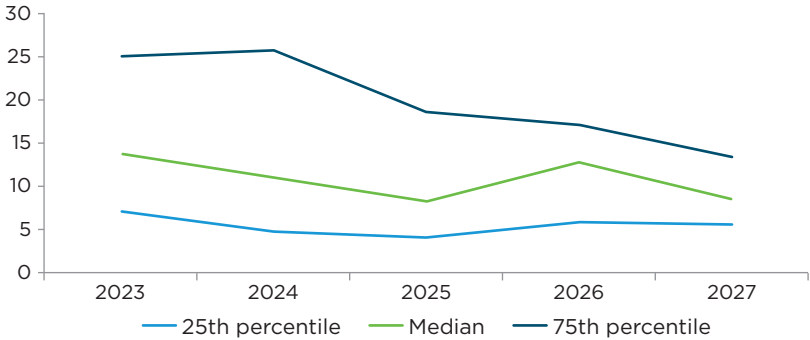
One of the most important tasks for debt managers is to manage the amortization and debt service schedule. Debt service obligations vary widely across countries in the region. The majority of countries have relatively low expected debt service obligations as a percentage of GDP (see Figure 6.9, Panel A). Still, five countries have amortizations and interest payments of more than 5 percent of GDP coming due from August to December 2022; the number of countries with amortizations of that magnitude rises to seven for 2023.²¹ In 2024, six countries still have debt service obligations of more than 5 percent of GDP. The 2023 debt service (amortizations

Figure 6.9 The Weight of Public Debt Service

A. Number of countries according to debt service as a percentage of GDP



B. Debt service as a percentage of public sector revenues



Source: IDB staff calculations based on Bloomberg and IMF data.
Note: Data for 2022 from Panel A includes debt due from August 10 to December 31, 2022.

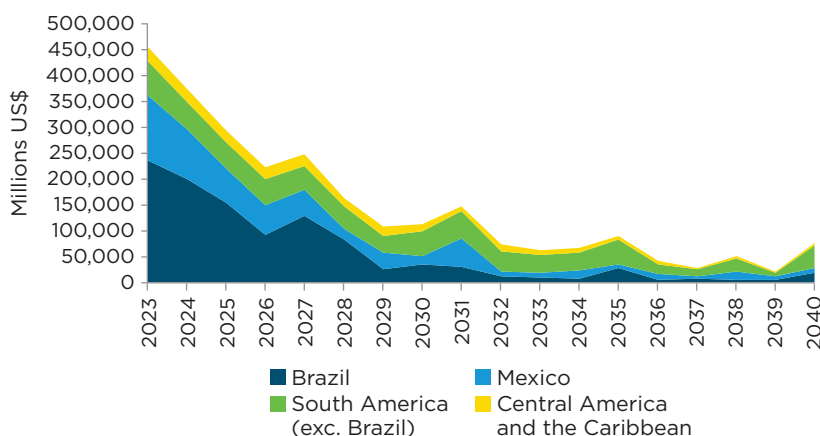
²¹ Statistics for 2023 and subsequent years do not include the maturities of any debt that is to be rolled over beforehand; the figures represent a photograph at a certain point in time.

plus interest payments) for the median country is about 15 percent of total public sector revenues (see Figure 6.9, Panel B). For one quarter of countries in the region, that figure is above 25 percent.

While these are sizeable obligations, countries have several options for mitigating roll-over risks. The most salient is to maintain a stable and consistent macroeconomic framework with strong fiscal institutions that instill confidence in the sustainability of future fiscal policies (see Chapter 5). Maintaining a reserve fund that backs shorter-term debt coming due provides further confidence, as does an IMF or MDB facility that can disburse quickly if needed.

Looking at the amortization schedule in dollars and over a wider time frame, the larger countries naturally account for a larger share of the total amortizations of the region (see Figure 6.10). Brazil and Mexico account for about 57 percent of the total amortizations of the region, while all countries in Central America and the Caribbean account for just 8 percent.²² Perhaps of more relevance, amortizations fall from about US\$460 billion in 2023 to US\$61 billion in 2033. Naturally, as short term debt is rolled over amortizations at later dates will rise. While the region has issued long-term debt with maturities to 2040 and beyond, the amortization curve remains heavily weighted towards the next few years. Moreover, spikes in

Figure 6.10 The Debt Amortization Schedule



Source: IDB staff calculations based on Bloomberg data.

²² The source for these statistics is Bloomberg and, hence, the amortizations reflect the universe of debt instruments included in Bloomberg data.

Figure 6.11 A Heat Map of Debt Amortizations



Source: IDB staff calculations based on Bloomberg data.
Note: The figure shows amortizations over total debt in percent.

amortizations come due in some of the same years when maturities are concentrated.²³

In order to further investigate the concentrations of debt obligations across countries, Figure 6.11 illustrates the ratio of amortizations to total debt principal due in each year. In various countries, more than 5 percent of amortizations are concentrated in a single year, and while the majority of those concentrations are in 2023, reflecting the use of shorter-term debt, some concentrations in subsequent years reflect a concentration of later-dated maturities.

Thus, while the region has surely become more sophisticated in its management of debt composition and debt profiles, it may have to further extend average debt maturities and reduce amortization concentrations. Multilateral development banks with long-term loans at relatively low interest rates can help smooth out these profiles. Naturally, any liability management operation along these lines requires a careful country-by-country evaluation of costs and benefits.

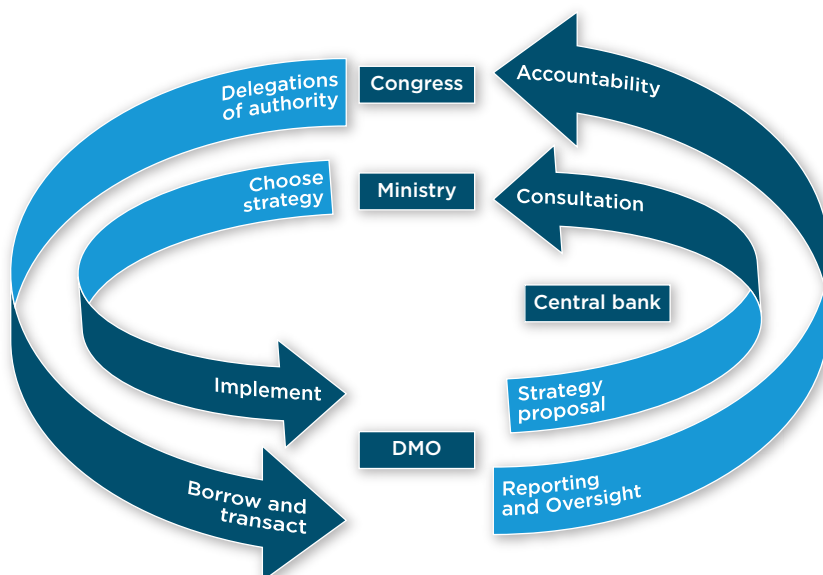
²³ Countries face a trade-off between concentrating maturities to enhance liquidity in specific instruments and creating roll-over risks.

The Sophistication of Debt Management in Latin America and the Caribbean

A stylized debt management governance structure involves the interplay of congress, the executive, and the central bank. The DMO is the cornerstone and main executing agency (see Figure 6.12), with the ultimate goal of meeting the government's financing requirements at a reasonable risk-cost mix. Although debt managers are not tasked with setting fiscal preferences, their input should inform policymakers regarding what may be prudent and possible, as well as which strategies are best to deal with debt vulnerabilities. The DMO is often housed in the ministry of finance or the central bank; less frequently it is a full-fledged independent agency.²⁴

While no unique blueprint exists for a DMO, international agencies have developed well-regarded principles and recommendations. The IMF and World Bank's joint Guidelines for Public Debt Management (World Bank and IMF, 2001), which are the basis for the World Bank's Debt Management Performance Assessment (DeMPA) program, were developed to support institutional and capacity development, particularly in developing countries.

Figure 6.12 Stylized Debt Management Office Environment



Source: IDB staff based on World Bank (2015).

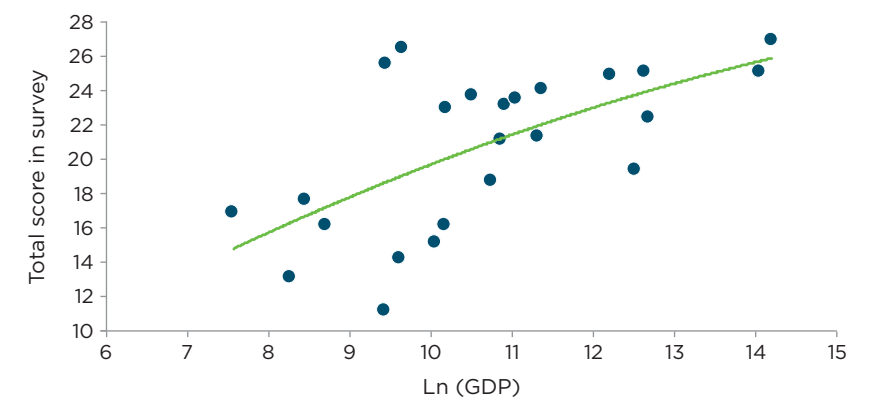
Note: DMO = debt management office.

²⁴ See Prats and Chiara (2021) for further discussion of DMOs in the region.

Given the complexities involved in managing debt, and the risks that may result from poor choices, the technical capacity of debt managers is critical. A recent survey organized across six analytical dimensions provides information on those capacities in the region (See Table 6.2). The total score (i.e., the sum of the scores obtained from six dimensions) is used as an indicator of the DMO capacity in that area.²⁵ As might be expected, the overall capacity of DMOs in the region is positively related to the size of the economy (see Figure 6.13)²⁶ although countries lie both above and below the trend line. Countries with higher scores, controlling for GDP, tend to have a longer history of issuance in international markets, suggesting that experience matters.

Delving into more detail, the survey reveals that DMOs in the region score relatively well in areas such as “management and resources of the DMO” and “debt data and operational risk management” (see Figure 6.14) but are weaker in the areas of “debt borrowing and other debt-related activities” and “debt strategy and sustainability,” critical aspects for a DMO. In sum, there remains room for improvement, particularly considering the current demanding financial landscape.

Figure 6.13 DMO Capacity and the Size of Economies



Source: IDB staff calculations based on a survey and the IDB Standardized Public Debt Database.
Note: GDP data as of December, 2020. DMO = debt management office.

²⁵ Given that the sections of the survey have different maximum possible scores (different number of questions and different score awarded for each question), the scores were normalized so that each dimension weighs the same in the analysis.

²⁶ No significant relation is observed between the total score obtained in the survey and GDP per capita. The relationship between the total score obtained in the survey and the governance indicators of the World Bank was also analyzed, finding no significant relationships.

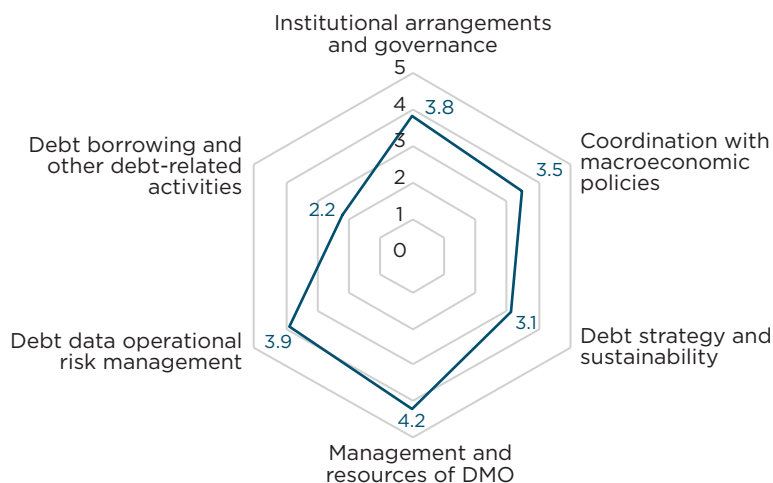
Table 6.2 Analytical Dimensions Included in a Recent Survey of Debt Management Offices

Institutional arrangements and governance	Coordination with macroeconomic policies	Debt strategy-sustainability	Management and resources of the DMO	Debt data and operational risk management	Debt borrowing and other debt-related activities
DMO location.	Existence/ composition of Debt Management Committee.	Existence/ content of a medium-term debt management strategy.	Human resource management.	Existence of debt records and a central registry system.	Existence of documented procedures for: borrowing in domestic/ external markets;
DMO structure (front, middle, and back office).	Elaboration/ content of forecasts on central government debt services.	Conducting debt sustainability analysis.	Professional staff.	Publication of sovereign debt data (statistical report, frequency, content).	derivative transactions; issuance of central government on-lending and loan guarantees.
DMO functions.	Information sharing between the DMO and the fiscal/budget authorities.		Existence of procedure manuals.	Business continuity (existence of business continuity plan, operational recovery site, documented guidelines for operational risk management).	Frequency of meetings with domestic market participants, foreign investors, and rating agencies.
Legislation for public debt management.	Separation of monetary policy operations and debt management transactions.		Access to adequate software (record, analysis, report).		
Communication between DMO and Parliament/ Congress.	Coordination with the Central Bank.				
Audits on public debt management activities.	Government access to financial resources from the CB.				

Source: IDB staff and based on information in Prats and Chiara (2021).

Recent Innovations in Debt Instruments

Debt management offices also carry the responsibility of reviewing the actual debt instruments and contracts to be employed. Given the frequency of debt restructurings (discussed further in Chapter 10), interest has risen in contingency debt instruments that provide automatic

Figure 6.14 DMO Capacity by Dimension

Source: IDB staff elaboration based on a survey of DMOs, institutional capacities.

Note: DMO = debt management office.

insurance against negative shocks of one kind or another. More recently, thematic bonds, including social bonds and climate-friendly debt instruments, have commanded greater interest. This final section reviews recent thinking on these two topics of interest from the perspective of debt management.

Contingent Debt

The main advantage of making debt contingent from the standpoint of the borrower is to lower repayments in bad times and reduce risk by aligning payments to the economic cycle. From the standpoint of the creditor, such contracts have been advanced most frequently as a way of clawing back higher payments after a restructuring that has lowered interest and or principal payments.

One class of such instruments is known as GDP-indexed bonds, that have the potential to smooth debt service ratios and stabilize public finances (see Benford et al., 2016). These instruments limit interest payments in bad times, thereby reducing the probability of debt becoming unsustainable. Thus, they act as insurance against recession, reducing principal and interest payments in bad times.²⁷

²⁷ See Blanchard, Mauro and Acalin (2016) and Brooke et al. (2013).

Costa Rica, Bulgaria, and Bosnia and Herzegovina issued GDP-linked bonds as part of their Brady Plan restructurings. Argentina, Greece, and Ukraine also issued a type of GDP-indexed instrument after their debt crises.²⁸

In practice, markets tended to penalize the lack of liquidity of these instruments and, as returns to investors may be more volatile, they commanded a premium relative to a standard bond.²⁹ Further, Cecchetti and Schoenholtz (2017) argued that government officials might coerce statistical agencies into reporting lower levels of nominal GDP to reduce payments, and that GDP figures may be subject to serious and delayed data revisions, which complicate GDP-indexed bond valuations and payment arrangements.

Commodity-indexed bonds reduce these problems but are more relevant to countries that are either heavily dependent on commodity exports, or commodity importers. Valuations are facilitated for a select number of commodities with liquid derivative contracts at longer maturities. Still, a problem with both GDP- and commodity-indexed debt is the potentially high “willingness to pay” risk in good times when countries would pay back more, and the contracts would be “out of the money” relative to a standard debt contract. Arguably, this was a reason why Argentina’s GDP warrants and Venezuela’s “oil recapture clause” (within its Brady deal) appeared to be undervalued by the market.

For this reason, Anderson, Gilbert, and Powell (1989) argued for multi-lateral development banks to provide guarantees on commodity-indexed instruments to kickstart a market in contingent debt instruments. More recently, the IDB and other MDB’s have played the role of intermediaries between countries and investment banks to reduce perceived credit risks, and provide countries access to commodity-linked loans or swaps on more attractive terms.

Another class of state-contingent debt are CAT (catastrophe) bonds and disaster indenture clauses tailored to hedge against specific external risks associated with natural disasters. These instruments have been used recently by Barbados, Colombia, Mexico, and Peru. Another option to smooth out variations in the debt service-to-GDP ratio is the use of so-called sovereign-contingent convertible debt (or CoCos): bonds that

²⁸ See Costa, Chamon, and Ricci (2008), Zettelmeyer, Trebesch, and Gulati (2013), and Ministry of Finance of Ukraine (2015). Italy’s BTP-Futura is an example of a recent non-crisis-related, GDP-linked bond that grants minimum annual coupon rates plus bonus payment proportional to the country’s growth to holders that purchase during the placement and hold until maturity.

²⁹ See Cruces and Levy Yeyati (2016).

automatically extend the repayment maturity when a country receives liquidity assistance from the official sector. CoCos are seen as a way to induce a bail in of creditors that would potentially increase market discipline on sovereigns, as well as facilitate the negotiation of IMF-led packages. Sovereign CoCos were advocated by Weber, Ulbrich, and Wendorff (2011) in the Euro area, building on a proposal known as the ‘Universal Debt Roll-over Option with a Penalty’ (UDROP) (see Buiter and Sibert, 1999).

Should these instruments be a normal part of the debt manager’s toolkit? This depends on the cost-risk tradeoff. Unfortunately, the relatively high perceived credit risk and illiquidity has tended to heighten the costs of such instruments and stifle their development. A political economy point can also be made: policymakers may be criticized for the additional costs in normal or good times and are rarely rewarded for the lower costs of debt in bad times. Multilateral development banks may have a useful role to play in bringing down costs and attempting to counter such perverse political economy incentives.

Thematic Bonds

Thematic bonds have emerged as a new asset class to enhance the robustness of monitoring, reporting, and governance mechanisms in the use of the proceeds of bond issuances. These bonds can be issued by private (financial and nonfinancial corporates) as well as public issuers (sovereigns, development banks, local governments). Within this universe, sovereign GSS (Green, Social, Sustainability) bonds have significant potential given the scale of financing they can mobilize. They can attract institutional investors to financing linked with sustainable national policies such as Nationally Determined Contributions (NDCs) and Sustainable Development Goal (SDG) commitments, benefiting from the pricing of greeniums.³⁰

Given the budget and resource allocation responsibilities of most central governments—especially for large-scale infrastructure projects—sovereign issuers have the power to scale up GSS investments, arguably more than any other asset class. As of November 2021, some 22 national governments had issued sovereign GSS bonds totaling US\$96 billion. At least 14 other sovereign governments across the world have indicated their intention to issue GSS bonds. And while in 2020, sovereign thematic bonds represented 8 percent of the total global volume of thematic issuances (US\$45.15 billion), in the region sovereign thematic bonds represented

³⁰ The greenium denotes the difference in yield between a green bond and conventional bond of similar maturity.

62 percent of total thematic issuances for the same year, equivalent to US\$7.73 billion.³¹

Thematic bonds provide benefits in terms of the diversification of the investor base, typically institutional investors with ESG (environment, sustainability, and governance) mandates, which leads to favorable pricing: Chile's inaugural green issuance in 2019 was over 12 times oversubscribed and commanded a greenium of up to 10 basis points (bps), while Colombia's twin issuance with a conventional bond showed a yield differential of 15 bps.³² Additionally, thematic bonds may improve the overall attractiveness of sovereign issuers with international investors.³³

These benefits need to offset two main hurdles: preparation costs and liquidity. Preparing thematic bonds is costly; it requires preparing a bond framework that details a dedicated institutional mechanism to use the resources, defines the eligible universe, and develops monitoring and reporting indicators. Issuing thematic bonds also demands a credible sustainability/ESG profile that goes beyond the topics of the specific bond and, together with the framework, must be reviewed by an independent entity. Moreover, liquidity may be tighter for these niche issuances given their limited relative size and the buy and hold nature of the prospective investors. However, because of their nature, these bonds have proven to be resilient against price fluctuations during market turbulence, as is reflected in reduced bid/ask spreads during such episodes.³⁴

That said, sovereign issuers have been innovating on issuance strategies to increase thematic bond liquidity. For example, Chile has reopened its green bonds over the years to increase size. And Colombia has followed Germany's example of a twin issuance, with conventional bonds of same maturity and a coupon that allow investors to switch between the two instruments in case of liquidity needs. Thematic bonds have thus become a highly useful addition to the debt management toolkit, especially for emerging economy debt managers.³⁵

³¹ See Harrison and Muething (2021).

³² This compares to greeniums of as low as 3 basis points in advanced economies. https://www.minhacienda.gov.co/webcenter/ShowProperty?nodeId=%2FConexionContent%2FWCC_CLUSTER-180337%2F%2FidcPrimaryFile&revision=latestreleased.

³³ J.P. Morgan awards higher ESG scores to bonds determined to be green by the Climate Bond Initiative (see J.P. Morgan, 2021).

³⁴ <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/green-bond-premium-justified-by-strong-secondary-market-performance-flexibility-66696509>.

³⁵ <https://gsh.cib.natixis.com/our-center-of-expertise/articles/german-sovereign-innovates-with-its-bund-s-inaugural-green-twins>.

The Growing Role of Debt Management

Debt management is as much about minimizing costs as it is about hedging risks. A key role of the DMO is to manage the debt profile to mitigate vulnerabilities to sharp movements in interest rates, currencies, and commodity prices, and to shifts in investor risk preferences among other factors, while being cognizant of the costs involved. Given the dimensionality of the problem and the uncertainty surrounding key variables, seeking “the optimal strategy” through a complex algorithm is unrealistic. A more practical approach is to choose a strategy that avoids large risks (such as balance sheet losses from a sudden depreciation, rollover concerns due to the excessive bunching of maturities, or large contingent liabilities), and ensures steady and gradual improvement in terms of reducing costs and risks, while taking advantage of market opportunities. In addition, debt managers should take into account the asset side, namely, the stock of liquid international reserves and, to the extent that it can be translated into market values, the structure of public sector income and expenditure, including contingent obligations.

Many Latin American economies managed to enhance financial resilience and decouple from foreign currency fluctuations by relying more on local currency domestic markets and domestic investors, lengthening maturities, and keeping dollar liquidity buffers. The improvement in debt management was reflected in a more benign debt composition, with lower shares of dollarized external debt, and longer maturities, both locally and externally, at lower borrowing costs. Indeed, learning from past debt crises, many countries in the region have enhanced their DMOs and adopted more sophisticated debt management strategies. However, these improvements have varied across countries and stalled in the typical country in recent years.

The challenges were exacerbated by the pandemic, which not only increased indebtedness but also reversed some of the previous advances in debt composition. Many countries face the post-pandemic dual challenge of how to reduce debt and improve its composition to regain medium-term objectives. These challenges reinforce the need to further upgrade DMOs and to develop workable debt management strategies with the necessary political backing. More sophisticated and better calibrated frameworks that go beyond broad guidelines, coupled with the technical and institutional strengthening of DMOs, would help reduce vulnerabilities, increase transparency, facilitate internal government coordination, and reduce the cost of debt.

More specifically, the opportunities exist to smooth amortization schedules to mitigate the bunching of maturities and in some cases to

further reduce reliance on foreign currency debt. Countries may also take advantage of innovations in debt instruments, particularly thematic bonds, which may enhance transparency and monitoring and lower costs, and contingent instruments, which can be used to reduce risks. Debt managers should actively monitor and seek to quantify sources of actual and contingent liabilities that will require close coordination with various public entities. Robust frameworks for debt risk monitoring and management should be developed where not already in place. Multilateral development banks are well placed to advise countries and to provide targeted instruments to extend maturities, widen the types of instruments available to debt managers, and reduce costs.

The rise in global interest rates may substantially alter conditions in international markets, and only strengthens the benefits of developing local currency debt instruments at longer maturities. Debt management is a highly technical and specialized area in the realm of public finance. A skilled and well-functioning debt management office is a necessary condition for healthy financial integration in global markets, and a key input for sustainable fiscal policy. In the wake of the pandemic, this has become even more important to preserve past progress and continue to improve debt management in the years to come.

Official Creditors: Providing More than Money

While the largest part of government external debt in Latin America and the Caribbean is with private sector counterparts, official creditors remain an important source of financing and, in some countries, provide most of the external financing. Official loans include those from international financial organizations such as multilateral development banks (MDBs) including the World Bank and the Inter-American Development Bank Group, the International Monetary Fund (IMF), and bilateral loans from governments or government-owned entities. Official creditors offer longer tenors and charge lower interest rates than private markets, and in contrast to private debt, they have a specific development mandate. Loans from official creditors usually target areas that promote economic stability and growth, reduce poverty and inequality, and support global public goods, and may come in the form of novel instruments to complete markets.¹

This chapter describes the evolution of official credit in Latin America and the Caribbean. It presents the main trends in official lending and then focuses on lending from Multilateral Development Banks (MDBs) and official bilateral creditors. The chapter discusses the benefits of official lending with a particular focus on its countercyclical capacity and ability to mobilize third party resources. When comparing official lenders, these characteristics are more salient in MDBs, whose fundamental essence is the complementarity between lending, knowledge, and preferred creditor treatment.² Given the benefits of MDB lending, and the efficiency gains of

¹ For a discussion of instruments see Chapter 6.

² If an MDB lends but does not provide knowledge, its role cannot be differentiated from a commercial bank, which already exists. If an MDB provides knowledge but no lending, its role cannot be differentiated from a consultancy, which already exists too. And if MDBs do not benefit from preferred creditor treatment, they would not be able to lend at competitive rates (needed to advance the development agenda) and finance the knowledge. These aspects are discussed in this chapter.

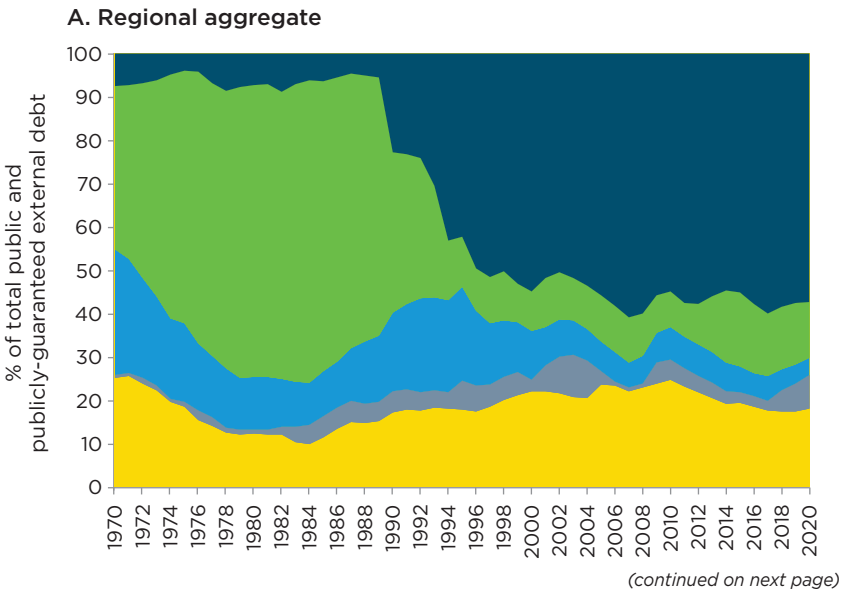
lending through them, the chapter argues in favor of increasing their presence in the international financial architecture.

Trends in Official Borrowing

At the end of 2020, around 30 percent of sovereign external debt in Latin America and the Caribbean was provided by the official sector (see Figure 7.1, Panel A). For the average country, 52 percent of external debt was with the official sector (Figure 7.1, Panel B). This apparent inconsistency reflects differences between large or well-rated countries with greater access to private markets, and smaller or poorly-rated ones that rely more on the official sector.

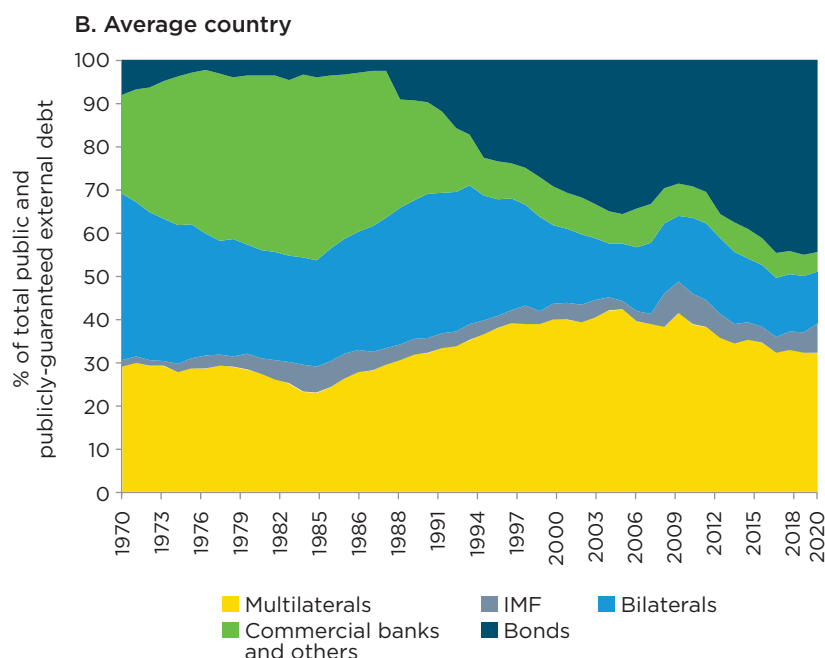
In terms of official debt, multilateral debt represents the largest share in Latin America and the Caribbean. As of December 2020, multilateral debt accounted for nearly 20 percent of the region's total external sovereign debt (32 percent for the average country),³ bilateral debt represented

Figure 7.1 Composition of Public and Publicly-Guaranteed External Debt in Latin America and the Caribbean



³ Many MDBs operate in Latin America and the Caribbean. The largest in terms of its operations is the Inter-American Bank Group, followed by the World Bank Group and CAF. In addition to these, other MDBs such as the Caribbean Development Bank, the Central American Bank for Economic Integration, and Fonplata, among others, have relevant activity in subregions within Latin America. For a discussion on all MDBs in the region and the lending dynamics of MDBs, see Fleiss (2021).

Figure 7.1 Composition of Public and Publicly-Guaranteed External Debt in Latin America and the Caribbean *(continued)*



Source: IDB staff calculations based on World Bank/International Debt Statistics database.

Note: Excludes high income countries. Public and publicly-guaranteed multilateral loans include loans and credits from the World Bank, regional development banks, and other multilateral and intergovernmental agencies. Excluded are loans from funds administered by an international organization on behalf of a single donor government. Public and publicly-guaranteed bilateral debt includes loans from governments and their agencies (including central banks), loans from autonomous bodies, and direct loans from official export credit agencies. Nonguaranteed long-term commercial bank debt includes loans from private banks and other private financial institutions. Private nonguaranteed long-term debt outstanding and disbursed is an external obligation of a private debtor that is not guaranteed for repayment by a public entity.

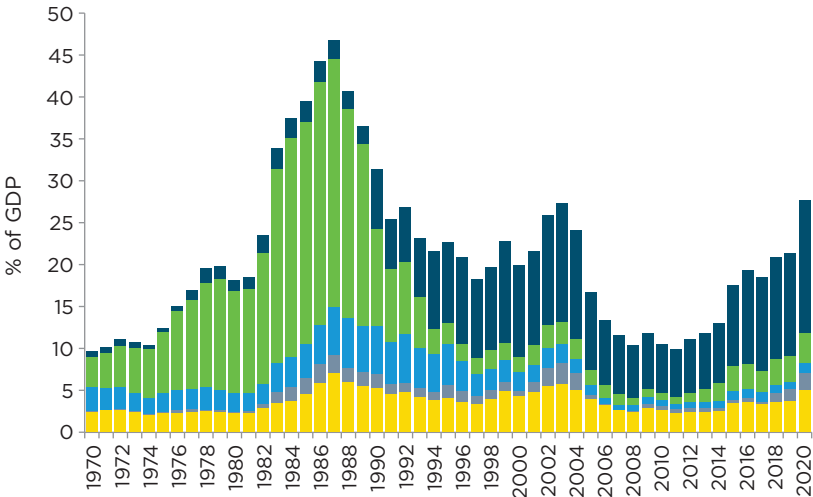
4.1 percent (12 percent for the average country); and debts with the IMF were 8 percent (7 percent for the average country).

The dynamics of external debt, including official debt, in Latin American and Caribbean countries have varied significantly over time. Until the late 1990s, bilateral and multilateral debt followed similar paths. Both types of debt accounted for roughly the same share in the region and the average country. In the 2000s, multilateral debt increased its share in official debt, and the share of bilateral debt shrunk significantly.

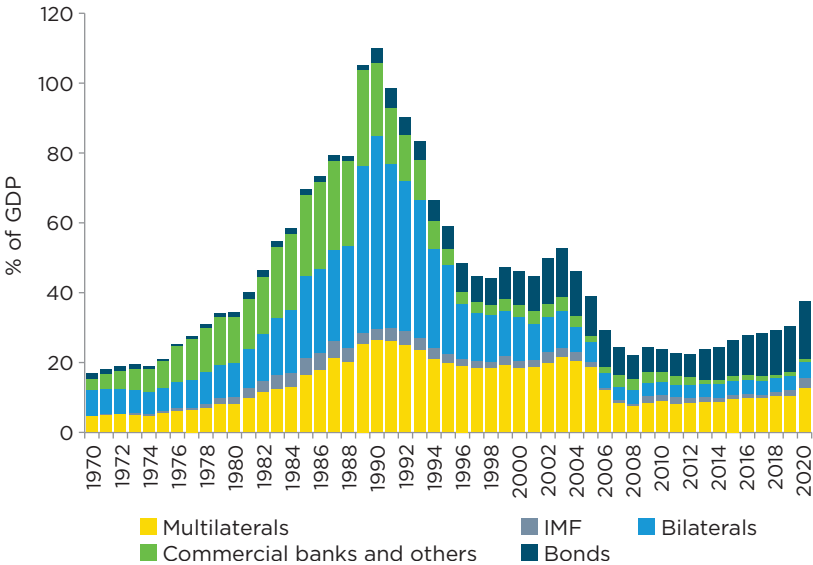
During most of the first decade of the 21st century, Latin American and Caribbean governments went through a deleveraging phase of their public external debt (see Figure 7.2). Between 2000 and 2008, the ratio of external debt to regional GDP fell 15 percentage points. This was a period

Figure 7.2 Public and Publicly-Guaranteed External Debt in Latin America and the Caribbean

A. Regional aggregate



B. Average country



Source: IDB staff calculations based on World Bank/International Debt Statistics and World Development Indicators databases.

Note: Excludes high-income countries. Public and publicly-guaranteed multilateral loans include loans and credits from the World Bank, regional development banks, and other multilateral and intergovernmental agencies. Excluded are loans from funds administered by an international organization on behalf of a single donor government. Public and publicly-guaranteed bilateral debt includes loans from governments and their agencies (including central banks), loans from autonomous bodies, and direct loans from official export credit agencies. Nonguaranteed long-term commercial bank debt includes loans from private banks and other private financial institutions. Private nonguaranteed long-term debt outstanding and disbursed is an external obligation of a private debtor that is not guaranteed for repayment by a public entity.

of high economic growth boosted by favorable global conditions. During that period, the average country cut its sovereign external debt in half. The global financial crisis interrupted this trend in 2008–2009. After that, all sources of debt began growing again, although private sector debt grew faster than official debt. In 2020, the COVID-19 pandemic hit, and countries around the globe faced significant shortages of funds to deal with its effects. Once again, debt in Latin America and the Caribbean grew, with sovereign external debt surpassing 25 percent of regional GDP and reaching almost 40 percent in the average country, with official creditors providing significant support. In 2020, many official creditors, particularly MDBs, disbursed record amounts to support countries facing the pandemic, thereby reversing a decade-long declining trend in the share of official debt in total external sovereign debt.

Multilateral Debt: A Package Deal

The main source of official external debt is multilateral development banks (MDBs).⁴ MDBs are self-sustaining financial institutions owned by various governments to provide financing for development-related projects, mostly in lower- and middle-income countries. In contrast to private financial institutions, MDBs are driven by a public policy mandate to promote sustainable and equitable growth and reduce poverty. MDBs exist because of the complementarities between development finance, knowledge provision, and their preferred creditor treatment (PCT).⁵ PCT is critical for MDBs and implies that MDB credit obligations are senior to other credit commitments (see Box 7.1). These elements bring multiple benefits for borrowers beyond low-cost financial resources including knowledge creation, policy advice, the provision of public/regional goods, and the ability to marshal power around key long-term topics.⁶

What MDBs Bring to the Table

Knowledge creation and policy advice are key elements in MDBs' value propositions and a key service through which MDBs contribute to

⁴ This holds on average. In some specific years, particularly when countries are facing balance of payments crises and seek IMF support, IMF lending becomes predominant.

⁵ See Gilbert, Powell, and Vines (1999) for an extended discussion.

⁶ These features may be imbedded in loans but can also be the result of other stand-alone products offered by MDBs such as nonreimbursable technical cooperation and high-level policy dialogues aimed at tackling country specific or regional development challenges.

Box 7.1 Preferred Creditor Treatment for MDBs

Preferred Creditor Treatment (PCT) has allowed MDBs to lend through both good and bad times to member sovereign governments with an extremely low risk of incurring loss. Put simply, countries customarily treat such lenders more favorably than other lenders and exempt them from any generalized payment moratoria or sovereign debt restructuring. Countries, in general, should not borrow from other lenders in modalities that might make their lending either explicitly or implicitly senior to those of preferred lenders.^a The Paris Club of bilateral creditors recognizes PCT by indicating that preferred lenders enjoy an exception to a clause that states all creditors should be treated equally in a restructuring.^b The IMF's "lending into arrears" framework also supports the preferred status of MDBs by refusing to disburse to a country that is in arrears with an MDB considered to have PCT.^c However, PCT status is not normally found in the legal contracts that MDBs use. Rather, it is known as a market custom.^d

PCT allows MDBs such as the IDB to attain the highest rating available (triple-A) with less capital than would otherwise be needed.^e With that top rating, MDBs can borrow in international markets at low rates and lend to countries at a rate that includes a spread to accumulate equity and is generally lower than market rates. Typically, MDBs do not pay dividends to their sovereign owners or include a risk premium in lending. PCT is a critical component of the MDB business model. It allows MDBs to offer loans at competitive rates that influence countries' development policies while allowing them to finance the knowledge creation to back up that development advice. Lending, knowledge, and PCT are highly complementary; that complementarity is truly the essence of MDBs.^f

PCT is also critical to allow MDBs to supply new resources to countries facing difficult economic conditions. At such times, countries likely lose access to commercial lenders given the perception of high risks; however, thanks largely to PCT, MDBs can be countercyclical, usually acting in coordination with the IMF. The main interest of MDBs at such moments is to improve economic conditions in the country, while monitoring developments carefully to ensure that their lending is effective in terms of development objectives, rather than any credit risk concerns.^g

Strong empirical evidence supports the impact of PCT on loan repayments to MDBs. Using information on arrears and haircuts during defaults of sovereign guaranteed debt, Schlegl, Trebesch, and Wright (2019) identify a distinct pecking order among types of creditors. The IMF (which also has PCT) and MDBs are the most senior loans on sovereign balance sheets. They are followed by bondholders and finally, a group that encompasses bilateral sovereign loans, bank loans, and loans from trade creditors. Arrears to MDBs are cleared by payment of the overdue amount plus interest, allowing the MDB to make new disbursements to the country.^h

How can PCT be so persistent if it is not actually included in contracts? Cordella and Powell (2021) develop a theoretical model that shows how countries can indeed have incentives to always repay a preferred lender to ensure access to their financing in the case of a future crisis, while defaulting on commercial lenders.

(continued on next page)

In this model, the preferred lender has no risk and charges a risk-free rate while commercial lenders charge a risk premium reflecting the fact that in a crisis the country may not repay. In general, the country is better off if both types of lenders exist.ⁱ But the argument also suggests limits to PCT as preferred lenders cannot lend any amount; lending is at some point restricted such that the country maintains the incentive to repay and the equilibrium is maintained.^j However, if preferred lenders abide by the implicit “rules of the game,” then this explains why PCT prevails and is not actually needed in contracts.

The COVID-19 crisis has led to high demand for MDB financing to confront the medical emergency and finance support packages. At the same time, the G20 agreed to the Debt Suspension and Sustainability Initiative (DSSI) and a subsequent Common Framework for Debt Treatments.^k These programs also explicitly exclude MDBs from requiring creditors to be treated equally in the case of debt restructurings, thereby preserving the PCT of MDBs. This approach varies considerably from the HIPC/MDRI^l—when MDBs participated in debt relief for low-income countries but were compensated by donors for losses^m—and suggests that this time the priority was to maintain, or even strengthen PCT, to boost MDB financing to the maximum possible as part of the response to the crisis.

^a This is sometimes referred to as the “negative pledge clause.”

^b See G20 and Paris Club (2020).

^c See, for example, IMF (2013).

^d Cordella and Powell (2021) provide a brief review of the legal standing of preferred creditor status.

^e Perraudin, Powell, and Yang (2016) argue that rating agencies incorporate PCT in an ad hoc manner and in general do not give sufficient weight to PCT in their methodologies. Some rating agencies have since 2019 enhanced the weight of PCT in MDB ratings.

^f Gilbert, Powell, and Vines (1999) highlight the complementarities between lending, knowledge, and so-called conditionality as the essence of an MDB (focusing on the World Bank). Conditionality encompassed the policy conditions attached to loans and the commitment by countries to repay the MDB.

^g The IDB has explicitly recognized this distinction and maintains a system of macroeconomic safeguards aimed at ensuring the development effectiveness of lending.

^h In the case of the IDB, in more than 60 years of lending, on only nine occasions has a sovereign been in arrears that qualify as a “non-accrual event,” which then triggers specific loan loss provisions and a set of restrictions on the borrower. Over the same period, IDB borrowing member countries defaulted 69 times to other lenders (see Reinhart and Rogoff, 2011; Reinhart, 2010; Gennaioli, Martin, and Rossi, 2014).

ⁱ The model assumes coordination between the preferred lenders; still, there is a possibility that the existence of the market could undermine preferred lending. IMF and World Bank concessional lending sometimes comes with an agreement that the country should not borrow large amounts at commercial rates, so the theoretical model may justify this type of limit in some circumstances.

^j Still, this does not signify a simple relationship between PCT and the proportion of a country’s debt that is preferred. Indeed, empirical exercises do not normally find such a relation (see Standard and Poor’s Global Ratings, 2019).

^k See Lang, Mihalyi, and Presbitero (2021) for a discussion on the DSSI and G20 (2020) for the “Common Framework for Debt Treatment beyond the DSSI.”

^l HIPC stands for Heavily Indebted Poor Countries and MDRI is the Multilateral Debt Relief Initiative.

^m In the case of the IDB, the debt relief on concessional loans provided to low-income countries at the time of these programs was on a donor-funded balance sheet (known as the Fund for Special Operations) separated from the balance sheet that intermediates between bond issuance on international markets and lending to other sovereigns and backed by what is referred to as Ordinary Capital.

development.⁷ In addition to contributing to narrow knowledge gaps in the countries they serve, MDBs have also become depository institutions of operational knowledge, as they have accumulated lessons about project design and execution throughout years of experience. While they may not know everything about all topics, MDBs can innovate, develop knowledge, and convene experts when required to build the know-how needed by borrowing countries to address complex development challenges.⁸ Borrowers value this MDB role. Custer et al. (2021) for example, surveyed leaders in public and private sectors and from civil society in 141 low- and middle-income countries and asked them about the footprint, influence, and helpfulness of development partners. They report a strong performance of MDBs, with a subset of them consistently scoring high in the surveyed dimensions. Moreover, in each dimension, the median multilateral had a higher share of positive responses in each metric, compared to the median bilateral/other development partners.⁹ Prizzon, Josten, and Gyuzalyan (2022) also show that governments highly value the technical cooperation, policy advice, and research provided by MDBs. In several cases, governments considered these features more relevant than the provision of financing at better than market terms.¹⁰

⁷ Knowledge, policy dialogue, and convening power are one of the eight components of the Common Value for Money Framework and MDBs' Value Proposition, as agreed between the major MDBs (G20, 2019). Knowledge creation is a continuous process that includes carrying out high-level research in key development topics; supporting the development of research and analytical capacities in the countries with whom they work; organizing conferences that contribute to knowledge sharing between high-level government officials and experts in key development areas; training to enhance capabilities in the region; and publishing books, papers, reports, data sets, and blogs that can be accessed freely and provide accessible policy advice.

⁸ The knowledge production of these institutions is well recognized. In 1996, the World Bank was rebranded as the "Knowledge Bank," a characteristic that also was later recognized to Regional Development and MDBs alike. See Ravallion (2016) for a discussion of the World Bank; Calvo (2004) for a discussion on Regional Development Banks, and Ying (2019) and Avellán et al. (2021) for a general overview and discussion of MDBs.

⁹ In Latin America and the Caribbean, the IDB is the development partner with the biggest footprint (share of respondents in the region who reported receiving advice or assistance between 2016-2020) and the regional institution perceived as the most influential and helpful.

¹⁰ In Latin America and the Caribbean, the IDB is ranked higher than other multilaterals studied by Prizzon, Josten, and Gyuzalan (2022) in its effectiveness in four areas: providing financing at better than market rates, offering policy advice and technical assistance, generating research and analysis, and convening stakeholders to act collectively to address development challenges. Of these, offering policy advice and technical assistance, and generating research and analysis ranked highest.

MDBs also have comparative advantages in providing global public goods and convening multiple stakeholders to build consensus around collective or global issues that are key for economic development.¹¹ Not surprisingly, MDBs are actively involved in areas that require collective action and coordination such as climate change, gender and diversity, migration, financial stability, and trade integration, among others.

MDBs as Providers of Development Finance

MDBs provide their financial and nonfinancial services to different partners in receiving countries. Their loans are provided to governments through sovereign guaranteed (SG) loans. Likewise, their lending can finance local governments or affiliated entities that are not covered by a government guarantee, as well as the private sector or state-owned enterprises and financial institutions through non-sovereign guaranteed (NSG) loans. Both SG and NSG loans have development objectives and are intended to complement—rather than crowd out—private markets.¹²

For most countries, MDB debt is less expensive than debt with private creditors.¹³ Figure 7.3 shows some estimates of market interest rates for sovereign debt of Latin American and Caribbean countries and compares them to the prevailing rates of the IDB and the World Bank, the largest MDBs in the region. Throughout the last two decades, MDB rates have been significantly lower than market rates for most countries of the region. Typically, MDBs have offered interest rates below the lowest market rate available for countries in the region.¹⁴ This happens because, unlike private

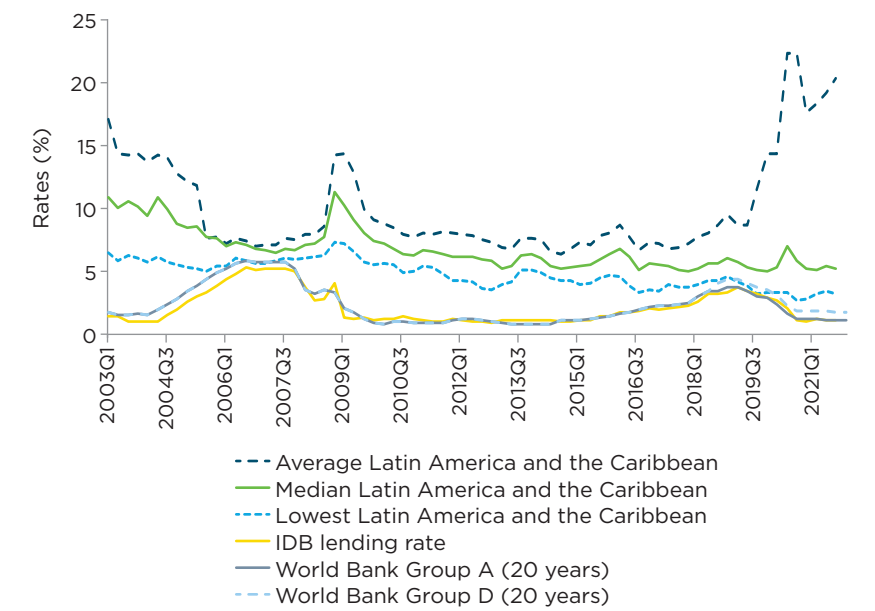
¹¹ See Gilbert, Powell, and Vines (1999), Prizzon (2017), OECD (2020c), and ODI (2021) for discussions on this role of MDBs. In addition, see MOPAN (2021) that discusses how MDBs can use their convening power to scale-up private sector investment in climate finance.

¹² For a general discussion on MDB lending, see Humphrey and Michaelowa (2013), and for Latin America and the Caribbean, see Fleiss (2021).

¹³ An additional and valuable financial feature of MDB debt is that it usually has longer maturities (20 to 30 years in many cases, and up to 40 years in concessional loans) than what market debt offers.

¹⁴ Having rates higher than market ones has pros and cons. Among the pros, countries with lower rates usually enjoy greater access to private markets, and hence need to rely less on official funding. This, in turn, allows other countries less able to tap private credit to land more official funding. On the other hand, while this can be unequivocally good news for large and diversified lending institutions, it is not necessarily good news for smaller regional institutions with fewer diversification opportunities. They risk losing their better-rated clients (i.e., those with lower rates) that contribute to support the high credit rating of the institution, and hence their ability to lend at low rates to all their members. Finding a balance is crucial for all MDBs, particularly for the less diversified ones.

Figure 7.3 Latin American and Caribbean Market Interest Rates and MDB Rates



Source: IDB staff calculations based on Bloomberg, IDB, and World Bank financial departments.
 Note: Average/median/lowest market interest rates are constructed using average/median/lowest EMBI spreads applied to 20-year U.S. Treasury rates. The countries included in the sample are Argentina, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay, and Venezuela. For illustrative purposes, nonconcessional investment loans with long-term maturities are considered. To construct estimates of the market price of country debt, the EMBI spread of each country is added to a 20-year U.S. Treasury rate. This is done for 22 Latin American and Caribbean countries for which these data are available; the average, median, and lower rates of the sample in each quarter are computed and plotted. The estimates of the interest rates of sovereign debts are compared to three rates: the IDB sovereign lending rate, the World Bank rate for A countries at the 18–20-year maturity, and the World Bank rate for D countries at the same maturity.

creditors, MDBs do not charge risk premia on top of financial charges.¹⁵ They issue low-interest bonds thanks to their high credit ratings¹⁶ to raise resources in markets and then lend these funds to borrowing countries at a small margin above borrowing costs without charging risk premia.¹⁷

The ability to lend at low rates is one way in which MDBs support countries, particularly in times of financial distress; the COVID-19 pandemic is

¹⁵ See Cordella and Powell (2021) and Box 7.1.
¹⁶ MDBs' high credit ratings, AAA in the case of the World Bank and the largest regional development banks including the IDB, are supported by the credit ratings of their shareholding countries, many of which are advanced economies with high ratings.
¹⁷ The spread above the riskless rate covers operating costs and funds knowledge and other public goods complementary to lending.

a case in point. While average and median interest rates in the region rose during 2020 due to the fiscal pressure imposed by COVID relief expenditures in most countries, global conditions and the low spreads charged by MDBs allowed them to access funding at low rates, which helped mitigate the prevailing fiscal pressure. Similarly, during the global financial crisis of 2008–2009, due to risk conditions in markets, interest rates spiked, while MDB rates remained significantly lower. In times of global financial distress, access to relatively cheaper funds with moderate overall interest payments allows countries to allocate more resources to development and crisis mitigation. It can also contribute to overall fiscal sustainability by providing loans at low rates, often below GDP growth rates.

Other key features of MDB lending include: i) it is counter-cyclical, meaning financing increases when other sources of financing are more constrained due to international liquidity shortages or other types of financial distress; and ii) it helps mobilize third party resources, either from official or private sources, towards the projects or sectors in which MDBs participate. This feature is particularly important when countries face large investment needs, but tight budgets limit the size of their investments. In the context of the large investment gaps estimated to reach the Sustainable Development Goals (SDGs), mechanisms to attract financing are highly valued by emerging economies.¹⁸

Countercyclicity: Timing is Everything

A key feature of multilateral debt is its capacity to act countercyclically. Throughout the business cycle, governments tap different sources of funds to finance a wide variety of development-related investments and policies. In an ideal world, countries would be able to smooth expenditure across booms and busts by saving during the former and borrowing during the latter. However, due to capital market imperfections, access to finance during recessions is relatively restricted for many developing countries. In theory, government borrowing should be countercyclical, but in practice few sources of countercyclical lending are open to developing countries. In fact, private capital flows that account for most lending to developing countries are highly procyclical. They increase in good times and contract in bad times. In many parts of the world, multilateral development banks play an insurance role and can, at least partially, compensate for contractions of private flows during bad times.

¹⁸ UNCTAD (2020) estimates these gaps at US\$2.5 trillion, nearly 4 percent of world GDP, excluding high-income countries.

Different lenders behave distinctly across the business cycle; private sector lending is highly procyclical, while multilateral lending is mostly countercyclical (see Galindo and Panizza, 2018; and Avellán, Galindo, and Lotti, 2021, 2022). However, there is significant heterogeneity across regions of the world and among different types of multilateral development banks. MDB lending is strongly countercyclical in Latin America and the Caribbean and East Asia. In the rest of the world, it is a-cyclical, demonstrating no definite pattern of expansion or contraction of financing associated with the position of countries in their business cycles. MDB countercyclical lending is also more pronounced in lower-income economies that rely more on official lending and have less access to private markets.¹⁹ Regional development banks are also less countercyclical than the World Bank.

A key challenge to MDB countercyclicity is the procyclicality of fiscal policy. Avellán, Galindo, and Lotti (2022) show that multilateral sovereign lending tracks government expenditures. If governments increase expenditure in good times, MDB lending may follow, which could make MDBs procyclical. However, in times of deep fiscal stress, MDBs do support borrowing countries by increasing their lending, particularly when the IMF is involved in the resolution of the crisis (Avellán, Galindo, and Lotti, 2021). Thus, MDBs play the role of “insurers” during hard times (i.e., when private creditors retrench) by completing markets, thereby easing the impact of negative shocks, and contributing to speed up recovery.

Highlighting the countercyclicity of MDB lending, Figure 7.4 plots a measure of the average business cycle in Latin American and Caribbean countries, and the ratio of net flows from multilaterals to the region’s GDP.²⁰ When the line labeled GDP cycle is negative, the economy is growing below its trend or its potential and, in some cases, is in a recession. When it is positive, the economy is growing above trend, or booming. The fact that the lines in the figure follow opposite patterns illustrates the countercyclical behavior of MDBs.

A worrisome finding is that over time, the countercyclicity of MDB lending has been falling.²¹ This is particularly noticeable in regional development banks that switched from being countercyclical from the 1990s through the global financial crisis to becoming a-cyclical afterwards, except during the COVID crisis.

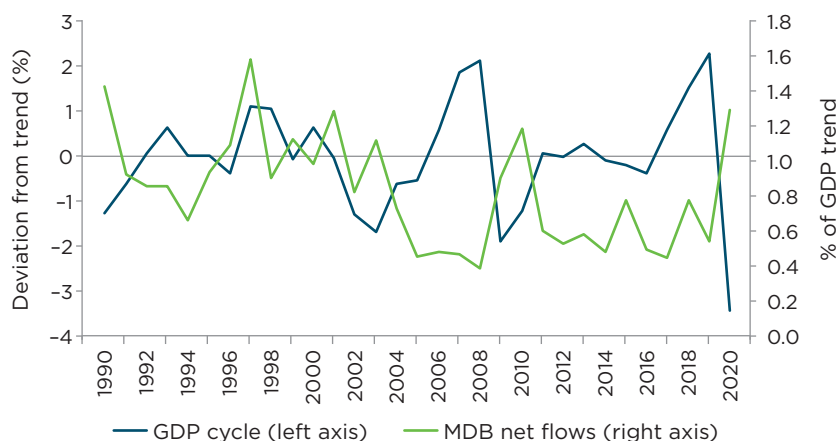
A possible explanation for the decline in countercyclicity lies in changes adopted by credit rating agencies (CRA) in assessing the credit risks faced

¹⁹ See Galindo and Panizza (2018) for a discussion.

²⁰ Net flows are defined as the difference between disbursements from multilaterals and debt amortizations.

²¹ See Galindo and Panizza (2018).

Figure 7.4 MDB Lending and Output Gaps in Latin America and the Caribbean



Source: IDB staff calculations based on World Bank/International Debt Statistics and World Development Indicators databases.

Note: The cyclical component of GDP is the average of cyclical components for all countries in Latin America and the Caribbean computed using a Hodrick-Prescott filter with $\lambda=6.25$. MDB net flows are normalized by the trend GDP using the same Hodrick-Prescott filter.

by MDBs. Recently, CRAs have increased the weight of borrowing country ratings in the assessment of the risk of the MDBs that lend to them.²² If MDBs do not have strong buffers to accommodate higher risks when countries are downgraded, then their lending may turn from countercyclical to procyclical since downgrades may require either increasing capital, which is a long-term process in MDBs, or reducing overall lending to counteract the impact of the downgrade on their capital-to-asset ratio.

Resource Mobilization: MDBs Lead the Way

A key role played by MDB financing is that it not only serves to provide financial resources in countries with low savings rates, but also helps multiply resources by mobilizing additional sources into financing key development projects. This is particularly useful in developing countries with large investment needs. Even before the COVID-19 pandemic, estimates of financial gaps faced by developing countries to reach the Sustainable Development Goals were close to US\$2.5 trillion per year up to 2030. More than half of them corresponded to gaps in infrastructure needs.²³ Due to

²² For a discussion see Humphrey (2015, 2017).

²³ See UNCTAD (2014, 2020) and Castellani et al. (2019).

changes in the allocation of public funds to address the COVID-19 health crisis and the negative impact of the crisis on various dimensions of human development, these gaps are likely even larger now.²⁴

MDBs can contribute to close these gaps, but their direct lending is insufficient. In 2020, a year of high approvals given the health crisis, the four largest MDBs serving Latin America and the Caribbean approved US\$35 billion in sovereign guaranteed loans.²⁵ As large as these numbers may seem, these resources are relatively small when measured against the financing gaps to reach the Sustainable Development Goals (SDGs). However, a great advantage of these resources is that they have the capacity to multiply themselves by mobilizing additional ones.²⁶ This is particularly important, given the large sources of untapped private capital across the world that could be mobilized for development needs.²⁷

Overall, MDB mobilization happens because their participation in projects relaxes information asymmetries and reduces operational and political risks that can limit the involvement of other private financiers. MDBs follow thorough procedures to select, design, approve, and execute projects, conduct ex ante social and environmental reviews, apply strict safeguards, and meet procurement and contracting standards, all of which provide a guarantee to additional financiers that the projects in question may have a lower risk of being distressed.²⁸ Regarding political risks, MDB participation in projects, given their long-term involvement in countries, mitigates the risk that political cycles alter project execution. This longevity can be particularly relevant in long-term projects that require investments over multiple political cycles in a country, such as infrastructure projects.²⁹

In measuring the private mobilization of MDBs,³⁰ Broccolini et al. (2021) find that multilateral lending, through their non-sovereign guaranteed

²⁴ See Sachs et al. (2021).

²⁵ See Fleiss (2021).

²⁶ Since MDBs' joint statement and the adoption of the "From Billions to Trillions" agenda in 2016, this has been part of the focus of MDBs (World Bank, Development Committee, 2015).

²⁷ A clear example are the assets managed by institutional investors, such as pension funds, insurance companies, and investment funds. The 300 largest pension funds in the world saw their assets under management increase by 11.5 percent, up to a total of US\$21.7 trillion in 2020 (Thinking Ahead Institute, 2021). Overall, pension funds, insurance companies, and investment funds hold assets estimated at US\$100 trillion (MDB Task Force on Mobilization, 2021; World Bank, IMF, and OECD, 2015).

²⁸ See Jandhyala (2016), Ika (2015), Denizer, Kaufmann, and Kraay (2013), and Kilby (2000) for discussions and evidence on how MDB involvement affects project performance.

²⁹ To complement, see discussions in Jandhyala (2016) and Buiters and Fries (2002).

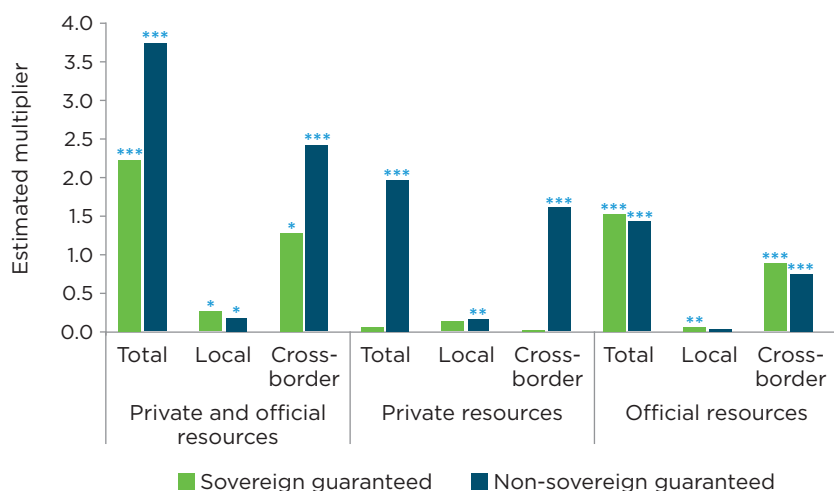
³⁰ See Carter, Van de Sijpe, and Calel (2021) for a discussion.

windows, is positively and significantly associated with an increase in both the number of transactions and the total size of lending that a country receives. They show that MDBs can indirectly mobilize about seven times the value of their loans in a short timeframe.³¹

Focusing on how MDBs can mobilize resources in the infrastructure sector, Avellán et al. (2022) find that each dollar that an MDB lends to a country in infrastructure is associated with more than US\$4 invested from third parties over a 3-year time frame. Resources are mobilized from both the private and the official sector (mostly from the former) and are mainly cross-border resources. Moreover, mobilization is larger when lending comes from the NSG side of the MDB (see Figure 7.5).

The study of Avellán et al. (2022) also shows that many country-specific characteristics affect mobilization. Mobilization potential is higher in countries with lower levels of financial development and is higher in

Figure 7.5 Indirect Mobilization Multipliers in Infrastructure



Source: IDB staff calculations based on IJGlobal database.

Note: Each bar represents the estimates of the indirect mobilization multiplier estimated for each type of loan (sovereign guaranteed or non-sovereign guaranteed), and disaggregates between private and official resources, and between their geographic origin. Each bar should be read as a multiplier, meaning that it represents how many dollars from third parties are attracted to a subsector of infrastructure when the MDB lends one dollar in it. For example, the first set of columns suggests that for each dollar invested through the SG and NSG windows, US\$2.2 and US\$3.7 respectively are indirectly mobilized in a 3-year time window. *** indicates significance at 1%, ** at 5%, and * at 10%.

³¹ Mobilization can be direct or indirect. In this context, direct mobilization is financing from a third party that directly participates in a loan with an MDB; indirect mobilization is financing from a third party mobilized in connection with a specific MDB activity but not directly connected.

lower-middle-income and low-income countries. Usually in these environments, information asymmetries are larger and, hence, the value provided by the MDB's signal is more valuable. Moreover, the mobilization of official resources is higher in countries where the government effectiveness is perceived to be lower. However, higher levels of political instability, violence, and terrorism hinder MDB mobilization.

Bilateral Lending: Down but Not Out

Bilateral loans—defined as loans provided by governments or government-owned institutions to governments or government-owned institutions in other countries—are the other significant source of official debt.³² Official bilateral lending was basically the only game in town after the Napoleonic wars and the world wars of the 20th century and was key for the recovery of the countries that suffered most during those conflicts. During the peace times that followed, they became important, particularly during economic and financial crises and before the creation of the IMF and World Bank. Since then, bilateral lenders can choose to channel resources through MDBs or do it directly. The former can ease costs, increase efficiency for borrowing and lending parties, and—by taking advantage of the leverage and mobilization capacity of MDBs—increase the bang for the buck.

For borrowing countries, accessing resources from MDBs may come at lower financial costs than bilateral lending. This, in fact, may be the main driving force behind the sharp decline in bilateral loans, which have lost seniority in the international financial architecture (see Box 7.1). Besides this critical point, borrowing from MDBs also entails lower nonfinancial costs and, hence, greater efficiency than borrowing from several bilateral partners. Transaction and coordination costs of following the rules of one single lender (the MDB) may be significantly lower than adjusting to the specific objectives, demands, and procedures of each potential bilateral lending counterpart.

Despite efficiency gains, the decision involves trade-offs, especially for lenders.³³ Lenders may choose bilateral loans to retain full control over their intended outcomes rather than surrendering the design of operations to the MDB.³⁴ Additionally, lending countries, when acting through

³² A typical example is a development finance institution (DFI) in an advanced economy lending resources to the government of a developing one to carry out a specific project.

³³ For a discussion, see Bobba and Powell (2006).

³⁴ Though this might be diminished by creating trust funds in multilaterals and defining rules for its operations, still the MDB criteria would weigh heavily in the lending decisions.

an MDB, may have to dilute any specific preferences or objectives, particularly those of a political nature.³⁵

In practice, the control versus efficiency trade-offs do not lead to corner solutions. Both types of official lending vehicles coexist, though the MDB option seems to prevail, particularly since the end of the 20th century, when the participation of bilateral lending in total official debt declined (see Figure 7.1).³⁶ Probably, part of this reduction can be explained by the choice of advanced economies, the main providers of bilateral debt, to reduce their exposure in the region and channel their development-oriented resources through multilateral organizations, which were growing at the time and displacing bilateral debt.³⁷

Importantly, reported figures of bilateral loans may be underestimated in several countries, particularly in the last 20 years. The main data source used in this chapter, the International Debt Statistics (IDS) of the World Bank, is a typical reference for those studying external debt. The IDS defines official bilateral loans as: “loans from governments and their agencies (including central banks), loans from autonomous bodies, and direct loans from official export credit agencies.” In practice, several types of loans do not match this classification and may lead to an underestimation of bilateral loans. A notable example are the loans from China to the developing world; the reported data include only a subset of loans from a few institutions.³⁸ Despite differences in numbers, recent research suggests that material differences matter only for countries with high indebtedness with China, and not for the median or average country in the developing world.³⁹

Figure 7.6 plots the evolution of official bilateral sovereign debt in Latin America and the Caribbean by counterpart. The figure classifies

³⁵ Bobba and Powell (2006) show that aid from donors to countries that vote the same way in the UN general council is usually less effective in terms of their development effectiveness.

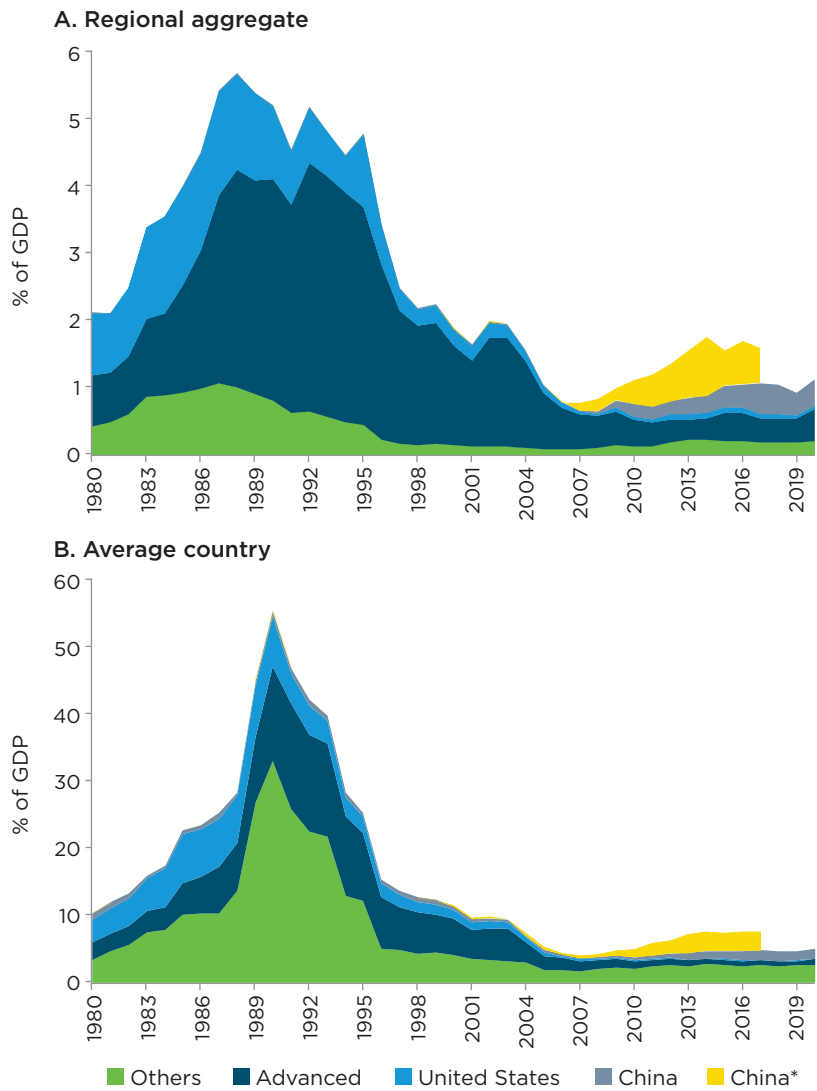
³⁶ A detailed history of bilateral debt for the last two centuries can be found in Horn, Reinhart, and Trebesch (2020). On the dynamics of seniority of different types of sovereign debt, see Schlegl, Trebesch, and Wright (2019).

³⁷ In fact, the rise in the share of MDB lending in total official lending follows capital increases at the World Bank in 1988 and at the IDB in 1990 and 1995.

³⁸ See Horn, Reinhart, and Trebesch (2021) for a detailed discussion on Chinese sovereign lending and the way it is counted. According to the authors, most databases usually include loans provided by state-owned development banks such as the Chinese Development Bank (CDB) or the Chinese Export-Import Bank (China Ex-Im Bank) but exclude loans of commercial state-owned banks and trade credit from state-owned enterprises that could also be classified as loans provided by governments and state-owned enterprises.

³⁹ See Horn, Reinhart, and Trebesch (2021).

Figure 7.6 Official Bilateral Debt as a Share of GDP



Source: IDB staff calculations based on the World Bank's International Debt Statistics and World Development Indicators databases, except China* which is based on Horn, Reinhart, and Trebesch (2021).
Note: Excludes high income countries.

them in four origins: the United States, other advanced economies, China, and other emerging economies. Both the United States and China are highlighted given the U.S.'s historical importance in the region, and China's relevance in providing finance for development over the past two decades. Panel A reports numbers for the region as a whole and Panel B

for the average country. Each panel includes two reports for bilateral loans with China: the IDS sample that provides a larger historical picture of bilateral flows to the region, and the Horn, Reinhart, and Trebesch (2021) data that cover a smaller sample (2000–2017) but one that includes a wider range of sources for Chinese official lending.

Several features stand out when analyzing Figure 7.6. Most notable is the large difference between aggregate figures and country averages, which reveals that bilateral lending is notably high in a few countries in the sample.⁴⁰ In addition, the figure illustrates the significant drop in bilateral debt since the 1990s. Also notable is the rise in lending from other nontraditional partners, such as China. Regardless of how it is accounted for, it currently represents at least half of the bilateral debt of Latin American and Caribbean countries. While bilateral debt with Chinese origin is highly relevant, other nontraditional sources of bilateral debt such as Brazil, Russia, and Venezuela are also significant in the region.

Beyond Altruism: Determinants of Bilateral Lending

Economic literature has explored in some depth the determinants of bilateral lending to developing economies. Most explanations of why a country, typically an advanced economy, lends directly to another are based on the notion that the advanced economy may want to support something that is valuable for their economic and/or political stability. Such is the case of bilateral lending after the World Wars or, more recently, in the fight against drugs and climate change, among others. The consensus among economic researchers is that economic, political, cultural, and geographical linkages have shaped bilateral sovereign lending. Bilateral lending is not necessarily altruistic but aims to avoid negative spillovers of a political or economic crisis in a country where they are economically exposed.⁴¹ In a way, these loans seek to avoid the collateral damage that economic and political instability, in an extreme case a crisis, can produce on firms or households economically exposed to the country at risk. To quantify this, researchers proxy economic ties with measures of bilateral trade or the exposure of the banking system of the lending country in the borrowing one; political

⁴⁰ To illustrate the wide variety, consider the difference between high and low users of bilateral debt. Between 2000 and 2020, Ecuador, Guyana, Haiti, and Jamaica, on average, had balances of outstanding bilateral debt of more than 5 percent of GDP. In contrast, others such as Brazil, Colombia, Mexico, and Panama had average bilateral debt balances below 0.5 percent of GDP.

⁴¹ Discussions motivating this rationale can be found in Gourinchas, Martin, and Messer (2020), Farhi and Tirole (2018), and Tirole (2015).

ties are measured as the closeness of voting in the United Nations;⁴² and geographical and cultural ties are determined by sharing a common language, having colonial links, or sharing a border.⁴³ Where any of these ties are stronger, there is more bilateral official lending.⁴⁴

Bilateral versus MDB Lending

MDB lending boasts two key features: the ability to act countercyclically to help countries smooth economic shocks, and the capacity to mobilize third party resources to help developing countries close large financing gaps that in turn inhibit closing development gaps. Does bilateral lending also provide these benefits?

Traditionally bilateral lending occurred during times of crisis.⁴⁵ In this sense, bilateral lending, like MDB lending, has also been countercyclical. However, countercyclicality of official bilateral flows to sovereigns has several nuances. Avellán, Galindo, and Lotti (forthcoming) find that the origin country's position in the business cycle matters; in fact, it may be more important than the receiving country's place in the cycle. Bilateral flows are strongly procyclical with respect to the business cycle of the country of origin, regardless of the lender country's development. In both advanced and emerging economies of origin, when the origin economy is growing, bilateral flows increase, and when it is contracting, flows dry up.

Despite being procyclical with respect to their cycle, flows originating in advanced economies can be countercyclical with respect to the cycle of the receiving country. However, the own origin cycle dominates the receiving cycle. Thus, if both countries face a challenging scenario, flows will undoubtedly contract; but if the advanced economy is not in a recession, bilateral debt may act as a countercyclical relief. In contrast, flows

⁴² See, for example, Avellán, Galindo, and Lotti (forthcoming), Horn, Reinhart, and Trebesch (2020), and Bobba and Powell (2007) for evidence on this link.

⁴³ This rationale is frequent in models of trade, foreign investment, and cross-border banking, among others. Horn, Reinhart, and Trebesch (2020) provide empirical evidence of this link.

⁴⁴ Empirical examples of this literature can be found in Avellán, Galindo, and Lotti (forthcoming) for a subsample of emerging market economies since the 1980s, and in Horn, Reinhart, and Trebesch (2020) for a larger sample, over the course of two centuries, focusing on lending exclusively during crises. Horn, Reinhart, and Trebesch (2020) find that during periods of economic crisis or natural disasters, official bilateral lenders have usually helped resolve these events through emergency rescue loans.

⁴⁵ In their exploration of two centuries of bilateral lending data, Horn, Reinhart, and Trebesch (2020) find that this type of lending has been particularly important when countries on the end-receiving side faced an economic crisis or a natural disaster.

originating in other non-advanced economies, such as China, seem acyclical with respect to the economic cycle of the recipient country. In this sense, relying heavily on this type of debt risks amplifying the effects of foreign cycles in receiving economies.

Like MDBs, bilateral institutions can play an important role in mobilizing additional resources from other creditors and investors. They can enable third-party financing by supporting a more enabling environment, removing investment bottlenecks through advisory service, and cofinancing and mitigating project risks, for example through guarantees.⁴⁶ Moreover, if mobilization is coordinated, the benefits may be larger.⁴⁷

When exploring the role of official lenders in mobilizing third-party financing for infrastructure, Avellán et al. (2022) find complementarities between MDBs and bilateral lenders. Once bilateral and/or multilateral lending occurs, flows from other sources significantly increase for the same infrastructure sectors in developing and emerging economies. When bilateral and multilateral institutions lend simultaneously, their mobilization impact is stronger.

Recent research has focused mostly on indirect mobilization, that is, resources attracted to projects that differ from the ones MDBs and bilateral institutions are financing directly. But mobilization can also happen directly, when a transactional relationship between a bilateral or multilateral lending institution and a client or investor relates to financing a bilateral or a multilateral institution-supported project or activity.⁴⁸ According to OECD's data in the Amounts Mobilized from the Private Sector for Development, close to US\$50 billion were mobilized for development in 2018–2019 by official development finance interventions of OECD-DAC members. Over a third was mobilized through direct investment in companies or special purpose vehicles (35 percent), followed by guarantees (29 percent), syndicated loans (13 percent), credit lines (10 percent), shares in collective investment vehicles (8 percent), and simple cofinancing (4 percent). Most of the mobilization targeted the financial and energy sectors (58 percent), and MDBs played a leading role, even though bilateral providers played a key role, too.

A Valuable Part of the Lending Mix

Official creditors are an important source of financing for many countries in Latin America and the Caribbean. Besides providing lending at lower rates

⁴⁶ See for example Miyamoto and Chiofalo (2015).

⁴⁷ See Shetty (2020) and ADB (2020).

⁴⁸ For the distinction between direct and indirect mobilization of multilateral development banks, see World Bank (2018) and MDB Task Force on Mobilization (2021).

and longer tenors than private markets, official lending, especially when offered by multilateral development banks, brings other nonfinancial and financial advantages that strongly complement each other and enhance their development impact. On the financial side, their role in providing countercyclical support for countries in need is crucial. While the IMF plays a specific role that is complemented by MDBs when countries face crises, MDBs are also present throughout the business cycle, a situation that can prevent a downturn from becoming a crisis.

In addition, MDBs play a role, in many cases complemented by bilateral lenders, mobilizing private sector resources into key development areas. When lending to specific sectors, MDBs provide a valuable signal about the profitability and quality of institutions in a particular sector in a country that encourages other investors to follow. MDBs have the expertise to operate in projects in sectors with limited information, weak institutions, or other market failures, creating the conditions to engage private investors. The capacity to mobilize resources from third parties is crucial to help developing countries close their development gaps.

In addition to providing finance throughout the business cycle—a critical feature that ensures less volatile investment in key areas—MDBs have the comparative advantage to support solutions to global and regional challenges such as climate change, digitalization, and the adoption of new technologies, and the need to reduce gender and diversity gaps, among others. The combination of these features, plus its greater efficiency and often lower cost than bilateral lending, suggests that more MDB lending is needed, particularly in regions such as Latin American and Caribbean, to ensure a return to sustainable and equitable high growth after recovering from the recent pandemic.

However, as financial intermediaries, the size of MDB capital stocks determine the supply of MDB lending. MDBs have tried hard to optimize the use of capital. The development of risk sharing and risk transferring mechanisms (see Galizia et al., 2021) has certainly allowed MDBs to deploy additional lending capacity. But to scale up MDB loans significantly, more capital is needed. Protecting PCT, to maximize the bang for the buck in MDB's balance sheets, is more critical than ever.

Bilateral lending can also be valuable to developing and emerging economies for its countercyclical and catalytic properties, especially when blended with multilateral and private sector lending. Bilateral creditors should work closely with MDBs in a coordinated fashion so that recipient countries can take full advantage of their benefits.

Past the Tipping Point? Assessing Debt Overhang in Latin America and the Caribbean

As the pandemic hit, Latin America and the Caribbean had rising sovereign debt and low economic growth. Public debt grew 19 percent of GDP between 2014 and 2019 while growth was less than 1 percent.¹ During 2020, debt grew another 13 percent of GDP. After a sharp rebound in 2021, growth rates in the region were expected to fall gradually to medium-term growth of around 2 to 2.5 percent, but the recent Ukraine-Russia conflict, persistent problems in global supply chains, and high inflation with its associated tighter monetary policy, all complicate the prospects. Debt service (interest payments and debt amortizations) in Latin America and the Caribbean represents around 5 percent of GDP, comparable to the average investment in health and education.

Higher public debt can enhance economic growth by making more funds available to finance investment, which is crucial for countries with low capital stocks. It can complement private debt, raise total investment, and allocate resources to infrastructure and public services, positively impacting the private sector. Furthermore, if demand is depressed, public debt can also increase aggregate demand.²

However, excessive public debt can lead to low economic growth, resulting in what has been referred to as a debt overhang. Several potential mechanisms have been advanced for a tipping point.³ While higher debt

¹ While debt grew at a similar pace in the Middle East, Asia, and Sub-Saharan Africa, Latin America and the Caribbean was the slowest growing world region according to the IMF (2022).

² See, for example, Butkus et al. (2021), Elmendorf and Mankiw (1999), DeLong et al. (2012) and Fazzari, Ferri, and Variato (2020).

³ Several potential mechanisms have been advanced for the tipping point. On the positive side, higher debt may finance investment and increase growth, but then higher

may finance investment and increase growth, higher debt levels may result in a higher perceived default risk, less access to financial markets, limits to countercyclical fiscal policy, and a greater focus on current expenditures (with a lower growth multiplier relative to investment). Krugman (1988) famously describes a public debt overhang as a situation when debt levels are so high that creditors do not expect to be fully repaid. Crowding-out may commence well before debt levels become clearly unsustainable, but rather when the probability of unsustainability rises. Interest rates tend to rise and the private sector invests less and at the limit loses credit access.⁴ Additional adverse effects may include higher inflation and uncertainty.⁵ Empirical evidence suggests high debt levels are associated with lower growth.⁶

This chapter analyzes the relationship between debt and growth across countries. Countries with high debt burdens have had lower growth on average in the last two decades. Similar patterns can be seen in the relation between private investment and the cost of financing sovereign debt. While the evidence suggests a kink in the relation between debt and growth, the thresholds at which higher debt is associated with lower growth are hard to pin down and may vary across countries. Countries with indicators of higher institutional quality (IQ) tend to support higher levels of debt without negatively impacting growth.

Debt accelerations can also have a strong impact on growth. According to the findings in Chapter 4, debt spikes are associated with sharp reductions in growth, and the impact is stronger for more persistent spikes. The transmission channels are similar in the sense that debt spikes may increase the cost of financing and lower both public and private investment.

Debt and Growth: A Complicated Relationship

The data over the past 40 years show that, on average, the higher the debt, the lower the growth (Figure 8.1). However, several differences across countries suggest that explaining the relationship between debt and growth is not

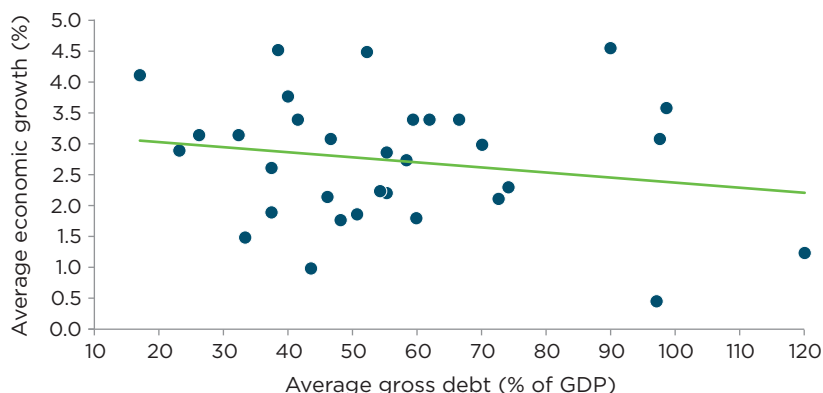
debt levels may result in general crowding out, higher perceived default risk, less access to markets, limits to countercyclical policy, or greater current expenditures relative to investment.

⁴ See Diamond (1965), Friedman (1978), Gale and Orszag (2003), Kumar and Baldacci (2010).

⁵ See Sargent and Wallace (1984), Cohen (1993), Cochrane (2011), Presbitero (2012), and Ash, Basu, and Dube (2017).

⁶ See Reinhart and Rogoff (2010), Kumar and Woo (2010), Cecchetti, Mohanty, and Zampolli (2011), Afonso and Jalles (2013), Afonso and Alves (2014), Woo and Kumar (2015), Chudik et al. (2017), and Topuz and Sekmen (2019).

Figure 8.1 Economic Growth and Public Debt in Latin American and Caribbean Countries, 1980–2021



Source: IDB staff estimates based on WEO-IMF.

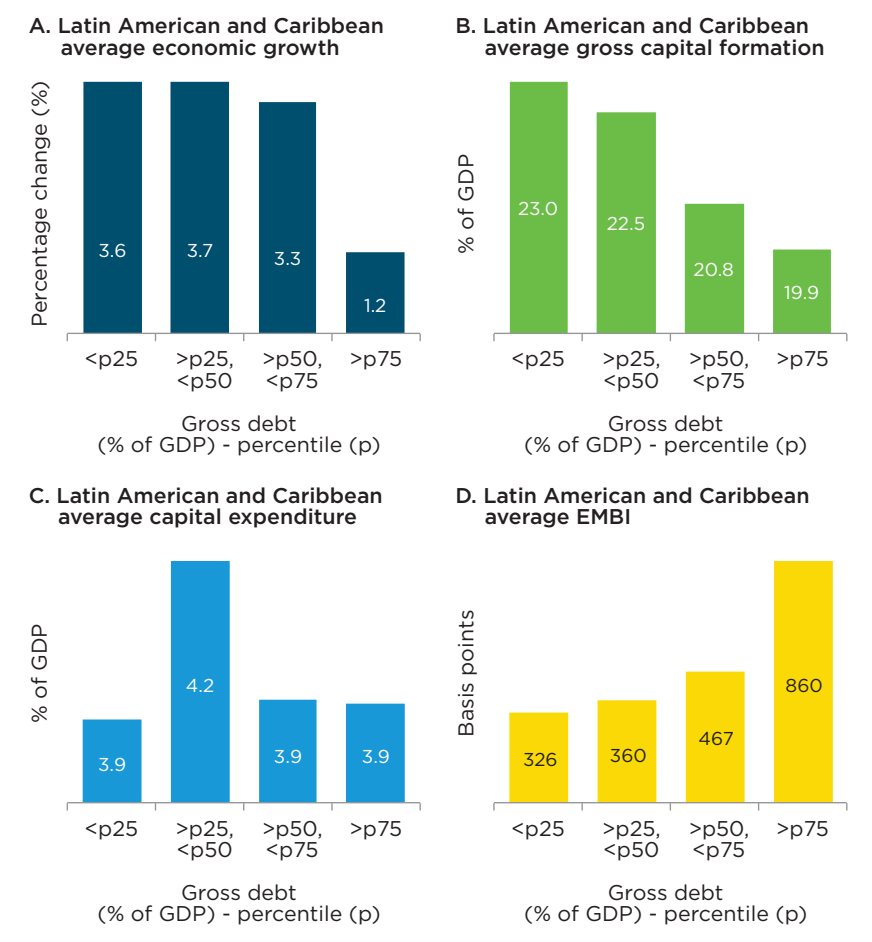
straightforward. Below a debt-to-GDP ratio of 62 percent (the 75th percentile), economic growth was similar across countries with different debt levels, with average growth ranging between 3.3 percent and 3.7 percent. But for countries with debt above that ratio, growth was on average just 1.2 percent (Figure 8.2, Panel A). Private investment is a prime candidate for understanding this pattern; above the 25th percentile of debt-to-GDP levels, investment falls as debt increases (Figure 8.2, Panel B) and capital expenditure does not increase (Figure 8.2, Panel C). However, this pattern is less clear for public investment.⁷ As debt levels increase, so does the cost of financing. Above debt levels of 44 percent of GDP, the Emerging Market Bond Index (EMBI), a proxy for the cost of financing, begins to increase as debt rises and climbs more rapidly when debt exceeds 62 percent of GDP (the 75th percentile, see Figure 8.2, Panel D). A high debt burden makes it more difficult for emerging economies to access financing, thereby reducing growth.

Debt Spikes and Lower Growth

Not only is the level of debt critical to growth, but so too are changes in debt. In debt spike episodes (defined in Chapter 4), many of the harmful effects of public debt on growth can become explosive (e.g., crowding out, negative returns on capital, higher inflation, uncertainty, and loss of credit worthiness). Irrespective of the level of debt, significant increases in public

⁷ On the importance of the quality of infrastructure investment see Cavallo, Powell, and Serebrisky (2020).

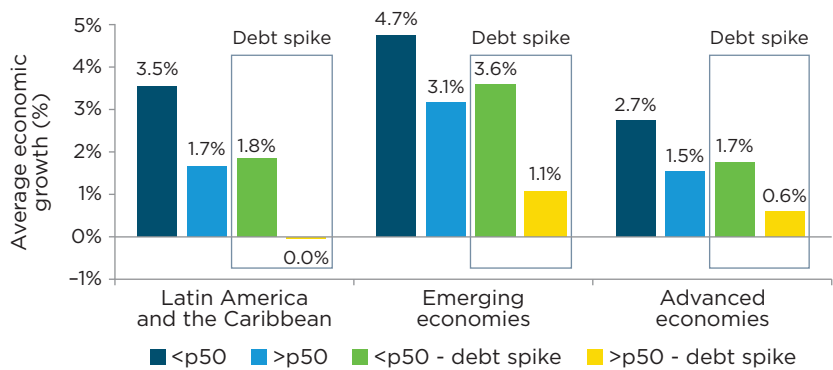
Figure 8.2 The Effect of High Indebtedness on Growth and Capital Formation



Source: IDB estimates based on WEO-IMF.
Note: Percentiles correspond to the following gross debt/GDP levels: p25: 25.5 percent of GDP; p50: 43.5 percent of GDP; p75: 62.1 percent of GDP.

debt are associated with lower growth in the different country groups (Figure 8.3). Still, debt levels and debt spikes interact. For example, in the absence of a debt spike, if the debt ratio is lower than the median level, then the average growth rate of countries in the region is 3.5 percent, whereas if debt is above the median, growth is 1.7 percent. In contrast, during debt spike episodes, growth is 1.8 percent when debt is below the median (50th percentile) and as low as 0 percent when above. Notably, most debt spikes occur at higher debt levels, and recessions are more common in that case (refer to Valencia et al. [forthcoming b] for further details).

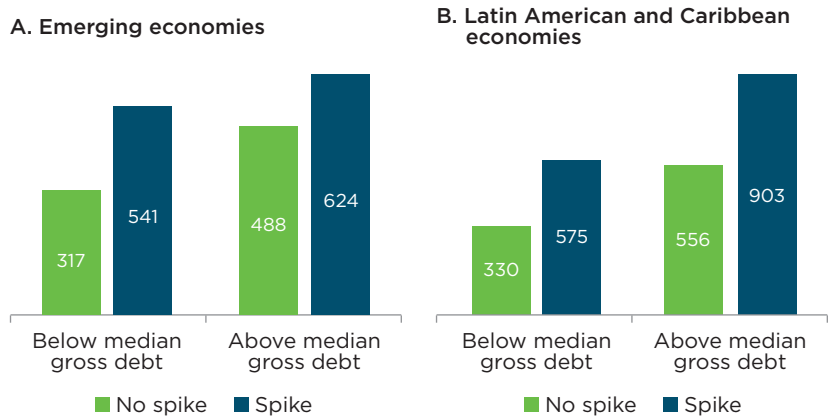
Figure 8.3 Economic Growth vs. Gross Debt (% GDP), 1980–2021



Source: IDB estimates based on WEO-IMF.
Note: Median gross debt: 43.5 percent of GDP.

Also, during spike episodes, sovereign risk increases. EMBI is significantly higher during these events in emerging economies and in countries in the region. However, debt spikes play a more important role in Latin America and the Caribbean. If debt stays below the median, the average EMBI spread jumps by 214 basis points in emerging and 245 basis points in Latin American and Caribbean countries during spike episodes. When the debt is above the median, the jump in the EMBI is 136 basis points in emerging and 347 basis points in Latin American and Caribbean countries (Figure 8.4).

Figure 8.4 Average EMBI, By Gross Debt and Debt Spike Episodes, 1980–2021



Source: IDB estimates based on WEO-IMF. Median gross debt: 43.5 percent of GDP.

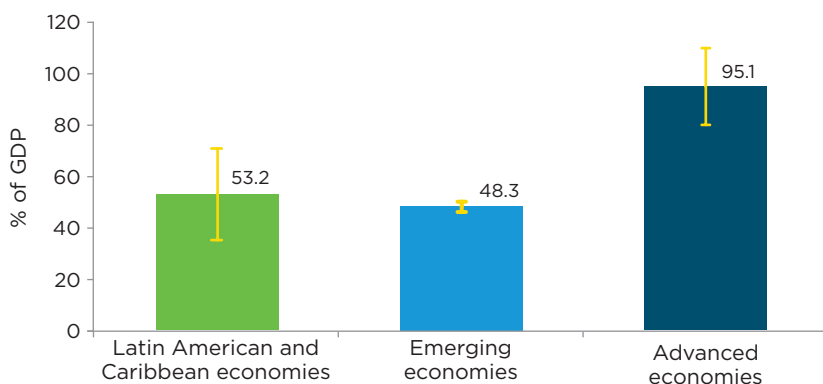
Debt Overhang: A Matter of Thresholds and Spikes

Going beyond descriptive analysis, this section explores the correlations between debt levels and growth to estimate thresholds of debt at which growth suffers.⁸ Further analysis identifies potential mechanisms to explain why debt may reduce growth and how debt spikes can have strong impacts.

Estimating a Threshold across Countries

The estimates indicate that if debt is above 53 percent in Latin America and the Caribbean, growth starts to suffer, while the threshold for emerging economies is 48 percent and for advanced economies as high as 95 percent (Figure 8.5).⁹ Advanced economies appear to be able to carry higher levels of debt as interest rates are generally less sensitive to debt, domestic capital markets are deeper, and fiscal multipliers are higher.¹⁰

Figure 8.5 Estimated Debt Threshold by Groups of Countries



Source: IDB estimates based on data from WEO-IMF, World Bank, and Penn World Table.

⁸ More details of the regression used can be found in Valencia et al. (forthcoming b).

⁹ Differentiating between Latin American and Caribbean and emerging economy thresholds is difficult. The composition of emerging economies is diverse, encompassing many African countries, which have mostly concessional debt, mixed with Middle Eastern and Eastern European countries, which have more usual debt profiles. Thus, the debt capacity of this group of countries is much more heterogeneous than that of more homogeneous groups of countries such as those within Latin America and the Caribbean and advanced economies.

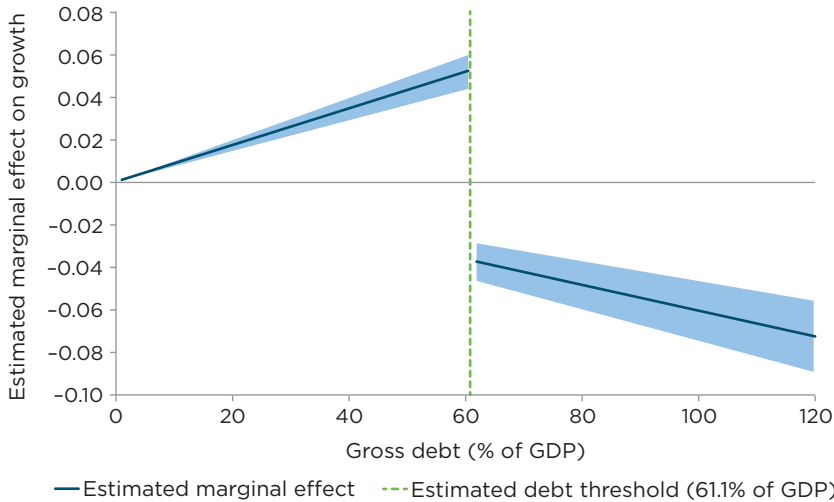
¹⁰ See Frankel and Romer (1999), Levine and Renelt (1992), Ilzetzki, Mendoza, and Végh (2013), and Butkus et al. (2021).

Institutions: A Difference Maker

Institutional quality may be another compelling reason for differences.¹¹ Gómez-Puig, Sosvilla-Rivero, and Martínez-Zarzoso (2022) find that improving institutions moderates the negative impact of public debt on growth.¹² To explore the role of institutions, additional analyses use institutional quality (IQ) as a critical determinant of the effect of debt on growth.

Using data for all countries and incorporating IQ in the analysis reveals the presence of a debt threshold for all countries.¹³ The results suggest a debt-to-GDP threshold of about 61.1 percent. Below that threshold, an additional increase in the debt-to-GDP ratio has a positive relation with growth; as debt rises above the threshold, the correlation between debt and growth becomes negative (Figure 8.6). For instance, estimates indicate that with a debt-to-GDP ratio of 40 percent, an increase to 41 percent

Figure 8.6 Estimated Debt Threshold for All Countries



Source: IDB estimates based on data from WEO-IMF, World Bank, and Penn World Table.

Note: Estimates obtained using a panel model with threshold effects (Hansen, 1999; Seo and Shin, 2016). The marginal effect is calculated using the estimated coefficients of debt and its interaction with institutional quality (IQ). An average IQ of -0.07 below the debt threshold and -0.02 above was used. Instrument for public debt built in two stages: i) regress SFR on inflation, valuation effects, debt default, and debt forgiveness, and ii) predicted values are used to instrument public debt on equation (1).

¹¹ See Law et al. (2021), Calderón and Fuentes (2013), and Alfaro, Charlton, and Kanczuk (2008).

¹² See De Pascale and Scrocco (2022), Croi and Diaw (2020), Eberhardt and Presbitero (2015), and Kourtellos, Stengos, and Tan (2013).

¹³ The estimate for each group of countries incorporating IQ is statistically complicated as the variance of this variable is much lower within each group.

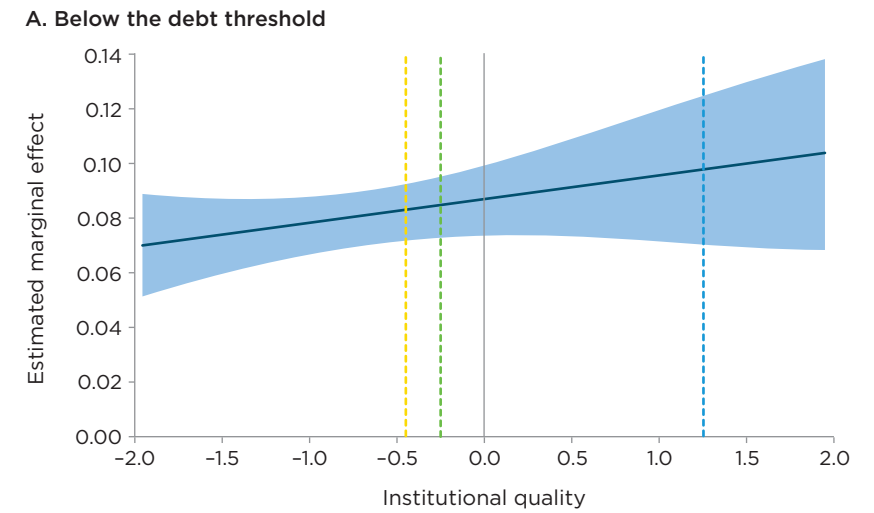
would raise growth by 0.035 percentage points (p.p.). However, with a debt level of 80 percent, the same percentage increase in debt would reduce growth by 0.048 p.p. These results are consistent with Swamy (2020) and Woo and Kumar (2015). In contrast, Eberhardt and Presbitero (2015) do not find a common debt threshold for all countries.

The institutional quality of countries may be crucial in determining the impacts of debt on growth. The regressions reveal that if debt is below the estimated debt threshold, the positive relation between debt and growth becomes increasingly larger as institutional quality improves. Moreover, when the debt is above the threshold, higher institutional quality moderates the negative impact of higher debt. Consequently, since institutional quality is higher in advanced economies, the effect of high debt levels on growth is estimated to be lower. In addition, emerging economies tend to have lower debt thresholds than advanced economies. One way to think about this is that thanks to higher institutional quality, higher debt translates to more productive investments in advanced economies, thereby increasing their repayment capacity.

Debt Spikes and Growth

The level of debt may impact growth, but the change in debt is also important. Growth per capita in the region is some 3 percentage points lower

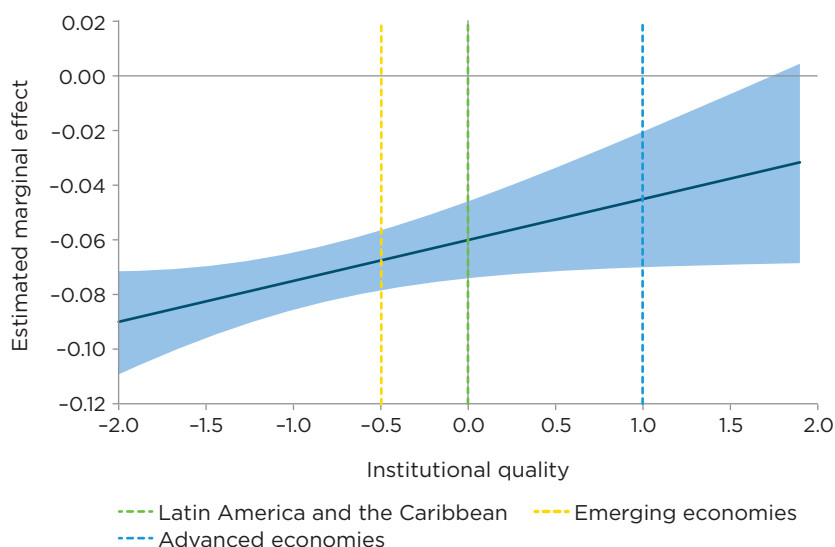
Figure 8.7 The Marginal Effect of Public Debt on Growth, Below and Above the Debt Threshold



(continued on next page)

Figure 8.7 The Marginal Effect of Public Debt on Growth, Below and Above the Debt Threshold *(continued)*

B. Above the debt threshold



Source: IDB estimates based on data from WEO-IMF, World Bank, and Penn World Table. Estimates obtained using a panel model with threshold effects (Hansen, 1999; Seo and Shin, 2016).

Note: Instrument for public debt built in two stages: i) regress SFR on inflation, valuation effects, debt default, and debt forgiveness, and ii) predicted values are used to instrument public debt on equation (1).

during debt spikes compared to periods without such surges in debt (see Figure 8.8).¹⁴ The impact of debt spikes on growth appears to be insignificant in advanced economies. If the debt spike is more persistent, growth falls further. In the region, if the spike episode lasts an additional year, it is associated with 1.6 percent lower growth.¹⁵

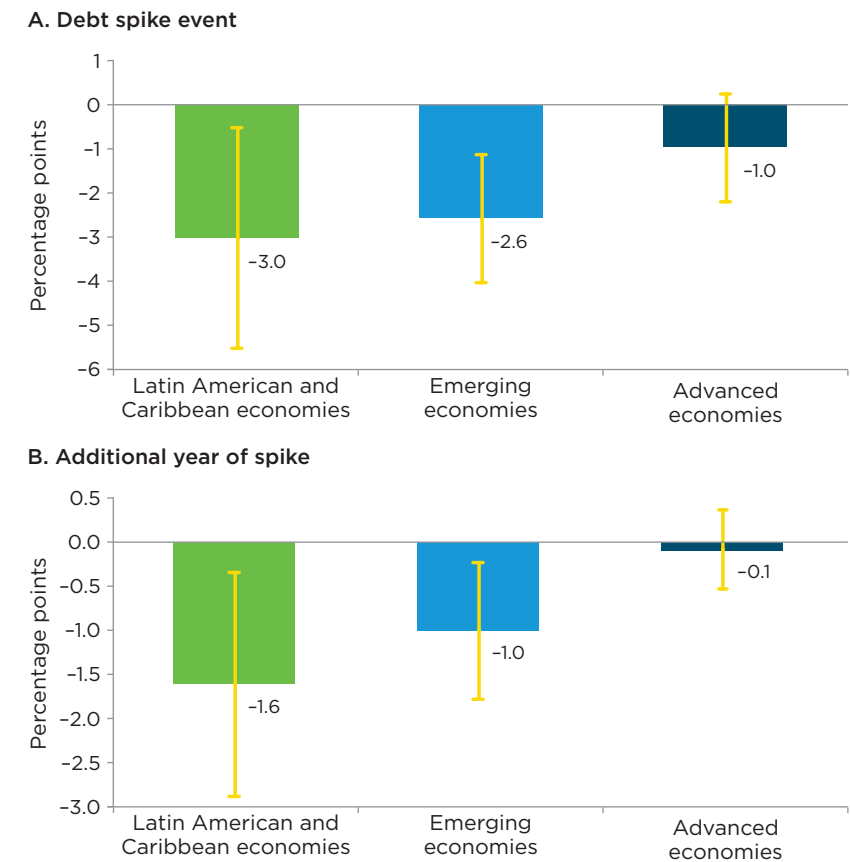
Debt spikes may reduce public investment, increase sovereign risk, and provoke declines in private investment (see Figure 8.9).¹⁶ During a debt spike in a country in the region, public investment tends to be 2.9 percentage points of GDP lower than in the absence of a surge in debt, compared to investment in infrastructure of just 1.7 percent of GDP. In addition, during

¹⁴ More details of the analysis are available in Valencia et al. (forthcoming b). In emerging economies, growth during debt spike episodes is 2.6 percentage points lower.

¹⁵ The impact is 1 percent in emerging economies and is not significant in advanced economies.

¹⁶ See Qureshi and Liaquat (2020), Picarelli, Vanlaer, and Marneffe (2019), and Checherita-Westphal, Hallett, and Rother (2012).

Figure 8.8 The Effect of Debt Spikes on GDP per Capita Growth



Source: IDB estimates based on WEO IMF, World Bank data, and Penn World Table.
Note: Estimates obtained using Arellano-Bond regressions. Shown point estimates correspond to the estimated average effect.

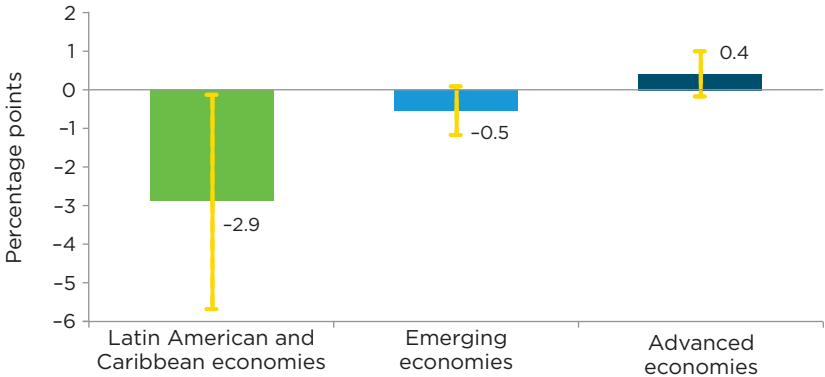
a debt spike, private investment is some 4.4 percent of GDP lower. In contrast, in other emerging economies, private investment only appears to fall some 1.4 percent of GDP, and advanced economies demonstrate no discernible impact during a debt spike.

Sovereign risk also increases during debt spikes. Figure 8.10, Panel A shows that the Emerging Market Bond Index (EMBI) spread increases by 711 bps for the region during a spike, which is also associated with a downgrade in a country’s credit rating. In contrast, in other emerging and advanced economies, impacts are insignificant.

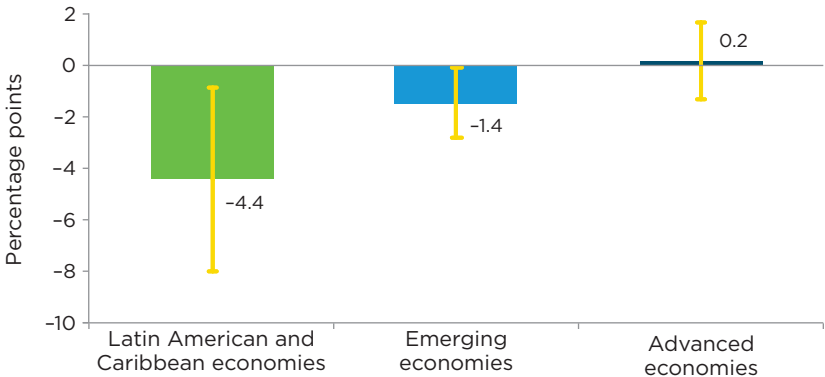
Beyond high debt levels, surges in debt can provoke deeper contractions, driven by sharp reductions in public and private investment and contractionary

Figure 8.9 Debt Spikes and Investment

A. Public investment (% of GDP)



B. Private investment (% of GDP)



Source: IDB estimates based on WEO IMF, World Bank data, and Penn World Table.

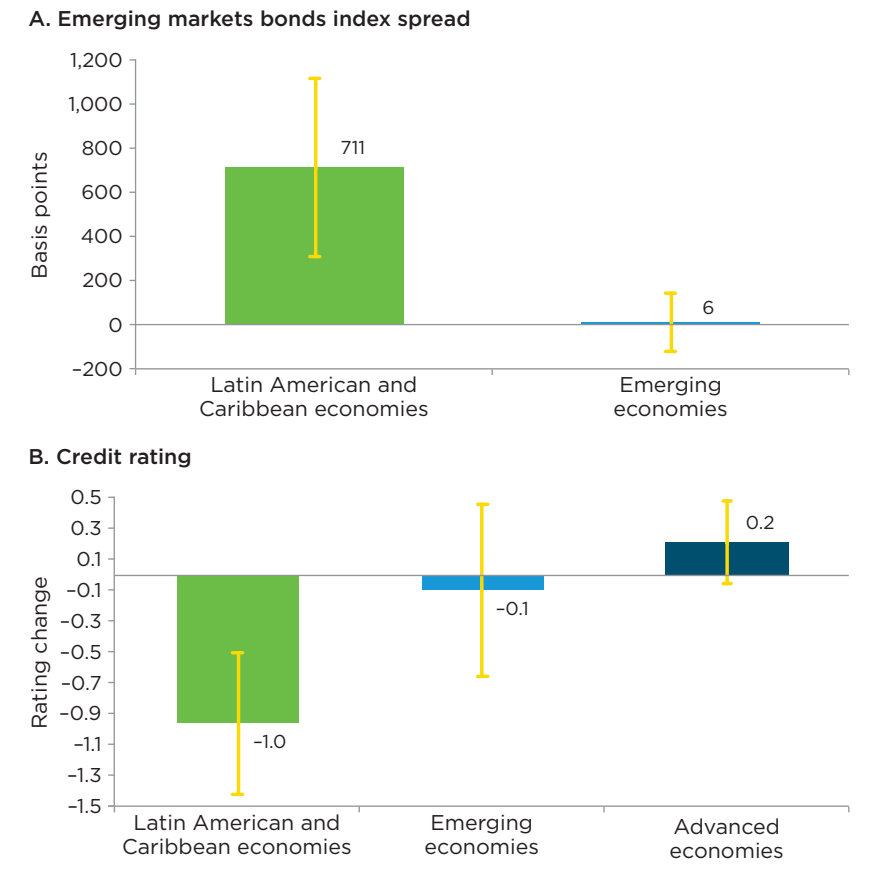
Note: Estimates obtained using Arellano-Bond regressions. Latin America and the Caribbean includes all IDB affiliated countries except Barbados, Guyana, Jamaica, Suriname, Trinidad and Tobago, and Venezuela due to data availability.

tax hikes or spending cuts to ensure debt sustainability. Higher financing costs translate into higher interest payments. As reviewed in Chapter 5, the combination of sharply higher debt, lower growth, and a higher interest burden may threaten sustainability. Close monitoring of debt levels and debt dynamics coupled with the impacts on private sector investment is critical.

The Bottom Line: Debt Levels Count for Growth

Public debt levels and their dynamics affect economic growth. An analysis across all countries reveals a tipping point: at low debt levels, higher

Figure 8.10 Debt Spikes and Sovereign Risk



Source: IDB estimates based on WEO IMF, World Bank data, and Penn World Table.
Note: Estimates obtained using Arellano-Bond regressions. Latin America and the Caribbean includes all IDB affiliated countries except Barbados, Guyana, Jamaica, Suriname, Trinidad and Tobago, and Venezuela due to data availability.

debt may boost growth, but at higher debt levels, growth suffers as debt levels grow. Still, the precise tipping point is hard to determine and may vary across countries. For example, the quality of institutions may impact the location of the tipping point and may also alter the magnitude of the effects of debt on growth. In particular, higher quality institutions may boost the positive effects of debt on growth at low debt levels and reduce the negative effect of debt at high debt levels. Sharp surges in debt levels (spikes) also negatively impact growth, and the more persistent is the spike, the stronger is the effect. All in all, the evidence suggests that a public debt overhang does indeed exist in countries with high debt levels. Countries with higher debts would enjoy higher growth if they were

able to reduce debt levels. How countries can reduce debt is discussed in Chapter 9.

What institutional factors may be particularly relevant to avoid or mitigate the effects of a debt overhang? A strong public investment regime that ensures that additional financing translates into high quality, productive investment would help mitigate the impact of higher debt on growth. Countries in Latin America and the Caribbean have significant room to improve public investment management.¹⁷ But the analysis shows that private investment also declines as public debt grows. Improving fiscal institutions, including transparency and debt management as discussed in Chapter 6, would help alleviate private sector concerns over higher debt levels.

Strengthening macro-fiscal institutions more generally would also assist. As discussed in Chapter 5, robust fiscal frameworks and well-designed fiscal rules can improve control over public finances and boost the credibility of future fiscal decision-making to ensure sustainability. These institutions may limit sharp increases in debt in the first place, and if they are necessary (for example to react to a significant negative shock such as the pandemic), will help make them temporary and lessen the impacts on interest rates and private investment.

The central message of this chapter is that many countries in the region with elevated debt levels are likely facing a debt overhang and would benefit in terms of growth from reducing debt. A caveat to this finding is that the analysis is based on historical data given current institutions. Reducing debt would help generate fiscal space such that the public sector could invest in worthwhile projects to boost growth and reduce poverty and inequality.

The other key conclusion is that improving institutions would also yield positive results. A better public investment regime (with improved project identification, development, and ex post evaluation of projects to assure systematic learning) would generate more predictable, efficient, results-oriented investments linked to strategic priorities, and would mitigate the impacts of the debt overhang. And better macro-fiscal institutions would ease the impacts on private investment, helping to crowd in, rather than crowd out, the private sector. Therefore, countries should work on both fronts: reducing debt and improving institutions.

¹⁷ See Armendáriz et al. (2016, 2021).

Reducing Public Debt: What Works Best?

The global financial crisis and the COVID pandemic significantly increased public debt in both advanced and emerging economies. In the case of Latin America and the Caribbean, average public debt increased significantly, more than in other emerging economies (see Chapter 4).

High levels of public debt are worrisome because they decrease the effectiveness of macroeconomic policy and increase the likelihood of costly debt crises (Kose et al., 2021). Moreover, they depress investment and growth (see Chapter 8). Now, tighter global financial conditions linked to changes in monetary policy in advanced economies could magnify the impacts on emerging and developing economies with high debt levels.

Countries in the region face significant challenges. They must reduce debt levels while maintaining health and social programs to assist those most impacted by the pandemic. They must also ensure sufficient investment to underpin a healthy recovery, achieve sustainable development goals, and transition to a net zero carbon economy.¹

This chapter analyzes previous episodes of debt reduction to understand how debt was brought down and how useful lessons from the past can be applied in the current context. Debt reduction episodes are decomposed into whether they were driven by prudent fiscal policy, growth, inflation, or other factors summarized by a term known as stock-flow reconciliation. Their effects on income inequality and unemployment are also studied.

Debt reduction episodes are not infrequent, and they are often associated with debt restructurings or high inflation. Debt reductions driven by high GDP growth or fiscal restraint are instead quite rare. Paraphrasing a well-known Irish joke, if the objective is to maintain low debt, then it is best not to start with high debt levels to begin with.² On the positive side,

¹ For a discussion of financing gaps in Latin America and the Caribbean, see Castellani et al. (2019).

² The joke is that a tourist in rural Ireland asks the way to Dublin, and the local resident responds, “Well sir, if I were you, I wouldn’t start from here.”

however, some countries have been able to reduce their debt gradually without the need for debt restructuring or high inflation. The chapter discusses policy lessons from these successful episodes.

A key lesson is that countries need to adopt policies that capitalize on growth spurts. Prudent fiscal policy alone is rarely successful in substantially reducing debt ratios; within Latin America and the Caribbean, Jamaica is the only country that was able to reduce its debt through sheer fiscal effort. This underlines the importance of responsible countercyclical fiscal policies that, while helping boost the economy during bad times, also allow for large fiscal surpluses and debt reduction in good times.

Good times are often characterized by laxer financial constraints; policymakers are tempted to engage in procyclical fiscal policies and borrow more when the economy is booming. However, these are exactly the times when fiscal multipliers are small, and tighter fiscal policy can yield large payoffs in terms of debt reduction, while limiting the negative consequences on economic activity (in fact, it helps prevent overheating). Well-functioning budgetary and fiscal institutions play a key role in supporting prudent countercyclical policy.³

Another important lesson is that successful debt reduction episodes are often accompanied by relatively low real interest rates driven by a combination of moderate inflation and moderate nominal interest rates. A responsible fiscal policy and an independent central bank can help keep real rates low and avoid temporary inflationary shocks that lead to an over-reaction in nominal interest rates and a jump in real rates.

A Review of Debt Reduction Spells in Latin America and the Caribbean

A debt reduction spell is defined as a multi-year period during which the debt-to-GDP ratio decreases by at least 15 percentage points. Over the last 40 years, the 26 IDB borrowing countries have gone through 43 debt reduction spells: 18 countries experienced two spells and 7 countries just one spell.

Debt reduction spells tend to be clustered in time. A first wave of debt reductions occurred in the late 1980s and early 1990s. This wave was associated with the debt restructuring exercises that followed the Latin American debt crisis of the 1980s. The second wave took place in the 2002–2007 period and was driven by the commodity price boom that preceded the global financial crisis. Only two debt reduction spells started

³ See the discussion in Cavallo et al. (2022).

after the global financial crisis. One was driven by high inflation and was soon followed by a large jump in the debt-to-GDP ratio and a default. Only Jamaica managed to reduce its public debt through high fiscal surpluses in the aftermath of the global financial crisis.

The average debt level at the beginning of a debt reduction spell was about 100 percent of GDP (Table 9.1). This high average value is influenced by a small number of countries. The median debt value at the beginning of the spell was close to 85 percent of GDP. The typical spell reduced debt by nearly 50 percent of GDP and lasted approximately seven years.⁴ The median annual reduction of the debt-to-GDP ratio was 7 percentage points (12 percentage points for the average).

About 44 percent of debt reduction spells were associated with real GDP growth above 4 percent, one-third of them were characterized by an average primary surplus above 2 percent of GDP, 43 percent of them were accompanied by average inflation above 20 percent, and nearly two-thirds of debt reduction spells included a debt restructuring exercise. Among spells that did not include a debt restructuring episode, a larger share enjoyed good growth and primary surpluses, and a lower share of spells faced high inflation. Box 9.1 describes in detail a subset of such successful debt reduction episodes.

Table 9.1 paints a somewhat somber picture and echoes the literature that shows that growth and fiscal prudence alone are rarely sufficient to

Table 9.1 Debt Reduction Episodes in Latin America and the Caribbean

	Debt-to-GDP (%)				$\frac{\Delta \text{Debt}}{\text{Length}}$	GDP Growth	Inflation	Prim. Bal.
	Beginning of the spell	End of the spell	Change	Length				
Average	110.1	37.8	-72.4	7.6	12.3	3.8	98.9	1.5
Median	84.3	32.1	-49.7	7.0	7.3	3.9	16.2	1.9
St. Dev.	92.0	23.3	77.8	3.4	20	2.7	290.6	3.0
Share of episodes						0.44	0.43	0.34
Share of episodes that do not overlap with a debt restructuring						0.57	0.46	0.46

Source: IDB staff calculations based on IMF WEO Data.

Note: There are 43 episodes in total; 65 percent of these episodes overlapped with a debt restructuring. The last two rows of the table show the number of episodes for which GDP growth, inflation, and/or the primary surplus was an important driver of the episodes.

⁴ Twelve spells lasted 10 years or more; the longest spell was Trinidad and Tobago between 1993 and 2008, lasting 15 years.

Box 9.1 Successes in the Region: How They Did It

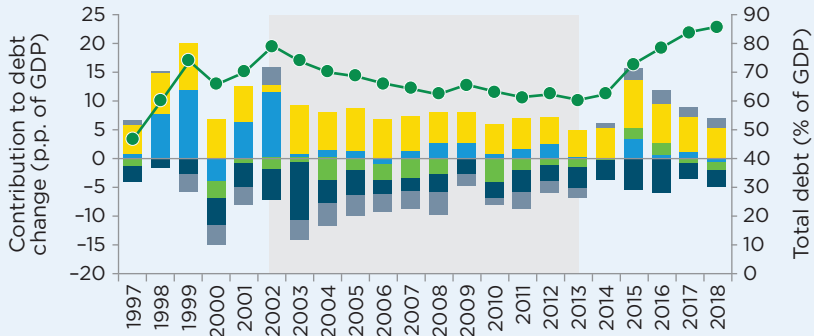
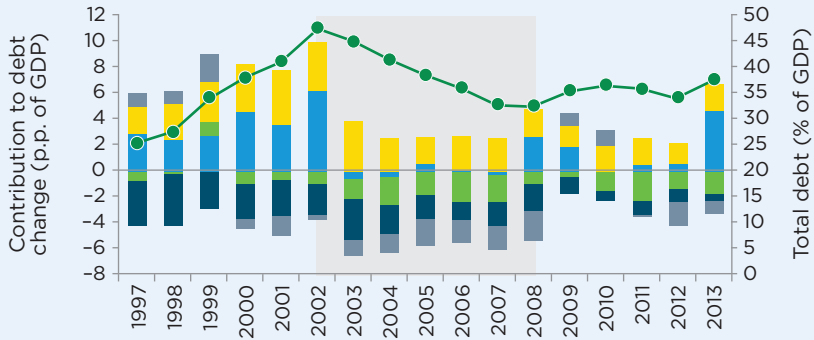
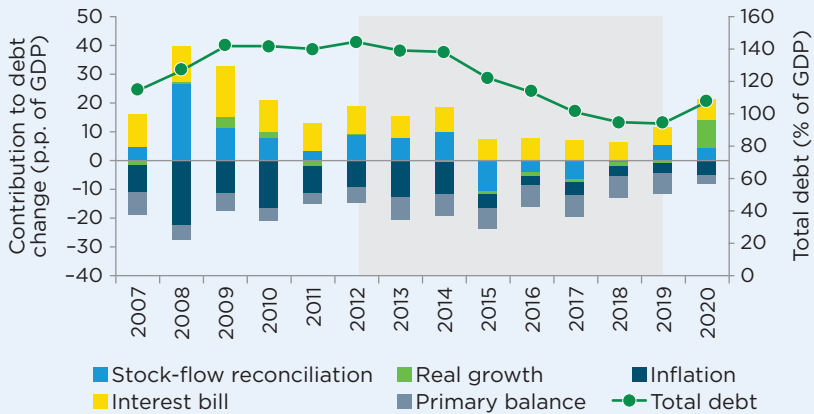
This box provides a short description of debt reduction spells that did not involve either a debt restructuring or high inflation.

From 2002 to 2013, Brazil reduced its debt-to-GDP ratio by 18 percentage points (Figure 9.1.1, Panel A). This was achieved through economic growth, moderate real interest rates, and sustained primary surpluses. GDP growth was positive during most years of the debt reduction spell (the exception is 2009) and, on average, it was higher than the ex post real interest rate by about one percentage point. Real interest rates were kept below the growth rates thanks to a combination of moderate inflation which partly compensated for high nominal rates but also allowed inflationary expectations to remain anchored throughout the period (the average ex post real interest rate was 3.7 percent). The debt reduction brought about by the fact that the real interest rate was higher than GDP growth was amplified by Brazil's ability to keep a primary surplus for 11 years in a row, with a surplus above 3 percent of GDP for the first six years of the debt reduction spell and above 1.5 percent for the last five years. This persistent fiscal surplus likely played an important role in boosting the credibility of monetary and fiscal policy and supporting the favorable growth-interest rate differential. As the real interest rate (and real interest payments) started decreasing in the second half of the spell, so did the primary surplus. This is not unusual. When debt goes down and credibility improves, often the temptation is to run a laxer fiscal policy and thus miss an opportunity to further reduce debt. However, note that Brazil decreased its primary surpluses when the economy slowed down in response to the global financial crisis. A more accommodative fiscal stance might thus have been justified by this large exogenous shock. In fact, Brazil is one of the few countries that kept running primary surpluses in the aftermath of the global financial crisis. These primary surpluses played a key role in bolstering market confidence. Only in 2014 did the primary balance turn negative. Low commodity prices were a key factor in determining the end of Brazil's debt reduction spell.

During the 2002–2008 period, Colombia reduced its public debt by 15 percentage points (Figure 9.1.1, Panel B). The debt reduction was partly driven by steady and moderate primary surpluses, relatively high growth (favored by high commodity prices), and moderate real interest rates. During the period, the average value of the differential between the interest rate and the growth rate was near -3.5 percent, yielding a substantial reduction in debt. Real interest payments remained low (under 2 percent) thanks to a combination of moderate inflation and low nominal rates. The situation changed in the aftermath of the global financial crisis: nominal growth contracted (both inflation and real GDP growth fell) and primary surpluses turned into deficits.

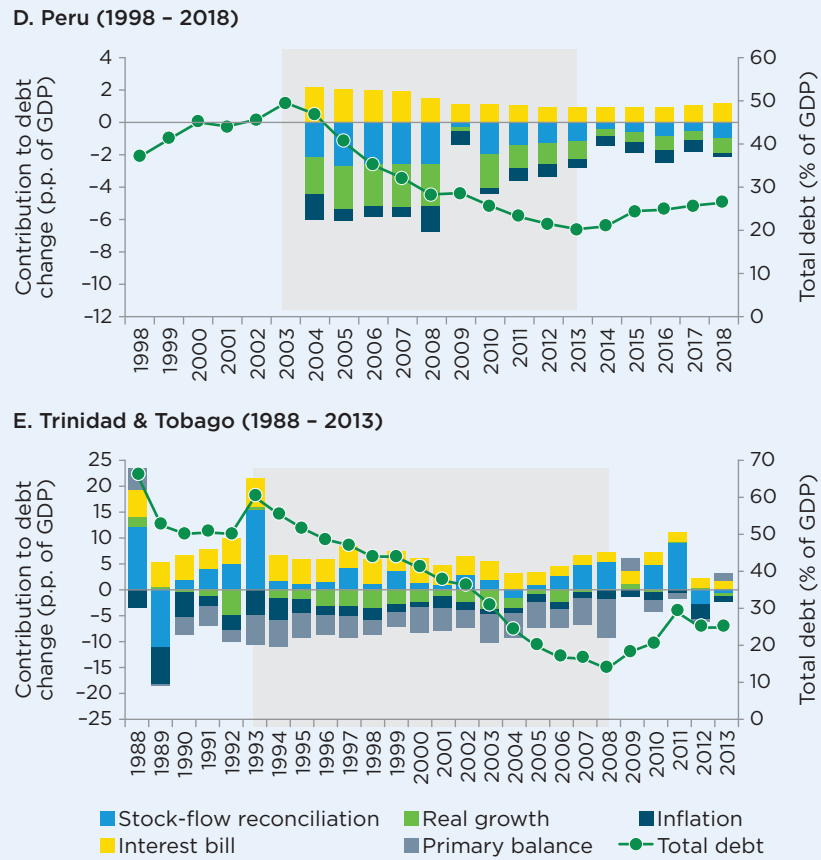
During 2012–2019, Jamaica reduced its debt-to-GDP ratio by 50 percentage points (Figure 9.1.1, Panel C). Jamaica is a rare example of a country that reduced

(continued on next page)

Figure 9.1.1 A Decomposition of Debt Reduction**A. Brazil (1997 - 2018)****B. Colombia (1997 - 2013)****C. Jamaica (2007 - 2020)**

(continued on next page)

Figure 9.1.1 A Decomposition of Debt Reduction (continued)



Source: IDB staff calculations based on IMF WEO data.

its debt thanks to an extraordinary fiscal effort (for details see Cavallo et al., 2022). During 1990–2020, Jamaica ran a primary surplus in every year—and a large surplus in most years. Over this period, the average (and median) primary balance was above 7 percent of GDP. This thirty-year period includes ten years during which Jamaica had primary surpluses above 10 percent of GDP and only three years in which the primary surplus was below 4 percent of GDP. Even with this impressive fiscal performance, debt remained high until 2012; in fact, it increased in 2007–2008. Higher debt was driven by positive stock flow adjustments and high interest rates. As soon as these impeding factors disappeared (around 2012), the fiscal effort started paying off, and debt began to decrease rapidly. The situation was then reversed by the Covid-19 crisis, which led to a serious recession. It is extraordinary that Jamaica ran a primary surplus when GDP contracted by 9 percent.

(continued on next page)

From 2003 to 2013, Peru reduced its public debt by 30 percent of GDP (Figure 9.1.1, Panel D). This was driven by a mix of growth above the real interest rate (the average difference over the period was around 1 percent) and sustained primary surpluses of about 2.5 percent per year. The country ran a primary deficit in 2009, but primary surpluses went back to 2–3 percent starting in 2010. Peru is a good example of smooth fiscal adjustment, with moderate but steady surpluses that led to a debt reduction during a period of sustained growth. As in the case of Brazil, low commodity prices were a key factor in ending Peru's debt reduction spell.

During 1993–2008, Trinidad and Tobago reduced its debt by 46 percent of GDP (Figure 9.1.1, Panel E). This is the longest debt reduction spell in the region. Throughout the period, Trinidad and Tobago faced high real interest rates and high GDP growth. On average, GDP growth was only 0.5 percent higher than the ex post real interest rate. Debt went down thanks to steady and persistent primary surpluses. Over this 15-year period, the average primary surplus was 4.6 percent of GDP and was never lower than 2.7 percent of GDP. The debt reduction spell ended with the global financial crisis.

Box 9.2 Austerity Intolerance

A long-lasting period of primary surpluses is often a necessary condition for a successful debt reduction strategy that does not rely on high inflation or explicit default. However, policymakers may find it difficult to run primary surpluses when high levels of poverty and income inequality generate social resistance to fiscal adjustments. Filippini and Sandleris (2022) describe this phenomenon as social fiscal “austerity intolerance.”

Austerity intolerance limits the ability of governments to implement fiscal corrections. Focusing on Latin America and the Caribbean, Filippini and Sandleris (2022) find a high degree of austerity intolerance that predates the COVID-19 pandemic in Chile, Ecuador, Argentina, and Peru, and that increased during the pandemic in Colombia.

Austerity intolerance reflects a variety of issues ranging from middle-class discontent related to income inequality to lack of social mobility and declining trust in governments. Increases in unemployment and poverty associated with the pandemic amplify these effects. Measuring austerity intolerance adds a political dimension to traditional debt sustainability analyses that only focus on economic factors.

Filippini and Sandleris introduce a new real-time measure of austerity intolerance using social media. Their Fiscal Austerity Intolerance Index covers 11 countries in Latin America during 2010–2021. They use the index to measure the impact of austerity intolerance on government popularity and the likelihood of implementing a given fiscal adjustment. They find that higher austerity

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intolerance dents government approval during fiscal adjustments, which translates into a lower probability of implementing a fiscal program.

By studying the impact of austerity intolerance on government popularity and its ability to implement a fiscal adjustment, Filippini and Sandleris contribute to a more realistic assessment of the likelihood that a country can sustain high debt levels and avoid a debt crisis. Their results are also useful for policymakers who want to design programs that can be implemented even in the presence of fiscal intolerance. One of the key insights of their analysis is that announcing a fiscal program in advance tends to increase the likelihood of the program being implemented. Another insight is that communication is likely to be important. If policymakers communicate well and manage to reduce fiscal intolerance, they are more likely to be able to successfully implement the program.

reduce debt.⁵ Of 43 debt reduction spells, in only 11 cases did high inflation or a debt restructuring not play a major role.

Beyond Latin America: A Systematic Analysis of Debt Reduction Episodes

This section looks beyond Latin America and the Caribbean at a wider group of countries using a methodology similar to that described in Chapter 4.

Debt Reduction Episodes and Their Correlates

Using the distribution of the five-year change of the debt-to-GDP ratio for the full sample of countries used in Figure 4.10 in Chapter 4, debt reduction episodes are defined as country-years that are to the left of the 10th and 20th percentile of the distribution (−29.5 and −14, respectively).⁶ In the remainder of the chapter, country-periods with five-year debt changes to

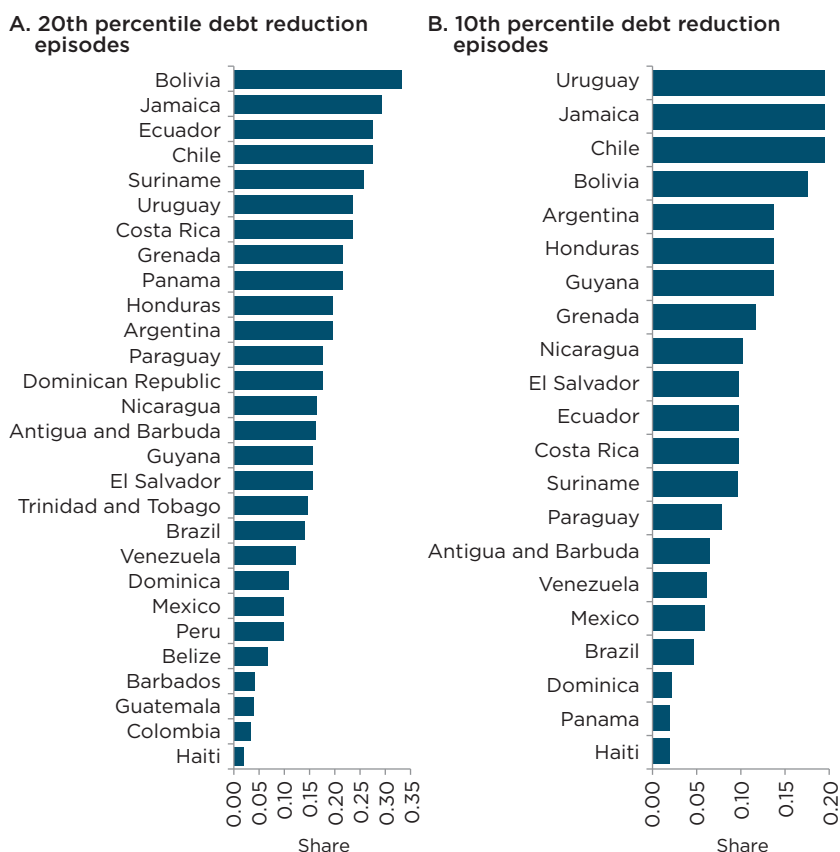
⁵ In a study of 118 countries over 1990–2020, Kose et al. (2021) find that in about 50 percent of observations, growth was higher than the real interest rate, but in about one-quarter of these cases, debt was still growing because the growth-interest rate differential was more than compensated by the presence of a primary deficit. Similarly, it is difficult to run large and sustained primary surpluses in the presence of low growth (Eichengreen and Panizza, 2016).

⁶ Note that the debt reduction episodes described in this section are not directly comparable with the debt reduction spells described in the previous section. First, while the debt reduction spells discussed in the previous section vary in length, this section focuses on a constant length (five years). Second, while the spells described in the previous section are, by construction, nonoverlapping, this section also considers overlapping spells. For instance, consider a country that for a period of ten

the left of these thresholds are referred to as 10P episodes and 20P episodes, respectively. By construction, 20 percent of five-year spells in the sample consist of 20P episodes and 10 percent of them consist of 10P episodes. However, there are differences across countries and regions.

Figure 9.1 focuses on Latin America and the Caribbean and shows the share of five-year periods that coincided with a 20P (Panel A) or 10P

Figure 9.1 Share of Debt Reduction Episodes

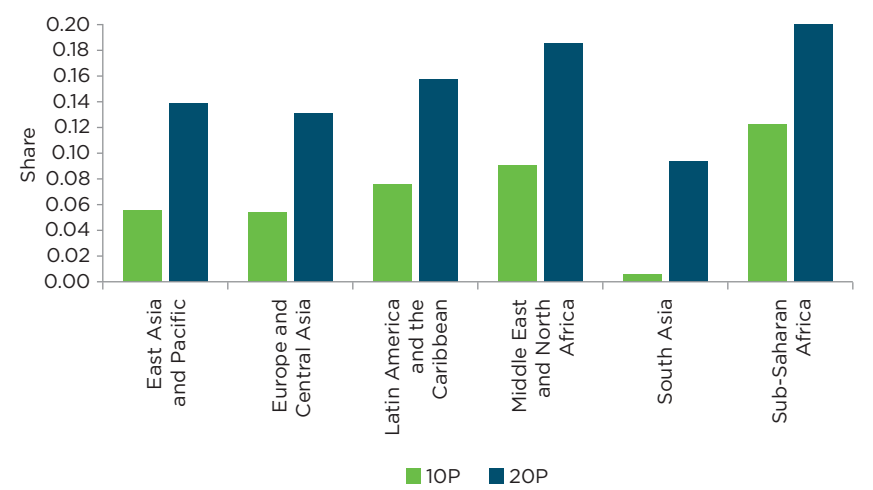


Source: IDB staff calculations based on IMF WEO data.

Note: This figure plots the share of 10P and 20P debt reduction episodes for all Latin American and Caribbean countries. Countries not included in the table either do not have at least 30 years of data or do not have an episode of debt reduction.

years consistently reduces its debt-to-GDP ratio by 3 percentage points per year and then stabilizes its debt level. In the previous section, this country would have been classified as having one debt reduction spell that lasted 30 years and led to a 30-percentage point reduction in the debt-to-GDP ratio. In this section, instead, this country would be classified as having six overlapping 20P debt reduction spells, each of them associated with a 15-percentage point debt reduction.

Figure 9.2 Share of Debt Reduction Episodes by Region



Source: IDB staff calculations based on IMF WEO data.
Note: This figure plots the share of 10P and 20P debt reduction episodes by region. By construction, the overall share of 10P episodes is 10 percent and the overall share of 20P episodes is 20 percent.

(Panel B) debt reduction episode. Bolivia, Chile, Costa Rica, Ecuador, Grenada, Jamaica, Panama, Suriname, and Uruguay are overrepresented in the sample of 20P episodes (their share of 20P episodes is greater than 20 percent), and Argentina, Bolivia, Chile, Grenada, Guyana, Honduras, Jamaica, Nicaragua, and Uruguay are overrepresented in the sample of 10P episodes.

At the aggregate level, Latin American and Caribbean countries are underrepresented in both 10P and 20P episodes (the regional shares are 7 percent and 15 percent, respectively; see Figure 9.2). Because of debt relief associated with the Heavily Indebted Poor Countries (HIPC) and Multilateral Debt Relief Initiatives (MDRI), countries in Sub-Saharan Africa are instead overrepresented in the samples of both 10P and 20P episodes.

The share of debt reduction episodes is also relatively low in East Asia, East Europe, and central Asia. However, in contrast to Latin America and the Caribbean, these regions have relatively low debt levels. Hence, debt reduction episodes are less frequent because they are less needed. There is a statistically significant relationship between initial debt levels and the likelihood of observing a debt reduction episode, and this relationship is weaker in Latin America and the Caribbean.

Two possible factors drive the positive correlation between the initial level of debt and the probability of a debt reduction episode. On the one

hand, this correlation could be driven by the fact that high levels of debt lead to prudent fiscal policy. This interpretation is consistent with the definition of debt sustainability discussed in Chapter 5. Alternatively, in the presence of high debt levels, countries reduce their debt by either defaulting or inflating it away. In fact, inflation is a key driver of debt reductions associated with high initial levels of debt. Debt reductions associated with a large primary balance are instead less likely in the presence of high initial debt levels.

Smooth versus Abrupt Debt Reduction Episodes

Not all debt reduction episodes are created equal. A steady, gradual debt reduction may be preferable to a faster, more abrupt one. Consider two debt reduction spells of comparable size: Suriname 1991–1996 and Trinidad and Tobago 1993–1998. In the first case, debt decreased by 64 percentage points in a period of five years, thanks largely to high inflation; during this period average growth was modest and the country ran a primary deficit. In the second case, debt decreased by 46 percentage points over 15 years, mostly because of moderate but steady primary surpluses.

Sudden debt reductions are often associated with high levels of inflation (as occurred in Suriname in 1991–1996) or sovereign defaults.⁷ Defaults can disrupt the domestic economy and are often associated with low GDP growth and costly financial crises (see Gelpern and Panizza, 2022; Mitchener and Trebesch, 2021). Moreover, defaults are often associated with financial and banking crises (Gennaioli, Martin, and Rossi, 2014), which not only have long-lasting negative effects on GDP growth and levels (Cerra and Saxena, 2008), but are also particularly costly for the most vulnerable segments of the population (Halac and Schmukler, 2004). Inflation tends to be regressive (Erosa and Ventura, 2002), undermines hard won central bank credibility, and can require a costly disinflation process. Not surprisingly, inflation-driven debt reductions are associated with higher income inequality. Moreover, inflation is ineffective in the presence of foreign currency debt, unless it is accompanied by a large real appreciation, which has a negative effect on growth (Rodrik, 2008). It is also ineffective in the presence of short-term debt, unless it is accompanied by financial repression, which leads to growth-reducing micro distortions (Roubini and Sala-i-Martin, 1992).

⁷ Large recorded adjustments may also reflect measurement error. Note: Saying that a smooth debt reduction is generally preferable to an abrupt debt reduction does not imply a value judgment on debt restructuring (or a debt reduction initiative such as HIPC or MDRI) when such debt restructuring is needed. It only implies that it would be desirable if countries did not find themselves in situations in which such policies are needed.

Even when debt reduction is achieved through large primary surpluses, severe fiscal tightening can have a contractionary effect on the economy, especially if implemented when growth is low and fiscal multipliers are large. Severe fiscal adjustments may also spark political backlashes that cut them short (Filippini and Sandleris, 2022). Adjustments that are spread out over time are, thus, likely to be less costly, more effective, and more likely to keep debt low over time. To study the drivers of these types of adjustment, “smooth” debt reductions are defined as episodes in which no single year accounts for more than 40 percent of total debt reduction. Income per capita is the only variable tested that is robustly correlated with the likelihood of a gradual debt adjustment, with smooth debt adjustment being more likely in richer countries.

In Latin America and the Caribbean, about one-third of episodes are smooth, which is more than the cross-country average (28 percent of 10P episodes and 26 percent of 20P episodes).⁸ In a large share of countries, the majority of debt reduction episodes are abrupt. In fact, in a substantial fraction of countries, *all* debt adjustment episodes are abrupt (Figure 9.3).

Breaking It Down: Composition of Debt Reduction Episodes

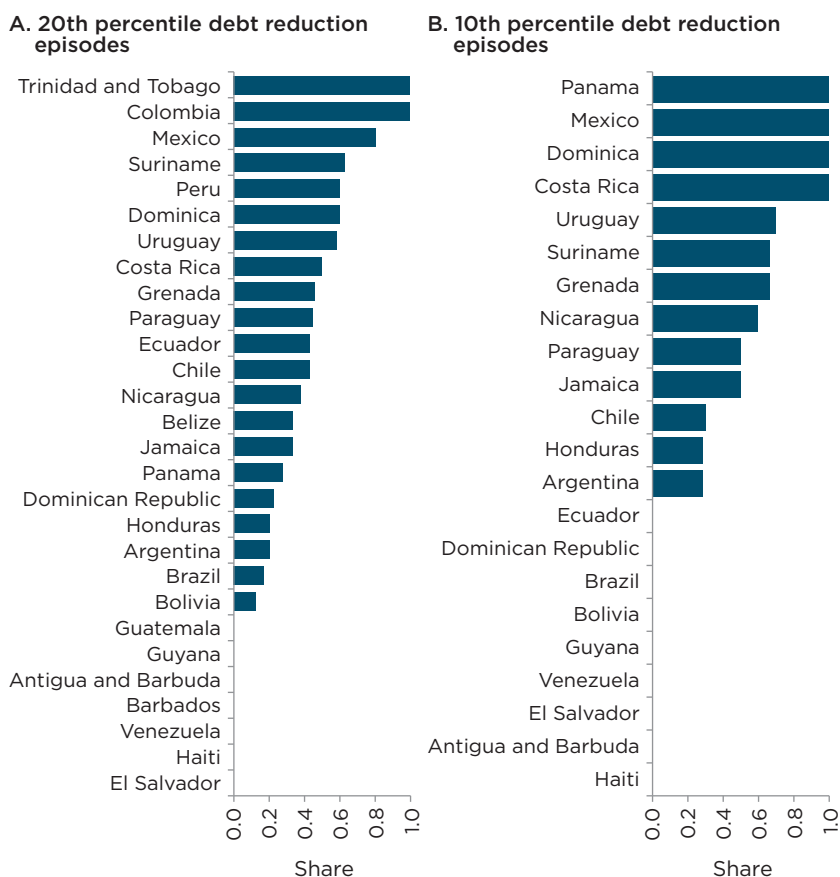
The debt-to-GDP ratio changes over time as a result of economic conditions and policy choices. As discussed in Chapter 5, the standard debt dynamic equation breaks down the change in the debt-to-GDP ratio (Δd) as follows:

$$\Delta d = pb + (i - g - \pi)d + sf$$

where pb is the primary balance over GDP, i is the nominal interest rate, g is real GDP growth, and sf is the stock-flow reconciliation.⁹ The stock flow reconciliation can be driven by measurement error but also by events that affect the debt-to-GDP ratio without going through the budget. Chapter 4 shows that the stock flow reconciliation is an important driver of debt spikes, but this residual element can also take negative values and be associated with debt reductions—for instance, in the

⁸ This is partly driven by the large share of abrupt debt reduction episodes in Sub-Saharan Africa driven by debt relief under the HIPC and MDRI initiatives.

⁹ For a detailed discussion of the stock-flow reconciliation and its drivers, see Campos, Jaimovich, and Panizza, (2006).

Figure 9.3 Share of Smooth Debt Adjustment

Source: IDB staff calculations based on IMF WEO data.

Note: This figure plots the share of 10P and 20P smooth debt reduction episodes for all Latin American and Caribbean countries. This is the share of debt reduction episodes that are not driven by large one-year changes in the debt-to-GDP ratio. Countries not included in the table either do not have at least 30 years of data or do not have any episode of debt reduction. Countries listed without a bar are countries that have 20P and 10P debt reduction episodes but no smooth episode.

presence of a debt default with face value debt reduction or if large privatization revenues are not included in the budget and are used to retire public debt.¹⁰

As mentioned above, not all types of debt reductions are equally desirable. Growth-driven debt reductions are more desirable than debt

¹⁰ The effect of privatization on debt sustainability is ambiguous. While privatization can address liquidity problems, it can also decrease future revenues unless it involves efficiency gains.

reductions associated with debt defaults or high inflation, which tend to have high economic costs.¹¹

Applying the debt dynamic equation described above to actual data shows that the main contributors to debt reductions are inflation, which is especially important in Latin America and the Caribbean, and real GDP growth, which is especially important in East Asia. The primary balance is important in several regions, including Latin America and the Caribbean, when the analysis is restricted to periods with negative debt growth (Figure 9.4, Panel B). In Latin America and the Caribbean, high nominal interest rates are a key obstacle to debt reduction.

This section defines an episode as being driven by a given factor (say primary surplus) if that specific factor accounts for at least 40 percent of the debt reduction in the episode.¹² This allocation rule can yield episodes that are not driven by any specific factor, which would be the case if no component of the debt dynamic equation accounts for at least 40 percent of the change in debt, and for episodes driven by multiple factors.¹³ The set of drivers studied here includes primary surplus, real growth, inflation, real interest rate, and the stock flow reconciliation.¹⁴

Inflation, and its associated negative real interest rates, is by far the most important driver of debt reduction episodes in Latin America and the Caribbean, followed by tight fiscal policy. Growth, on the other hand, is less important (Figure 9.5). While the stock flow reconciliation is key for debt spikes (Chapter 4), it is less important for debt reductions.¹⁵ However, in Latin America and the Caribbean, large debt reductions (i.e., 10P

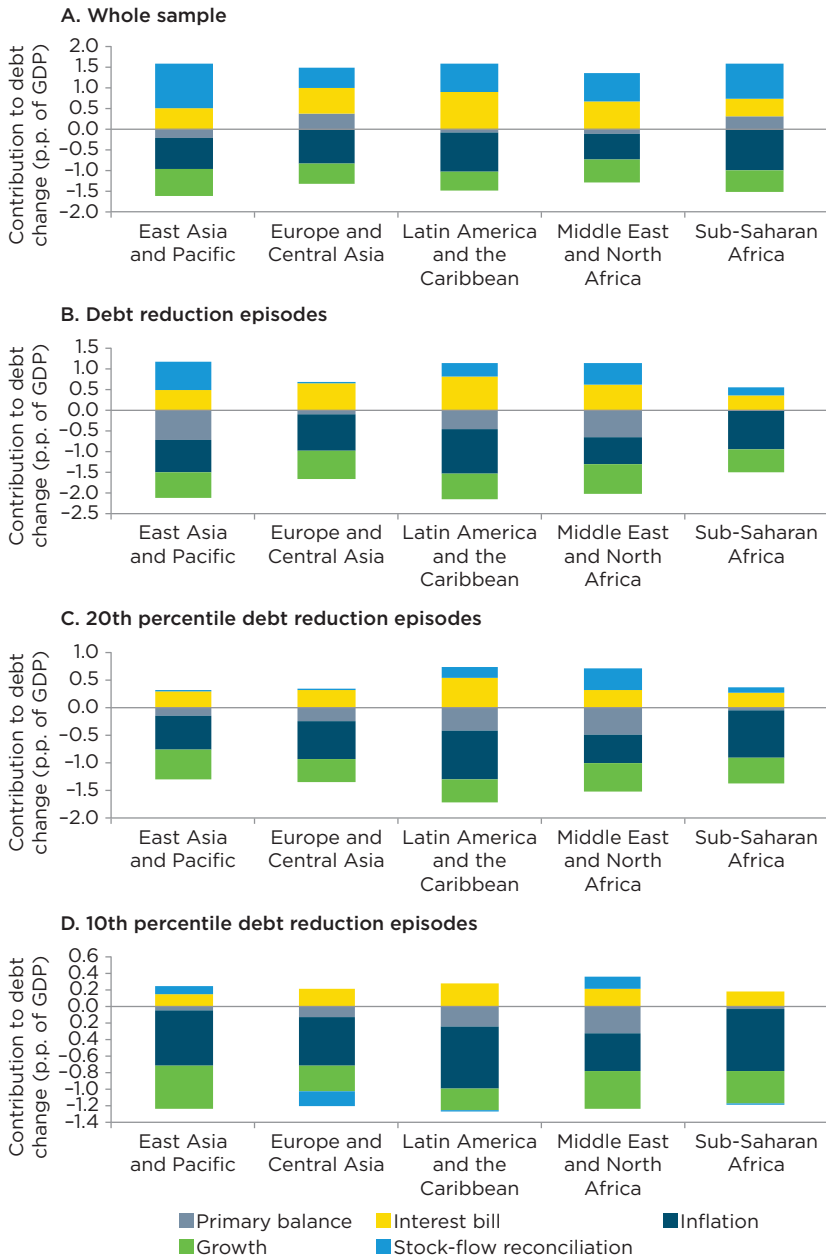
¹¹ Kose et al. (2022) refer to these debt reduction strategies as unconventional or heterodox approaches.

¹² It is worth noting that this definition based on the debt-dynamic equation described above does not keep track of the complex interactions among the various components of debt dynamic. For instance, a fiscal contraction could affect both interest rates and GDP growth. These interactions are not considered by the accounting framework adopted in this chapter.

¹³ This is trivially the case if two factors account for 40 percent of debt reduction each. However, in some individual cases, the two factors can add up to more than 100 percent because certain elements of the debt decomposition are negative and others are positive.

¹⁴ While nominal interest rates are rarely negative (especially in the sample of developing and emerging economies considered here), real interest rates can be negative if inflation is higher than the nominal interest rate. Hence, the share of episodes driven by the presence of a negative interest rate is a strict subset of the share of episodes driven by inflation.

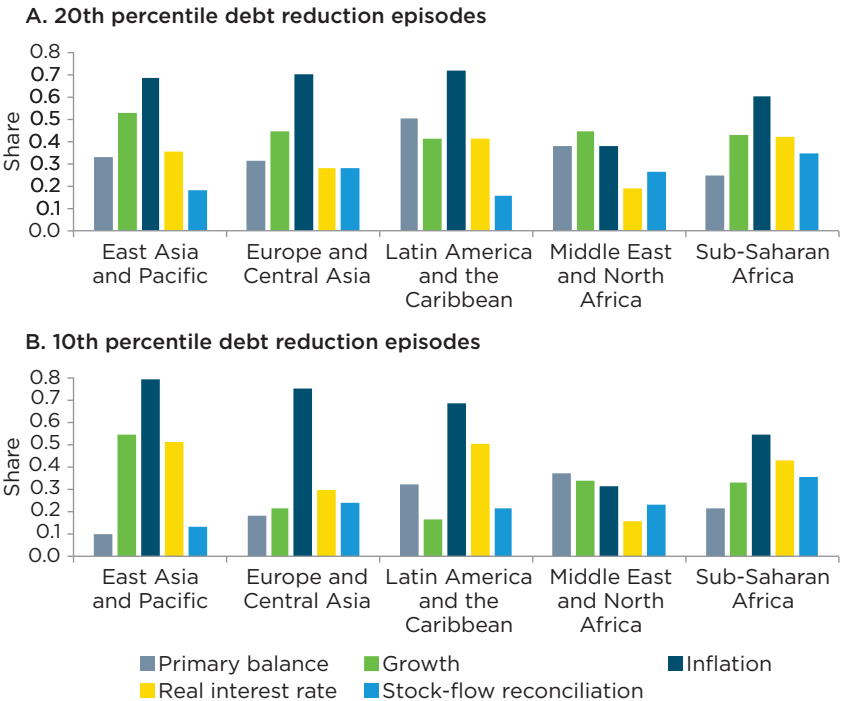
¹⁵ The exception is Sub-Saharan Africa which was the main beneficiary of the HIPC and MDRI debt-reduction initiatives. For a discussion of past experiences with coordinated debt reduction initiatives, see Nagle (2022).

Figure 9.4 Composition of Debt Changes by Region

Source: IDB staff calculations based on IMF WEO data.

Note: This figure shows the composition of debt changes by region; bars above the zero line show factors that contribute to debt growth, and bars below the zero line show factors that contribute to debt reductions. Panel A uses all available data, Panel B uses all five-year periods with negative debt growth, Panel C uses data from 20P episodes, and Panel D uses data from 10P episodes.

Figure 9.5 Main Contributors to Debt Reduction Episodes

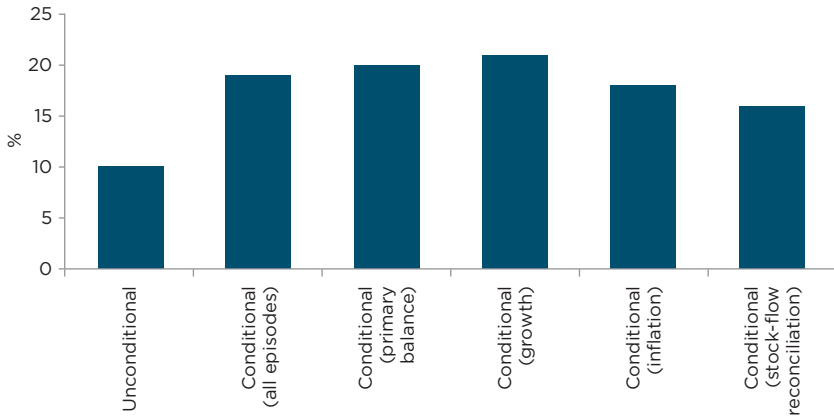


Source: IDB staff calculations based on IMF WEO data.
Note: This figure shows the share of 20P (Panel A) and 10P (Panel B) debt reduction episodes that can be attributed to different factors. Note that a given debt reduction episode can be attributed to more than one factor or to no specific factor. Therefore, the shares do not add up to one.

episodes) are more likely to be driven by the stock flow reconciliation (often associated with default episodes) than by high GDP growth (20 percent of episodes versus 18 percent of episodes). East Asia is the only region for which GDP growth contributes to more than 50 percent of episodes.

Debt reduction episodes appear to be persistent. While the unconditional probability of observing a 10P episode is, by definition, 10 percent, the probability of observing a 10P episode conditional on having observed a similar episode in previous periods is 19 percent. “Good” debt reduction episodes are even more persistent than the average overall debt reduction episode. The likelihood that a country experiences a 10P debt reduction episode conditional on having observed a growth-driven debt reduction episode in previous periods is 21 percent (Figure 9.6). The probability of observing a 10P episode conditional on previous primary balance-driven episodes is 20 percent. The corresponding conditional probabilities for

Figure 9.6 Conditional and Unconditional Probability of a 10 Percentile Debt Reduction Episode



Source: IDB staff calculations based on IMF WEO data.

Note: This figure plots the probability of observing a 10P episode. The first bar plots the unconditional probability, which is, by definition, 10 percent. The second bar plots the probability that a country observes such a 10P episode conditional on having had such an episode in previous periods (this probability is 19 percent). The remaining four bars plot the probability that a country observes a 10P episode conditional on: having observed a primary balance-driven debt reduction episode in previous periods (third bar), a growth-driven debt reduction episode in previous periods (fourth bar), an inflation-driven debt reduction episode in previous periods (fifth bar), and a stock flow-driven debt reduction episode in previous periods (sixth bar).

inflation-driven and stock-flow adjustment-driven episodes are instead 18 percent and 16 percent.¹⁶

Looking at the drivers of smooth debt reductions, inflation remains important but so too are GDP growth and primary surpluses. Instead, the share of smooth debt reductions driven by stock-flow reconciliation is smaller than in the full sample of debt reductions.

What types of economic and institutional factors are associated with different types of debt reduction episodes? Identifying these elements is especially important for policy. Only some drivers of debt reduction can be, at least in part, directly controlled by policymakers (fiscal policy, inflation, and the time of debt restructuring). However, complementary conditions (such as growth and central bank credibility) can make policy actions more or less effective in reducing debt. Understanding these complementary conditions can help policymakers deploy policy when it is most effective.

¹⁶ There is less persistence for 20P episodes, with the conditional probability increasing to 27 percent and no difference in the probability of observing a new episode conditional on the previous type of episode.

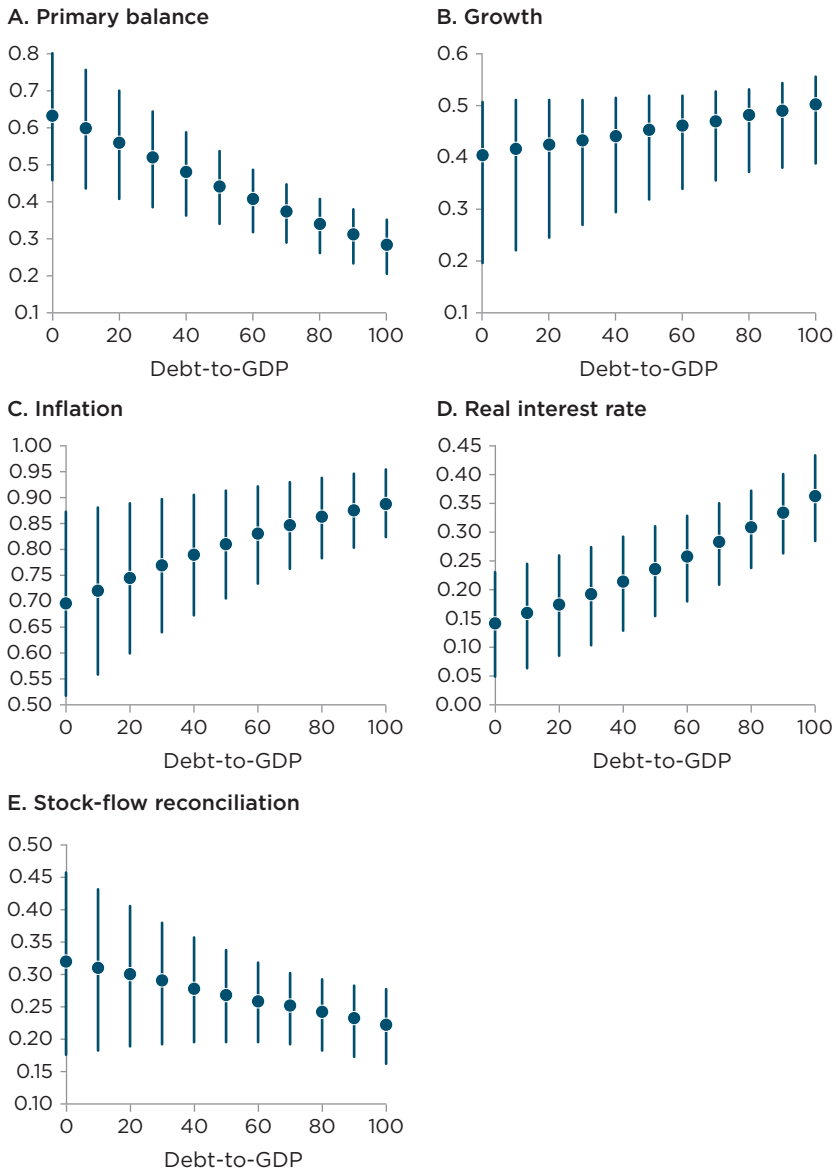
While debt levels are strong predictors of debt reduction episodes, there is heterogeneity across types of episodes. Higher debt levels are positively associated with the probability of an inflation- (or real interest rate) driven debt reduction episode (including smooth inflation-driven debt reduction episode) and negatively correlated with the likelihood of a primary balance-driven debt reduction episode (Figure 9.7). Initial debt levels are, instead, irrelevant for other types of debt reduction episodes.

Given the lack of evidence that growth-driven debt reductions are more likely when debt levels are high indicates that the most desirable type of debt reduction is unlikely precisely when it is most needed.¹⁷ Similarly, while it would be desirable for countries to respond to high debt levels with prudent fiscal policy, the data suggest this is rarely the case. Countries are more likely to respond to high debt levels with high inflation rather than by running large fiscal surpluses.

Other relevant variables include income per capita and the presence of an independent central bank. Income per capita is positively associated with the likelihood of a primary balance-driven debt reduction episode but negatively associated with the likelihood of a growth-driven debt reduction episode. The presence of an independent central bank, instead, increases the likelihood of an inflation-driven debt reduction (Figure 9.8).

It is intriguing that inflation-driven debt reductions are positively correlated with central bank independence. After all, inflation should be lower in the presence of a more independent central bank. This is indeed the case: during debt reduction episodes in countries with high central bank independence, average inflation is 18 percentage points lower than in countries with lower central bank independence (12 percent versus 30 percent). Focusing exclusively on inflation-driven debt reduction episodes, average inflation in countries with an independent central bank is one percentage point lower (8.5 percent versus 9.5 percent) than in countries with lower central bank independence. Therefore, the result described in Figure 9.8 is not driven by the fact that central bank independence leads to higher inflation, but by the fact that a more independent central bank anchors expectations and allows for periods of above average inflation without an immediate increase in nominal interest rates. Monetary credibility is also positively correlated with the maturity of government debt and, hence,

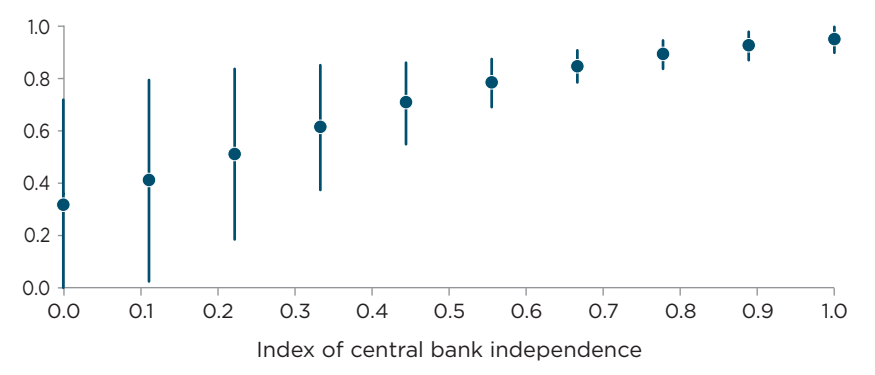
¹⁷ This result is consistent with the presence of a negative correlation between high level of debt and GDP growth (see Chapter 8 for a discussion of the link between debt and growth).

Figure 9.7 Different Types of Debt Reduction Episodes and Debt Levels

Source: IDB staff calculations based on IMF WEO data and World Development Indicators.

Note: This figure plots how the likelihood of different types of 20P debt reduction episodes varies with the level of initial debt, while all other variables are kept at their mean value. The dots are point estimates and the spikes 95% confidence intervals.

Figure 9.8 Central Bank Independence and Inflation-Driven Debt Reduction Episodes



Source: IDB staff calculations based on IMF WEO data and World Development Indicators.
 Note: This figure plots how the likelihood of an inflation-driven P20 debt reduction episode varies with the index of central bank independence while all other variables are kept at their mean value. The dots are point estimates and the spikes 95% confidence intervals.

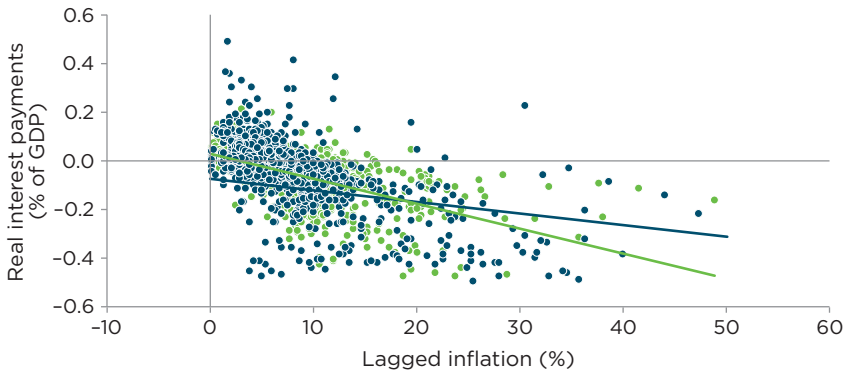
allows for a slower response of overall interest payments to inflationary shocks (Andreolli, 2021; Willems and Zettelmeyer, 2022).

Figure 9.9 plots the correlation between lagged inflation and real interest payments as a share of GDP (this is the component of the debt dynamic equation described above) for countries with low levels of central bank independence (blue dots) and countries with a high level of central bank independence (green dots). The negative correlation between real interest payments and lagged inflation is stronger in country-years characterized by higher levels of central bank independence.¹⁸

Figure 9.7 showed that debt reduction episodes are persistent and that “good” debt reduction episodes (i.e., episodes driven by GDP growth and prudent fiscal policy) tend to be more persistent than those driven by inflation and stock-flow reconciliation. What drives this persistence? If countries pay the fixed costs needed to put in place budgetary rules and fiscal institutions that allow for debt reduction, then implementing future debt reductions may become easier. Regression analysis provides some evidence in this direction: indicators that measure the presence and quality of fiscal institutions are positively correlated with the likelihood of primary balance-driven or growth-driven debt reduction episodes. However, the results are not generally statistically significant, possibly because

¹⁸ Financial repression can also keep real rates low (Reinhart and Sbrancia, 2015; Mauro and Zhu, 2020) but this strategy is associated with large distortions (Jafarov, Maino, and Pani, 2019).

Figure 9.9 Inflation, Real Interest Payments, and Central Bank Independence



Source: IDB staff calculations based on IMF WEO data and World Development Indicators.

Note: This figure plots the correlation between lagged inflation and real interest payments (as a share of GDP) in countries with high (green dots) and low (blue dots) levels of central bank independence.

data on both fiscal institutions and debt reduction episodes cover a limited sample of country-years.¹⁹

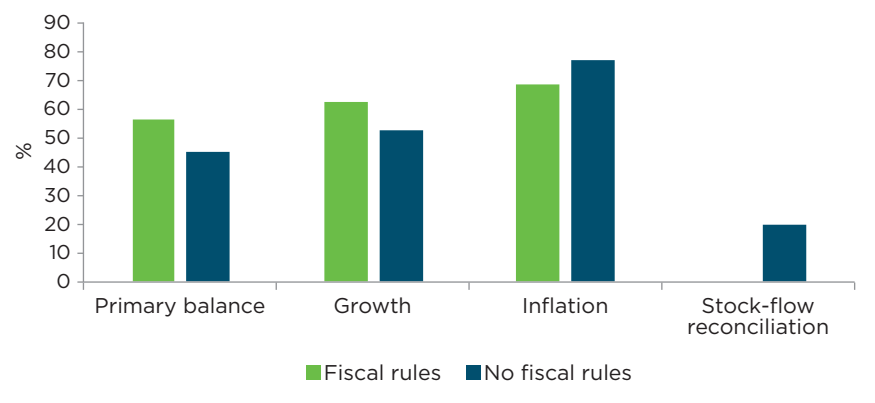
Another way to explore the role of fiscal institutions is to let the data speak for themselves through cluster analysis. This exercise puts all 20P episodes that have a fiscal rule in place at the beginning of the debt reduction period in one group and the remaining episodes in another two groups (the difference between these other two groups is the presence of an IMF program). Countries with fiscal rules in place have a higher probability of either a primary balance-driven debt reduction episode (56 percent versus 40 percent) or a growth-driven debt reduction episode (63% versus 52%) and a lower probability of an inflation-driven or stock flow reconciliation-driven debt reduction episode (Figure 9.10).

The Ups and Downs of Debt Reduction

Changes in debt trajectory are a necessary condition for a debt reduction episode. This section considers two types of events: i) five-year periods of debt reduction that follow five-year periods of increasing debt (debt reversals); and ii) five-year periods of debt reduction that follow five-year

¹⁹ Good fiscal institutions significantly reduce the likelihood of debt spikes (see Chapter 4). If such institutions prevent debt spikes, they are likely needed to reduce debt.

Figure 9.10 Probability of Different Types of Debt Reduction Episodes



Source: IDB staff calculations based on IMF WEO data and World Development Indicators.
Note: This figure shows the probability of observing different types of P20 debt reduction episodes with and without fiscal rules.

periods in which the debt-to-GDP ratio increased by at least 10 percentage points (sharp debt reversal).²⁰

About 40 percent of periods with positive debt growth are followed by periods with negative debt growth. This share increases to 45 percent for sharp debt reversal episodes. Regions vary little in the share of these episodes (Figure 9.11).

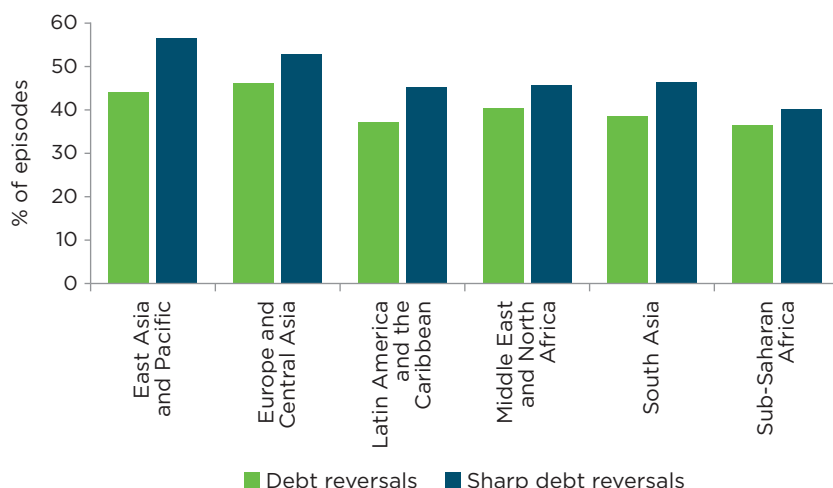
Changes in debt trajectory are more likely when initial debt levels are high and exchange rate regimes are intermediate (neither fixed nor fully floating). They are also more likely in countries with higher GDP per capita.

As in the case of debt reduction episodes, inflation is the main driver of debt trajectory changes. However, growth and primary surpluses are almost as important as inflation in changing the trajectory of debt. In Latin America and the Caribbean, more than 60 percent of debt trajectory changes can be partly attributed to one of these two elements.

The Social Side

Are there social costs linked to debt reduction episodes? Specifically, do debt reduction policies affect unemployment and income inequality?

²⁰ Formally, debt reversal episodes are defined as episodes characterized by $d_t - d_{t-5} > 0$ and $d_{t+5} - d_t < 0$; non-episodes are characterized by $d_t - d_{t-5} > 0$ and $d_{t+5} - d_t > 0$ (observations for which $d_t - d_{t-5} \leq 0$ are not included in the analysis). Similarly, sharp debt reversals are characterized by $d_t - d_{t-5} > 10$ and $d_{t+5} - d_t < 0$ versus periods when $d_t - d_{t-5} > 10$ and $d_{t+5} - d_t > 0$ (observations for which $d_t - d_{t-5} \leq 10$ are not included in the analysis).

Figure 9.11 Change in Debt Dynamics by Region

Source: IDB staff estimates based on IMF WEO data and World Development Indicators.

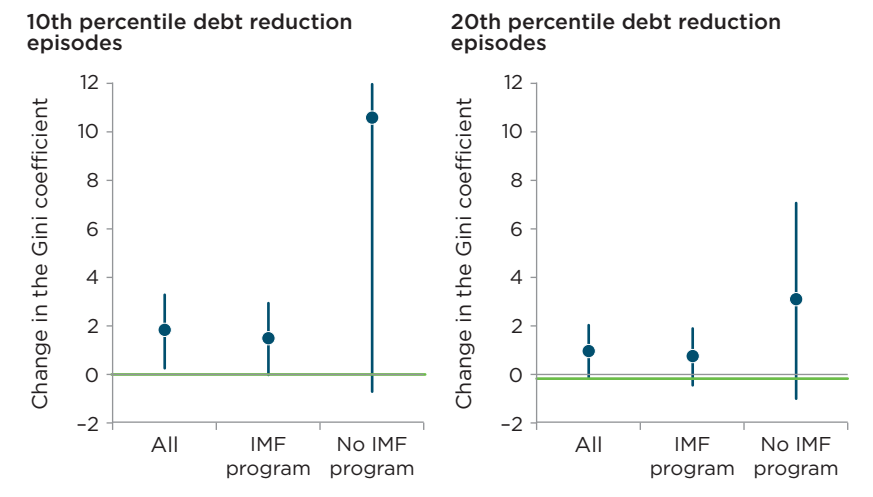
Note: This figure plots the share of five-year periods with negative debt growth that were preceded by five-year periods with positive debt growth (debt reversals) or with debt growth greater than 10 (sharp debt reversal).

This is an important question for at least two reasons. First, a policymaker who must decide whether to adopt a given set of policies aimed at reducing public debt needs to evaluate the costs and benefits of such policies, including their effects on income inequality and unemployment. Second, policies with large negative social spillovers are more likely to be reversed and less likely to produce long-lasting debt reductions.

An econometric exercise suggests that 10P debt reduction episodes are associated with an increase in the Gini index of nearly 2 points (Figure 9.12, Panel A). While the coefficient is statistically significant, it is not very large. In Latin America and the Caribbean, the Gini index ranges between 40 (Uruguay) and 57 (Suriname). A 2-point change in the Gini index would not dramatically alter the income distribution of Latin America. The presence of an IMF program seems to mitigate the inequality effects of 10P debt reduction episodes.²¹ Smaller (20P) debt reduction episodes are not significantly correlated with changes in the Gini index.

²¹ Note, however, that in the full sample, 80 percent of 10P debt reduction episodes coincide with an IMF program; in the sample with data on inequality, 95 percent of 10P episodes overlap with an IMF program.

Figure 9.12 Debt Reduction Episodes and Inequality



Source: IDB staff estimates based on IMF WEO data, World Development Indicators, and CEDLAS.
Note: This figure shows the correlation between debt reduction episodes and changes in the Gini index in the presence and absence of IMF programs. The dots are point estimates and the spikes 95 percent confidence intervals.

The type of debt reduction episode also matters. Fiscal contractions are often associated with tax increases and cuts in expenditure. These policies need to be carefully designed and focused on removing subsidies to the nonpoor, inefficient tax expenditures, or other regressive expenditures. If this is not the case, they may lead to an increase in inequality. There is some evidence that fiscal contractions are not regressive: primary surplus-driven debt reductions are associated with a reduction in the Gini index. While the coefficient is not statistically significant, this finding contradicts the hypothesis that fiscally-driven debt reductions have negative distributional consequences.²²

Given that inflation is regressive, inflation-driven debt reduction episodes may increase inequality. Episodes associated with GDP growth should either reduce (if growth is pro-poor) or not alter inequality.²³ Regression results support this intuition; inequality increases with inflation-driven debt reductions and declines with growth-driven debt reductions, although not significantly.

²² While it would be interesting to also study the composition (revenue-driven versus expenditure-driven) adjustment, data are insufficient to conduct this exercise. For a discussion of the effects of the composition of fiscal adjustments, see Alesina, Favero, and Giavazzi (2019).

²³ Growth does not usually increase inequality (Dollar and Kraay, 2002).

Focusing on unemployment, a negative correlation exists between changes in the unemployment rate and debt reduction episodes, but is lower when the country is under an IMF program. With respect to the type of debt reduction episode, unemployment declines significantly more in primary balance- and growth-driven debt reductions. That primary balance-driven debt reductions are associated with lower unemployment challenges the idea that austerity is contractionary. However, many countries included in the analysis (especially in Latin America and the Caribbean) have a large informal sector. Thus, unemployment might be a poor indicator of welfare in countries where most people are employed but work in informal jobs.

Never an Easy Task

A key message of this chapter is that prevention is better than cure. Reducing debt is not easy and doing it without major economic disruptions associated with high inflation or outright debt restructuring is even harder. The first priority for policymakers should be to avoid debt spikes.

However, some countries managed to reduce debt without resorting to inflation or default. Fiscal policy alone is rarely successful as few countries are able to maintain large fiscal surpluses for extended periods (Jamaica is an exception in the region), and good growth alone is not sufficient either. However, prudent fiscal policy that accompanies periods of good economic growth can do the trick. The key is not to be tempted to engage in procyclical policy and maintain a prudent fiscal stance when the economy is growing. Countries must also be careful with aggressive fiscal tightening which, if it results in austerity intolerance, may have large political costs and lead to procyclical fiscal policy.

A long period of steady and moderate primary surpluses is preferable to shock therapy (Cottarelli, 2012). It is also important to avoid skeletons in the closet which may result in debt explosions associated with positive stock flow reconciliations down the road (World Bank, 2021). Transparent budgetary institutions and debt reporting can help reduce this risk. Fiscal rules and budgetary institutions help along two lines. First, by limiting debt accumulation, they reduce the need for a debt reduction episode (Chapter 4). Second, if a debt reduction episode does become necessary, it is more likely to be growth- or fiscal policy-driven than inflation- or default-driven.

An independent and credible central bank can also help; if inflationary expectations are well anchored, temporary increases in inflation can help reduce the debt-to-GDP ratio without leading to high nominal interest rates. Countries, however, may need to be careful in using this tool.

Hard-won credibility can be easily lost. If inflation becomes entrenched and expectations de-anchored, inflation will no longer be effective in reducing debt, and the disinflationary process can then be costly in terms of both growth and debt levels. However, if expectations remain anchored, signaling credibility in the central bank and the inflation target over the medium term, then an increase in inflation while maintaining lower nominal interest rates can drive debt reduction.

Sovereign Debt Restructuring: In Need of a New Approach

With the COVID-19 shock, governments enacted exceptional fiscal packages to help households and firms face an unprecedented economic contraction. Now, this fiscal surge is raising concerns about an imminent wave of sovereign defaults. The Bank of Canada–Bank of England sovereign default database indicated a sharp rise in sovereign debt in default worldwide to over US\$400 billion in 2020 and Standard Poor’s assigned a record seven sovereign default ratings that year.¹ Since then, the Russian invasion of Ukraine, sharp increases in energy and food prices, inflation, and rising global interest rates have added greater uncertainty.

Sovereign default and debt restructuring are contentious topics in theory and in practice. When a government borrows money, it promises to repay according to the terms of an agreement. For the purposes of this chapter, debt restructuring is a change in those terms that reduces or postpones the debt servicing obligations for the borrower and the present value of the claim for the lender.² Restructurings can occur without missing a payment, or after a period of nonperformance under the agreement. Definitions of default vary. Winkler (1999) lists 15 possible ways a sovereign can default depending on the design of the credit instrument.³ Credit rating agencies tend to assign default ratings to sovereigns that miss debt payments or pursue debt restructuring to avoid missing payments (a “distressed” restructuring), even if it is consensual.⁴

¹ Sources: The Bank of Canada–Bank of England sovereign default database (note that the definition of default varies across the types of claims in this database) and Standard and Poor’s (2021).

² The value of a debt claim is normally considered in terms of present value. This definition excludes liability management operations that may change terms with no loss in value for creditors.

³ Rating agencies normally define a default as a change in the terms of the credit that lowers its value to creditors, even if those changes are agreed upon by creditors.

⁴ For example, Standard and Poor’s uses a D rating if default is on the majority of claims and SD if default is on selected claims and states that a distressed restructuring is

Default and the restructuring of public debt are not new. As reviewed in Chapter 9, inflation has been a main method of debt reduction but does not work for external debt payable in foreign currency. Defaults across borders have been documented from ancient Greece, through the middle-ages and into the modern era.⁵ No international bankruptcy regime exists for sovereign states; yet sovereigns may issue debt under the laws of domestic and multiple foreign jurisdictions. Buchheit (2013) observes that sovereigns borrowing abroad are “uniquely vulnerable and they are uniquely protected,” in that it is generally easy to obtain a court judgement against a sovereign that has defaulted, but typically hard to extract payment.⁶ National courts tend to have limited enforcement power over foreign governments, and sovereign assets may be explicitly protected under national and international law. Still, some creditors specialize in finding mechanisms to disrupt a sovereign’s trade or financial flows in order to enforce repayment.⁷ This attempt at coercion may then result in a type of cat and mouse game in courts around the world between creditors pressuring sovereigns for payment and sovereigns claiming immunity.⁸

The form of a restructuring generally depends on the instruments being restructured, which in turn may depend on the type of creditor. As reviewed in Chapter 6, middle- and high-income countries tend to owe a larger share of their debt to commercial creditors, with bonds generally being the instrument of choice. Low-income countries tend to owe a larger share of their debt to official lenders, including national public banks, export credit agencies, and international financial institutions. But many low- and lower-middle-income countries started to issue more commercial debt in the 2000s, spurred by ample international liquidity and low interest rates. Another significant shift has been in the source of lending; most official

considered a default. Source: Global Ratings on www.spglobal.com. Moody’s rates according to the likelihood of economic loss to the lender (probability of default multiplied by loss given default) and assigns a Ca rating if the borrower is in or likely to default but there is some prospect of recovery of principal and interest. On the other hand, a C rating is assigned typically when the borrower is in default and there is little prospect for recovery. Definitions are available on www.moody.com.

⁵ See Winkler (1999), Reinhart and Rogoff (2011), and Eichengreen et al. (2019). Still, there have also been many examples of defaults on domestic obligations as well, not covered in detail in this chapter (see Reinhart and Rogoff, 2008).

⁶ See Buchheit (2013: 107).

⁷ A colorful example was a hedge fund in 2012 requesting the government of Ghana to impound an Argentine training sailing vessel (see Financial Times, 2012).

⁸ “Hold-out” creditors may not wish to disrupt a debt restructuring unless they can free-ride on the concessions of cooperating creditors (see below for further discussion of hold-out dynamics).

bilateral lending used to come overwhelmingly from G-7 countries—all members of the Paris Club—while now more lending comes from China and other non-Paris Club lenders.⁹ It has also become harder to distinguish official lending from commercial lending as state-owned institutions (or even governments) are more commonly structuring their claims on other governments (or state-owned enterprises) as commercial loans. Debt trading, repackaging debt, and guarantees offered by official creditors on commercial lending further muddle any simple classification. Given all these factors, creditor composition across countries has become richer and more blurred.

The international response to the pandemic included both new funds for all developing countries and debt suspension initiatives aimed largely at low-income ones. Accelerated disbursements from international financial institutions and an extraordinary allocation of Special Drawing Rights (SDRs) provided fresh funds¹⁰ while the Debt Service Suspension Initiative (DSSI) allowed 73 eligible low-income countries to apply for a pause on debt payments from official bilateral lenders due from mid-2020 through the end of 2021. Forty-eight countries applied for and received relief.¹¹ The DSSI's successor, the Common Framework for Debt Treatments beyond the DSSI (hereafter the Common Framework), added a more structured creditor coordination process modeled on aspects of the Paris Club. As of September 2022, three low-income countries had applied for relief since the launch of the initiative in November 2020.

Meanwhile, middle-income and even some high-income countries have faced stiff economic challenges. Much of the recent progress in the debt restructuring architecture relevant to them has focused on bond contract reforms. While circumstantial evidence suggests that these reforms

⁹ The Paris Club began meeting in the 1950s, with the French Treasury serving as secretariat. Its permanent members are 22 mostly high-income economies. Russia and Brazil are members, but China, India, and the Gulf states are not, although they are major lenders to low- and middle-income countries. Nonmembers may participate in negotiations on a case-by-case basis. See Paris Club, "Permanent Members," <https://clubdeparis.org/en/communications/page/permanent-members>.

¹⁰ The SDR allocation was US\$650 billion with the majority distributed to high-income economies with larger IMF quotas. The Poverty Reduction and Growth Trust and the newly created Resilience and Sustainability Trust (RST) allow for some reallocation, and discussions continue on alternative mechanisms to reallocate SDRs (see, for example, the African Development Bank's proposal to use SDRs as hybrid capital: <https://www.afdb.org/en/news-and-events/interviews/leveraging-power-special-drawing-rights-how-developed-countries-can-help-boost-africas-development-51910>).

¹¹ Four countries in the Caribbean participated in the DSSI: Dominica, Grenada, St. Lucia, and St. Vincent and the Grenadines. Eligible countries that chose not to participate included Guyana, Haiti, Honduras, and Nicaragua.

help reduce hold out problems in restructuring, they have left significant restructuring challenges unaddressed (see IMF, 2020).¹²

This chapter analyzes the evolution of debt restructuring with a focus on middle-income countries in Latin America and the Caribbean. It highlights the prominent role Latin America and the Caribbean has played in the evolution of sovereign debt restructuring tools, pioneering many of the transactional and institutional innovations in this area.¹³ The region has been central in the development of the sovereign debt restructuring architecture since the early 1980s. Given the importance of institutions, a regional mechanism to increase coordination would be beneficial. This mechanism could build on the region's rich history, existing institutional infrastructure, and experience with regional coordination.

Sovereign Debt Restructuring: A Short Review

In the modern era, sovereigns have almost always repaid their debts as promised.¹⁴ This review focuses on the infrequent cases in which a sovereign does not repay in full and on time, and when distress provokes changes in debt payment terms. Such debt restructurings have been part of the sovereign debt landscape throughout history (see Reinhart and Rogoff, 2011). The economic literature tends to refer to any restructuring that results in a lower present value for creditors as a default, whether a sovereign has actually missed a payment or not.¹⁵

Banks to Bonds

In the 1970s, commercial banks extended loans to developing economies alongside official bilateral and multilateral lenders. The debt crisis of the 1980s was a drawn-out affair, with the initial response limited to negotiated payment extensions without principal haircuts. While that allowed

¹² Those countries were Chad, Ethiopia, and Zambia. As of October 2022, none had as yet completed the debt treatment process. Roughly at the same time in Latin America and the Caribbean, Argentina, Barbados, Belize, Ecuador, and Suriname restructured debt.

¹³ In a recent survey of sovereign bond defaults dating back to 1815, the region featured the unenviable record of the largest number of credit events (Meyer, Reinhart, and Trebesch, 2022).

¹⁴ Since 2000, the number of sovereigns defaulting has averaged about 1.2 percent per year for those countries with a Standard and Poor's credit rating (see Standard and Poor's, 2021).

¹⁵ See Abbas, Pienkowski, and Rogoff (2019), Chapter 7.

creditor banks time to build up capital to withstand losses, it contributed to a lost decade of growth and development for Latin America and the Caribbean. The resolution of that crisis in the late 1980s and early 1990s entailed replacing bank loans with tradable bonds at a discount, that then fast-tracked a resurgent emerging market bond market. While many banks participated in the market in the 1980s, the growing bond market implied an even wider, more diverse, dispersed, and dynamic set of creditors, bringing creditor coordination challenges to the fore (see Cavallo, Fernández-Arias, and Powell, 2014; and Mitchener and Trebesch, 2021).

A large body of economic research has been devoted to understanding how a sovereign debt market can exist, when debt restructuring might occur, and if so, how it may be resolved.¹⁶ The recent literature has focused mostly on debt in the form of bonds. Much of this work attempts to explain certain empirical regularities. Less attention has been paid to whether existing mechanisms to restructure debt result in significant unnecessary (deadweight) costs and whether new techniques or mechanisms may be beneficial.

Costs and Delays

Still, several authors suggest that debt restructurings take too long and that they may be costly.¹⁷ Benjamin and Wright (2009) claim that the average delay (the time from when a country enters defaults and the time it escapes that rating) is over eight years. The devil is in the details for these types of estimates which depend critically on definitions and the sample considered. Employing the Cruces and Trebesch (2013) database and the definitions therein and excluding HIPC/MDRI restructurings, the estimated delay is less than three years, with some significant outliers that impact the average.¹⁸

Approximately half of all debt restructurings are preemptive—concluded without any missed payment (see Asonuma and Trebesch, 2016). International organizations tend to recommend this route, since preemptive restructurings are associated with lower (deadweight) costs; however, it is hard to tell whether this is due to the speedy negotiation *per se*, or to greater certainty (in economic, political, or legal circumstances), which

¹⁶ Many such papers build on Eaton and Gersovitz (1981), Arellano (2008), and Aguiar and Gopinath (2006).

¹⁷ See for example IMF (2013), Benjamin and Wright (2009), Ghosal and Miller (2015).

¹⁸ HIPC/MDRI refers to the Heavily Indebted Poor Countries Initiative and the Multilateral Debt Relief Initiative (MDRI) which provided debt relief for 36 low-income countries (see IMF, 2019).

then allows the parties to reach a swift preemptive agreement (See IMF, 2013,; and Pitchford and Wright, 2012).

Delays may occur for several reasons. If a sovereign's future economic conditions are highly uncertain and cast doubts on its commitment to honor any new debt agreement, then a new agreement that can be sustained over time may not be possible without additional information (Bi, 2008; Benjamin and Wright, 2009). The COVID-19 crisis put some debt renegotiations on hold given the uncertainty surrounding the pandemic. Debt renegotiations in Ecuador and Suriname are two examples (Clark et al. 2021). If general elections come up against the backdrop of political polarization, creditors may choose to wait to negotiate with the new government. The same may apply if information about the value of newly discovered reserves of natural resources is expected.

A government may also delay for other reasons. It may put off a politically or economically costly restructuring hoping for some good luck to come along; at the same time, it may borrow at progressively higher rates, thereby taking riskier and riskier policy decisions. This is known in the economic literature as “gambling for resurrection” and is a concept well-known in the ambit of banking. If the good luck arrives and restructuring is avoided, this strategy might be seen as a success, but may well end up saddling the population with higher economic costs and successor governments with the political, market, and policy challenges of restructuring.¹⁹

Coordination Problems

Coordination failures among creditors can hamper debt crisis resolution. As discussed below, Argentina's protracted 2001–2002 default was the largest and most complex in history at that time, with many instruments held by diverse creditors across the world. Fears of disruptions from “holdout” litigation appeared to exacerbate the coordination problems.²⁰ Theory suggests that a relatively small and patient creditor may wait until the remaining parties reach an agreement with the sovereign to sue it to seek better terms (Pitchford and Wright, 2012; Ghosal and Miller, 2015). This strategy is particularly attractive if holdout creditors can threaten to impose large costs on the sovereign, such as impeding debt

¹⁹ In the sovereign context see for example the discussion in Powell (2002) regarding Argentina and in Schmid (2016) regarding Jamaica. In the banking context see for example Dewatripont and Tirole (2012) who argue that a role of banking regulation is to prevent this behavior.

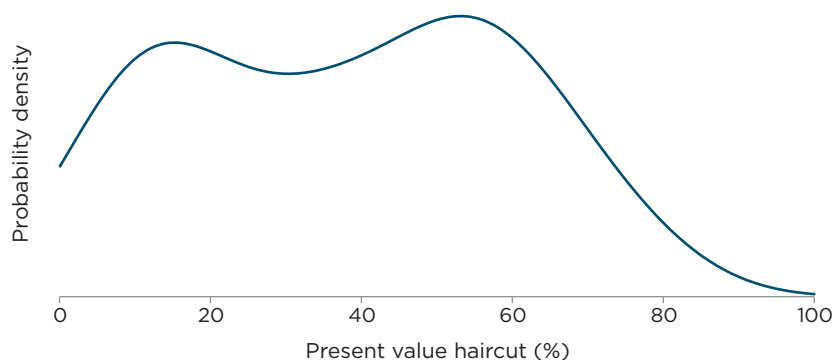
²⁰ See Schumacher, Trebesch, and Enderlein (2021) and Alfaro (2014).

payments to new creditors or to creditors that choose to participate in the restructuring.

Still, Bi, Chamon, and Zettelmeyer (2016) argue that most restructurings, especially in the post Brady deal era, have been relatively fast and that on the whole, creditor coordination was “the problem that wasn’t.” On close inspection, most restructurings (and almost all the preemptive ones) are what have been termed reprofiling—in other words, they extend the maturities of the debt, providing liquidity relief but have a zero nominal haircut. They may then reduce the present value but not the nominal (dollar) value of the debt. More generally, Mariscal et al. (2015) suggest that creditors face a choice: they can either opt for a relatively fast and less costly “reprofiling” (with only a small present value haircut) or attempt to negotiate a deeper haircut, and then face longer and more costly negotiations, with greater divisions among creditors and potential litigation.

It is telling that the distribution of haircuts is skewed to the left and appears to be bimodal (see Figure 10.1 that illustrates the probability distribution for bond restructurings). In other words, more restructurings have relatively low (present value) haircuts and relatively few cases have haircuts deeper than, say 60 percent.²¹ Approximately two thirds of all

Figure 10.1 Probability Distribution of Present Value Haircuts in Bond Restructurings



Source: IDB staff estimates employing data from the 2014 update of the dataset published by Cruces and Trebesch (2013).

Note: The present value measure is based on the Sturzenegger and Zettelmeyer (2008) methodology. The distribution is presented using a kernel density estimation based on a Gaussian kernel and 0.1 bandwidth.

²¹ It seems reasonable to suppose that economic distress would have a normal distribution across independent country cases; thus, if the distribution of haircuts is skewed towards zero, this may reflect something about the restructuring process or costs, rather than the extent of the problem to be solved (Powell, 2011).

restructurings have a zero principal haircut with a median present value haircut of 22 percent.

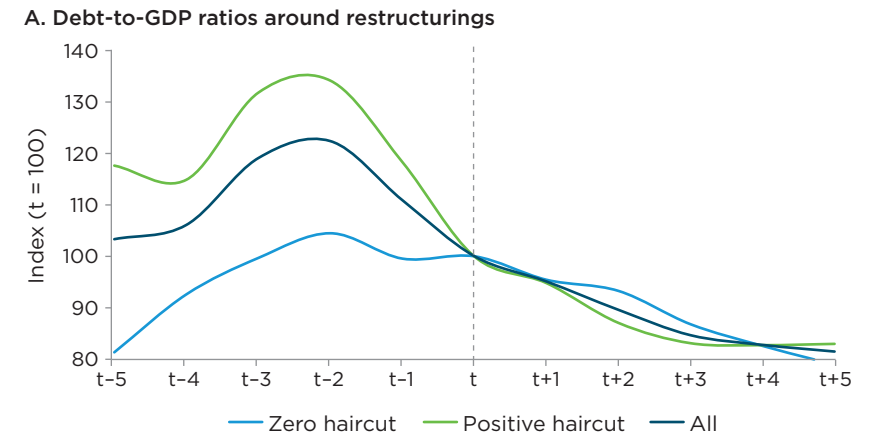
Relatively fast reprofilings may provide beneficial temporary liquidity relief. The downside is that they may not solve the underlying problem. Mariscal et al. (2015) highlight the number of re-restructurings (a second restructuring that quickly follows a first) and suggest that a re-restructuring is more likely after a reprofiling than after a restructuring with a deeper present value haircut. This raises a more general question: are debt restructurings successful, not just in the narrow sense of completing a deal but in reducing debt ratios, restoring growth, or regaining access to financing?

Chapter 9 found that relatively few significant (10th or 20th percentile) debt reduction episodes were associated with debt restructurings, and debt restructurings were only rarely a main driver of the debt reduction. Figure 10.2, Panel A illustrates that, not surprisingly, debt ratios rise before a restructuring and then fall significantly when there is a nominal haircut. But most restructurings are reprofilings in which, again not surprisingly, the rise in debt is milder, and then debt ratios on average fall back to the level a few years before the reprofiling is finalized.

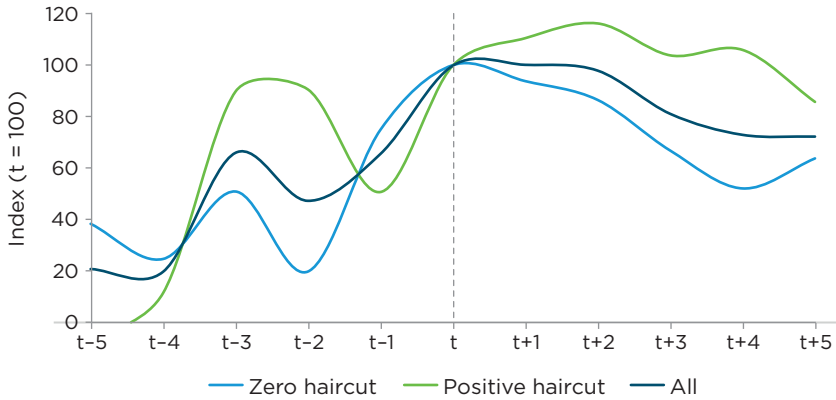
The success of restructurings with nominal haircuts in lowering debt ratios may also be due to higher growth (see Figure 10.2, Panel B). In the case of reprofilings, growth rises as the restructuring is finalized, but then growth falls back considerably.

Taken altogether, while the *prima facie* evidence may suggest that coordination was the *problem that wasn't*, these stylized facts suggest

Figure 10.2 Are Debt Restructurings Successful?



(continued on next page)

Figure 10.2 Are Debt Restructurings Successful? *(continued)***B. Growth around debt restructurings**

Source: IDB staff calculations based on the World Economic Outlook from the IMF, and Cruces and Trebesch (2013).

Note: Donor funded (HIPC) restructurings are excluded. Zero and positive haircuts refers to nominal or face value haircut. The x axis is in years and t is defined as the year in which the restructuring was finalized.

an alternative view: indirectly, coordination problems, associated with the threat of prolonged legal disputes and lengthy delays, may push sovereigns, eager to maintain their reputations, to seek relatively fast reprofiling that provide temporary relief but may not create conditions for sustained growth and must then be followed by further restructurings. Given small sample sizes and the particular features of each event, the challenge is to sort through these competing perspectives.

The discussion regarding bondholder coordination intensified during Argentina's legal travails. While several proposals were developed, the result in terms of architectural innovation boiled down to adopting contract terms that facilitate majority amendment, known as Collective Action Clauses (CACs). CACs establish a process for a fraction of creditors above a specified threshold to amend the financial terms of a bond contract and bind the remaining creditors. The most recent versions allow for the aggregation (pooling) of bondholder votes across multiple bond issues. The clauses reduce the risks of hold-out litigation and allow for haircuts on bonded debt to approximate more closely the relief required to restore growth.²² Still, the way they have been used has been controversial, and they do not address wider issues of creditor coordination. As the

²² Yue (2010) suggests that the size of the haircut should increase with the size of the defaulted debt.

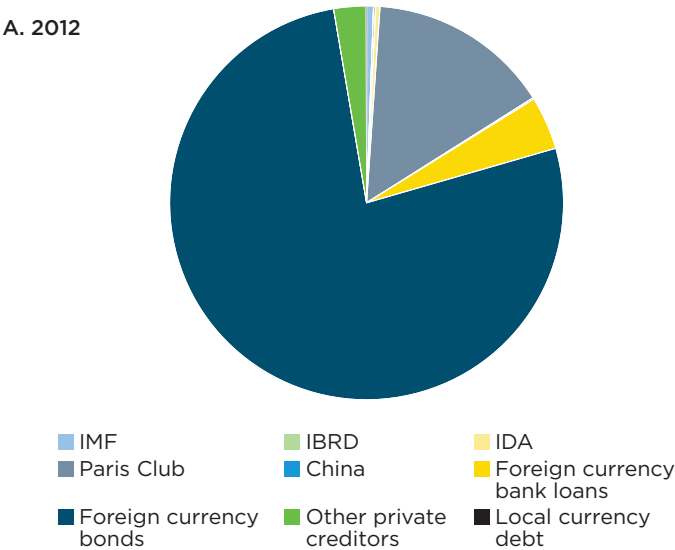
creditor base has grown more diverse (see Figure 10.3),²³ creditor coordination challenges have gone well beyond securing bondholder majorities to clear a given CAC threshold.

The free-riding problem is not limited to bond holders. An ongoing discussion is whether to include majority voting provisions in loan contracts. Given incentives to free-ride, contractual innovations may continually appear, such that subsequent agreements on standard clauses within contracts to enhance coordination may always appear one step behind. Thus, coordination at a higher level among interested parties would be helpful to at least monitor these developments as they occur.

Debt Restructuring: Latin America and the Caribbean as Pioneer

A strong case can be made that the institutional architecture of sovereign debt restructuring today owes more to Latin America and the Caribbean than to any other region. Most of the main innovations in restructuring processes were tried and tested in the region, as reviewed

Figure 10.3 Increased Diversity of Debt in Default

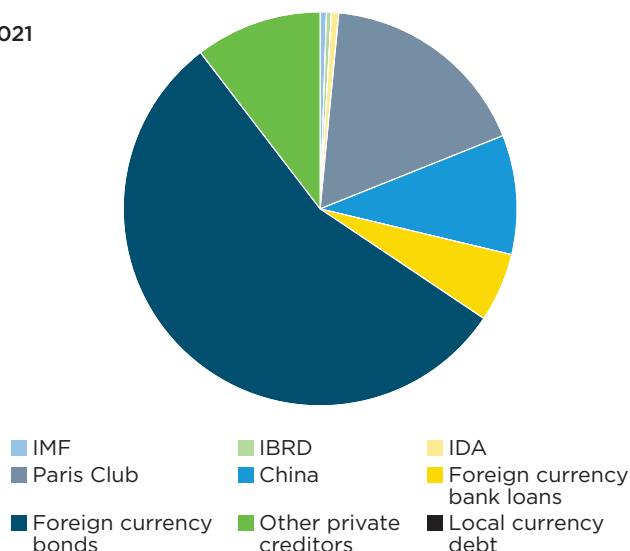


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²³ The joint Bank of Canada and Bank of England sovereign debt database has a wide definition of default and, for example, includes debt in arrears to international financial institutions as default (see Chapter 7 for more on the role of official creditors).

Figure 10.3 Increased Diversity of Debt in Default *(continued)*

B. 2021



Source: Sovereign Debt Default Data from the Bank of Canada and Bank of England (2022 Edition).

Note: These two figures illustrate the 2012 and 2021 volumes of debt in default by creditor as defined by this database. The category "other official creditors" is excluded.

in this section. The pandemic has raised new challenges for all countries, but the most urgent needs have focused most of the attention on vulnerable low-income countries. In the meantime, Latin America and the Caribbean has continued to innovate. A regional forum to complement existing initiatives would leverage this knowledge and experience and improve coordination.

The 1980s: A Decade Lost but a New Architecture Found

In the early 1980s, dozens of countries around the world were plunged into debt distress as global interest rates spiked, the dollar soared in value, and commodity prices fell. In August 1982, Mexico attempted to roll over its syndicated loans from hundreds of commercial banks (Kraft, 1984), marking the first in a cascade of crises with Latin America at the epicenter. Almost a decade later, the region led the way out of the crisis and sparked the revival of the emerging market bond market. The main developments in the 1980s include:

- Paris Club – Net present value (NPV) relief, elaborating conditionality, and comparability principles

- London Club – Bank advisory committees, NPV, and principal reduction
- The Baker Plan
- The IMF assumes a central coordinating role
- Precedent-setting litigation
- Brady Bonds and beyond
- State-contingent debt and value recovery instruments
- The IMF “lends into arrears” on loans

In the 1980s, the Paris Club emerged from three decades of relative inactivity. Latin American sovereigns accounted for more than 40 percent of the debt treated in the 1980s. Despite a relatively small share of total claims, the Paris Club played an important role in the region’s debt work-outs (Cheng, Díaz-Cassou, and Erce, 2016).

The London Club process emerged to tackle the formidable challenge of bank creditor coordination. Brazil and Mexico each had hundreds of commercial bank creditors. Banks as a group did not have enough capital or loan loss reserves to absorb losses and were reliant on regulatory forbearance. This fueled fears of contagion, limited banks’ restructuring options, and gave advanced economy governments (primarily the G-7) a role in the process (Cline, 1995).

Bank Advisory Committees (BACs) had been used in the 1970s, including in Jamaica and Peru (Devlin and Ffrench-Davis, 1995), and became the principal coordination mechanism among commercial banks. The London Club was a somewhat misleading term for the committee process because there was no membership organization. Instead, the practice was to replicate committee organization across borrowing countries. BACs were effective thanks to creditor homogeneity.

The (October 1985) Baker Plan envisaged lower interest payments linked to structural adjustment for 15 heavily indebted nations, including 10 in Latin America, in exchange for US\$9 billion in additional loans from the World Bank and US\$20 billion from commercial banks over three years. Latin American governments argued that this was too little given the depth of the crisis. Debtors and creditors worked on a growing repertoire of innovative restructuring techniques including debt buybacks at a discount, debt-for-equity and debt-for-nature swaps, and debt conversions.²⁴

²⁴ Debt buybacks became controversial and sparked a fascinating debate. Focusing on Latin America, Bulow and Rogoff (1989) argued that there were normally better ways for the borrower to deploy valuable resources.

At the outset of the crisis, the BIS mobilized short-term liquidity support for distressed sovereigns, hoping for a quick rebound (Truman, 2021), but as the magnitude of the problems became apparent, the role of the IMF grew (Boughton, 2012). Paris and London Club creditors linked concessions to macroeconomic adjustment programs. At the same time, the IMF's insistence on financing assurances and its initial refusal to tolerate arrears empowered creditors. By the mid-1980s, creditors had coalesced into relatively cohesive groups, allowing the IMF to seek financing assurances in a relatively efficient manner.

The crisis led to precedent-setting debt litigation. For governments in Latin America and the Caribbean, which borrowed primarily in the New York market, a succession of U.S. federal court decisions filled out the legal framework for sovereign borrowing, clarifying and sometimes changing the rules. Jurisprudence emanating from creditor lawsuits against Argentina, Brazil, Costa Rica, Nicaragua, and Peru, among others, established that i) foreign sovereign borrowing was a commercial activity that brought sovereigns under the jurisdiction of U.S. courts, ii) investors that bought at a discount could recover in full on par with original lenders, iii) international comity did not shield sovereigns from debt collection lawsuits, and iv) dissenting minority creditors could not challenge a restructuring vote based on general principles like inter-creditor good faith.²⁵ By the mid-1990s, it had become relatively easy to sue a sovereign in a foreign court, but not to collect on a judgment.

Most sovereign assets that could be used to satisfy a judgment were either inside the borrower's borders or behind a wall of immunity that protected central bank assets, diplomatic property, and military installations. Holdout creditors with judgments scoured the world for sovereign assets to attach or attempted to keep the debtor out of global markets. At the start of the crisis, most foreign sovereign debt was presumptively unsecured, unsubordinated, and ranked equally—or *pari passu*—with similarly situated debt. Loan contracts

²⁵ See, e.g., *Argentina v. Weltover, Inc.*, 504 U.S. 607 (1992) (U.S. courts have jurisdiction over domestic-law bonds payable in New York; debt issuance is commercial activity outside the scope of sovereign immunity); *Allied Bank Int'l v. Banco Credito Agrícola de Cartago*, 733 F.2d 23, 1984 U.S. App. LEXIS 23237 (2d Cir. 1984) (available on LEXIS but removed from bound Federal Reporter 2d), vacated, 757 F.2d 516 (2d Cir. 1985) (rejecting comity and act of state doctrines as defenses to sovereign payment default); *Elliott Assocs. v. Banco de la Nación*, 194 F.3d 363 (2d Cir. 1999) (effectively eliminating the champerty defense in sovereign debt); *CIBC Bank and Trust Co. (Cayman) v. Banco Cent. do Brasil*, 886 F. Supp. 1105 (S.D.N.Y. 1995) (limiting inter-creditor duties and rejecting the argument that public sector entities holding Brazilian government debt should be disenfranchised in a creditor vote based on principles of good faith).

with commercial banks normally spelled this out. Debtors usually promised both public and private creditors not to take on new senior or secured debt.²⁶

After nearly a decade of regulatory forbearance and moral suasion to build up capital and reserves, the conditions were ripe to seek a more sustainable solution. The Brady Plan was announced in March 1989, launching a new era for the emerging market bond market. Beginning with Mexico, banks exchanged distressed floating-rate loans for long-term fixed-rate bonds. Brady debt exchanges delivered case-by-case principal and interest relief using a menu of customizable transaction structures, usually a mix of par and discount bonds. Zero-coupon U.S. Treasury securities collateralized principal payments due some 20 years later; high-grade, short-term securities partially collateralized two to three interest payments. Borrowers financed collateral accounts with IMF and other official support.

Also in 1989, the IMF began considering arrears on commercial bank debt as part of the financing package for its programs. The so-called “Lending into Arrears” policy took away banks’ ability to hold up country programs. However, the policy excluded arrears to official creditors, where the IMF could in theory obtain financing assurances from the Paris Club, and arrears on bonds, which were thought to be too much trouble (or, in the case of the Brady’s, simply wrong) to restructure.

The Brady Bonds helped catalyze market re-entry but quickly lost popularity. Their convoluted design and collateral arrangements made them hard to value, weighed on market liquidity, and were not conducive to developing a clean yield curve. As interest rates fell, borrowers hurried to retire the Brady’s in favor of simple, unsecured, fixed-rate debt securities.

Still, the Brady Bonds left a lasting impact. They also introduced contingent debt and value recovery instruments, such as oil price warrants in Mexico and Venezuela, payments linked to a basket of export revenues in Uruguay, and GDP-linked repayments in Costa Rica (Buchheit et al., 2019).

The 1990s: Tequila Architecture

The 1990s marked the launch of the modern-day emerging market bond market and, only a few years later, a new era of bond restructuring. The main developments were:

- Restructuring widely held bonds
- Proposals for collective action clauses (CACs)

²⁶ As discussed in Chapter 7, the IMF and the most established multilateral development banks were treated as preferred creditors and did not participate in debt restructurings; they were typically excluded from such promises.

- Two significant Paris Club reforms (debt reduction and comparability for bonds)
- Extension of IMF lending into arrears
- New enforcement tools
- Further experimentation with debt-for-nature exchanges

The Brady Plan actively reinforced a perception that restructuring widely held bonds would be hard, especially as creditors were numerous, lightly regulated, and widely dispersed. Unanimous consent was generally required to amend payment terms on bonds issued in New York, making restructuring potentially more onerous. Mexico's Tequila Crisis in 1994–1995 centered on domestic dollar-indexed *tesobonos*—not international bonds. Nonetheless, widespread fears of disorderly bond default and market contagion helped mobilize a multilateral rescue package, unprecedented at the time.

Political backlash against “bailouts” and in favor of “private sector involvement” motivated innovation. Policymakers quickly coalesced behind two approaches: treaty-based sovereign bankruptcy and contract reform (Eichengreen and Portes, 1995; Group of Ten, 1996). Both drew objections on the grounds of debtor moral hazard.²⁷ Of the two approaches, treaty-based bankruptcy was seen as less market-friendly with potential implementation problems;²⁸ it struggled to gain support from emerging market governments and the United States (Setser, 2010; Hagan, 2005). Contract reform initiatives focused on proposals for Collective Action Clauses (CACs) in New York; they had been the norm in London since the 19th century.

Two significant Paris Club reforms in the 1990s included allowing actual debt reductions: comparability of treatment was extended to bonds in 1999 (previously seen as too cumbersome to touch), and the Club endorsed the HIPC initiative for low-income countries.²⁹ A G-7 summit statement clarified that comparability should apply to all sovereign

²⁷ On the other hand, creditor moral hazard would decrease if bailouts were to be credibly ruled out.

²⁸ The IMF's Sovereign Debt Restructuring Mechanism proposal drew particularly severe criticism for potential conflicts among the Fund's interests as preferred creditor, arbiter of debt sustainability, and administrative hub of a bankruptcy regime—even after the proposal had been modified to minimize its role.

²⁹ Earlier in 1999, the Paris Club conditioned its relief for Pakistan and Ukraine on bond restructuring.

debt, except for preferred multilateral creditors. Comparability emerged as an important principle to promote inter-creditor equity.

The IMF also extended its lending into arrears policy to include bonded debt in 1998, and further refined its approach in 1999 and 2002, when it began requiring debtors' good faith engagement with creditors (IMF, 2003). Thus, while the Paris Club could undo official bilateral debt relief if bondholders did not cooperate,³⁰ the IMF eased the pressure on borrowers to keep servicing bonded debt. Arrears could take the place of financing assurances, as long as debtors and creditors were engaged in good-faith talks.

Ecuador in 2000 was the first country to restructure previously issued Brady Bonds. Ecuador's operation pioneered a new enforcement tool, importing exit consents from corporate into sovereign bond exchanges (Buchheit and Gulati, 2000). Exit consents took advantage of the fact that unanimous creditor consent requirements in the New York market applied only to amending bond payment terms; changing the rest took a simple majority.³¹ Governing law, submission to jurisdiction, immunity waivers, exchange listing, and other terms essential to contract enforcement and bond liquidity could be stripped from the old bonds by cooperating bondholders as they tendered their old bonds in a distressed exchange. Potential holdouts risked being left with illiquid and practically unenforceable bonds. These and other transactional innovations, such as minimum participation thresholds, incentivized creditor participation, and facilitated bond restructuring became ubiquitous (Bi et al. 2016).³²

The 1990s marked the beginning of a new era in sovereign debt litigation focused on enforcement tools. Cases against Nicaragua and Peru by Elliott Associates in 1998 and 1999 used the promise of equal (*pari passu*) ranking in their bank loan contracts to demand full face value recovery and block payments on newly restructured debt. Unlike the 1980s cases that established government liability and the creditors' right to sue in

³⁰ The threat remained theoretical—no restructuring has been undone on these grounds.

³¹ Sovereign bonds governed by English law have included majority amendment provisions since the late 19th century (Buchheit and Gulati, 2002).

³² When a sovereign debtor announces it would only proceed with a bond restructuring if it reaches a minimum participation threshold (e.g., 90 percent of outstanding principal), it reassures participating bondholders that the operation would produce a certain level of debt relief, with limited scope for free riding. Such minimum participation thresholds are specific to restructuring operations and announced in conjunction with them; they do not require any particular terms to be included in the debt contract *ex ante*. In contrast, CACs—clauses permitting creditor majorities to modify bond payment terms over minority objections—must be in the debt contract before the restructuring.

foreign courts, these cases focused squarely on enforcement. With few assets available to satisfy creditors' judgments, enforcement was indirect: it entailed finding creative ways to pressure the government into settlement to preserve market access (both Peru and Nicaragua settled). After a commercial court in Brussels had blocked Peru's payments in Euroclear on the *pari passu* enforcement theory, observers and some market participants publicly criticized the creditors' tactics; however, debtors' incentives to settle delayed any meaningful judicial resolution of the matter.

The 1990s also brought further experimentation with debt-for-nature exchanges, primarily in Latin America and the Caribbean (see Sheikh, 2018). These transactions usually took one of two forms. First, a conservation NGO—sometimes with support from the U.S. government—would buy private or official sovereign debt at a discount and cancel it on condition that the debtor commit local currency funds, in excess of the NGO's purchase price, to local conservation groups and projects. Second, the United States or another creditor country would replace existing bilateral official debt with a new agreement that required the debtor to make interest payments into a fund for conservation purposes.³³ A 2018 review estimated debt-for-nature exchanges generated more than US\$500 million for conservation from 1987 and that the second model delivered even more debt relief with greater environmental impact.

Argentina's Crisis and Developments Prior to the Pandemic

Argentina's default in 2001–2002 was the largest on record at the time. The protracted restructuring negotiations with foreign creditors were unusually contentious, prompting many lawsuits and new thinking on bond contracts. While the IMF staff proposal for a Sovereign Debt Restructuring Mechanism (SDRM) was rejected, new CACs were deployed and institutional developments in Iraq and Europe provoked wider discussion. Several domestic debt restructurings prompted new thoughts on the globalization of markets, and as the climate debate warmed up, state-contingent climate instruments grew in popularity. Developments from 2000 to the COVID-19 pandemic included:

- Argentina's 2001/2002 crisis and restructuring
- A concrete SDRM proposal
- CACs as the new market-friendly flavor of the day

³³ Eg, the Tropical Forest Conservation Initiative.

- Litigation against Argentina: *Pari passu* and statutory interest
- ICMA single-limb aggregated CACs
- Iraq restructuring and asset shield
- Domestic debt restructuring
- State-contingent debt (climate)

Argentina's 2001/2002 crisis, default, exit from the currency board, devaluation, and forced asymmetric *pesification* led to a deep recession and a financial crisis.³⁴ The last (August 2001) IMF Agreement before the default recognized that a debt restructuring was required, but gave little indication of how that was to be done.³⁵ It took more than three years for Argentina to produce its first offer to creditors in 2005, and another five years for it to fashion a second offer that pushed creditor participation rates above 90 percent. Some creditors who rejected Argentina's offers proceeded to file thousands of lawsuits and chase assets around the world.

The two-year debate over the proposal for a treaty-based SDRM (Krueger, 2001, 2002; IMF 2003; Hagan, 2005) also began in 2001 and resulted in a specific and detailed institutional proposal. Then-U.S. Treasury Secretary O'Neill called for sovereign bankruptcy immediately after approving Argentina's 2001 IMF program, in an effort to curtail large IMF rescue packages. Given political and market resistance, successive proposals were watered down to little more than a retrofitted, aggregated majority bondholder vote, until eventually the project was shelved.

CACs gained popularity as a tool to achieve an efficient and orderly restructuring and, for some, to minimize the need for large bailouts. In February 2003, Mexico became the first sovereign issuer in New York to adopt CACs, with a 75 percent amendment threshold. Meanwhile, the crisis in Argentina had spread to Uruguay, and prompted the government to launch a bond reprofiling in conjunction with an IMF program. Uruguay introduced CACs with aggregated voting across multiple series in all of its new debt. Under the new contracts, if the holders of 85 percent of the principal of *all* affected bonds and the holders of two-thirds of the principal of a *single* affected bond series voted to amend its payment terms, the amendment would be effective for *that* series over the objections of the remaining third. The general bondholder population could effectively trump the votes of a large minority of single-issue bondholders.

The flood of lawsuits against Argentina featured a diverse cast of plaintiffs ranging from large U.S. Funds to Italian retirees as well as hedge

³⁴ On the Argentine crisis, see for example Cline (2003), Powell (2002), and IMF (2004).

³⁵ On this point see Mussa (2002).

funds specializing in distressed assets. By March 2005, Argentina's creditors were suing to block its bond exchange, and predictions of widespread disruption no longer looked far-fetched (Schumacher, Trebesch, and Enderlein, 2021; Makoff and Weidemaier, forthcoming). Two aspects merit special mention: creditors' successful use of the *pari passu* clause as an enforcement tool, and the strategic use of statutory pre-judgment interest in New York to boost recoveries for a subset of creditors.

U.S. federal courts agreed with holdout creditors that the *pari passu* clause in Argentina's defaulted bonds promised proportional repayment—a flow concept—rather than proportional distribution in a hypothetical asset liquidation. To enforce their orders, the courts blocked Argentina from paying its participating and new creditors until it paid the holdouts in full.³⁶ The proportional (ratable) payment injunctions owed some of their policy and market impact to the ubiquity of the *pari passu* clause in sovereign debt contracts. Despite plaintiffs' and court protestations that Argentina was unique, most sovereigns active in international financial markets had the same contracts and could be at risk from this remedy in default. Exposing trustees, fiscal agents, custodian banks, and international payments infrastructure to lawsuits in New York progressively limited Argentina's ability to borrow in international markets (Levine, 2015). U.S. court decisions substantially narrowed the application of the *pari passu* clause but only after Argentina and its holdout creditors had reached settlement.³⁷

In addition, some creditors waited to sue on a portion of their bond holdings until the last possible moment, taking advantage of New York's 9 percent statutory pre-judgment interest rates set in the early 1980s. In some cases, this multiplied creditor recoveries and helped finance large litigation expenses (Makoff and Weidemaier, forthcoming). Argentina's 2016 debt exchange paid (2005 and 2010) holdout creditors more than US\$10 billion to settle all the enforcement lawsuits.

The issues raised by Argentina's "case of the century" prompted discussions on how to change bond contracts. While the *pari passu* battles raged in court and Greece teetered on the brink of default, the International Capital Market Association (ICMA) joined forces with bilateral and multilateral officials to commission a more robust version of CACs that

³⁶ The appeals court observed that widespread adoption of CACs would foreclose similar use of the *pari passu* clause in the future, perhaps assuming (incorrectly) that the CACs guaranteed the success of a restructuring vote.

³⁷ Although the scope for future use of *pari passu* to collect sovereign debt has narrowed, the tool remains theoretically available to holdout creditors in exceptional cases (vaguely defined).

Box 10.1 The Greek and European Debt Restructuring Architecture

In 2010, growing Greek fiscal problems cast doubt on the government's ability to pay its debts. Like other euro area sovereigns, Greece had borrowed almost entirely in euros under its own law, but it also had a smattering of bonds governed by English, Swiss, and Japanese law. The English-law bonds already had first-generation "series-by-series" CACs, but lacked aggregation capacity.

The prospect of a debt restructuring prompted European policymakers to adopt modified Uruguay-style "two-limb" aggregated CACs in their domestic debt securities, but not soon enough for Greece. When Greece launched its restructuring in 2012, it used national legislation retroactively to insert a one-step ("single-limb") aggregated majority amendment mechanism in its Greek law bonds, effectively achieving full participation among domestic bond holders (Zettelmeyer et al., 2013). However, the holders of US\$5 billion in its English-law bonds mobilized enough votes to block restructuring for their series and were paid in full. Holdout success demonstrated the flaws of series-by-series CACs against determined holdouts alongside the relative virtues of single-limb aggregation and informed the next round of debt architecture reforms.

would allow sovereign debtors to pool multiple bond series with a single limb aggregated CAC vote, *provided* they observed safeguards to protect creditor minorities from abuse.³⁸ The contract reform package included a new version of the *pari passu* clause, which rejected the proportional payment interpretation. These developments coincided with the Euro-zone debt crisis (see Box 10.1), which underlined the need for single-limb aggregation.

Again, Mexico was among the first to adopt the new model CACs and *pari passu* clauses in November 2014, and switched to a bond trustee structure to bolster coordination.³⁹ The ICMA-model CACs, published in 2015, tightened the two-limb aggregation mechanism pioneered by Uruguay in 2003, so that a single series that failed to receive more than 50 percent of the bondholder vote would block the restructuring of *all* series in the pool.⁴⁰ When Argentina emerged from 14 years in default in 2016, it

³⁸ Safeguards included additional disclosure, a 75% supermajority threshold, and the requirement that any single-limb vote be "uniformly applicable"—offer the same restructuring terms of menu of terms—to all affected bondholders.

³⁹ ICMA eventually issued two versions of its CACs for English law (2014) and New York law (2015) contracts.

⁴⁰ In Uruguay in 2003, and in the English Law version of ICMA CACs in 2014, a dissenting series could drop out and let the rest proceed with the restructuring. This became a challenge for Argentina and Ecuador in 2020.

Box 10.2 Iraq's UN Asset Shield

Iraq's debt restructuring unfolded roughly in parallel with Argentina's case of the century and the CACs vs. SDRM debate, and introduced a qualitatively different tool in the restructuring toolkit: a public international law shield for debtors' assets. On May 22, 2003, the UN Security Council voted to block creditors from accessing Iraq's oil and the proceeds of its sale and, crucially, the United States and the United Kingdom adopted domestic measures to implement the Security Council Resolution. They later extended these measures past the resolution's expiration (Bolton et al., 2020; Buchheit and Gulati, 2019). Unlike CACs, the asset shield went beyond facilitating a smooth restructuring process. As the *pari passu* collection tactic gained currency, the UN measure made it much harder for holdout creditors to collect. In a departure from contract reform initiatives, the Security Council Resolution did not tweak contracts; it overrode them.

adopted the latest version of ICMA CACs alongside two-limb aggregation in its exit instruments.

While the focus here has been changes in the debt restructuring architecture pushed by events in Latin America and the Caribbean, crises elsewhere in the world suggested new possibilities. An interesting example is the case of Iraq, which sought to restructure approximately the same size debt stock as Argentina after the fall of Saddam Hussein (see Box 10.2).⁴¹ Although it garnered little media attention at the time, Iraq's asset shield was the closest the international community had come to sovereign bankruptcy protection within a public international law framework.⁴² Iraq's experience highlights the potential of a legislative approach when there is political will to advance in that direction.

Restructuring in the Time of COVID

Latin America and the Caribbean has continued to innovate with debt restructurings in the COVID era in the presence of the new generation Collective Action Clauses (CACs) and is seeking new ways to link debt relief with climate change and environmental protection. In addition, new

⁴¹ A second example was the legal framework passed in the United States to deal with the debt of U.S. Overseas Territories such as Puerto Rico.

⁴² Its low profile in the sovereign debt mainstream may be due to the association with military conflict and regime change (Gelpern, 2005).

creditors outside of the traditional Paris Club members and bond holder coordination techniques have introduced new challenges.

Experience with New Generation CACs

Argentina and Ecuador became the first countries to test the latest ICMA CACs in 2020.⁴³ Both countries' restructurings closed within months of announcing and securing more than 90 percent creditor participation (98 percent for Ecuador, 94 percent for Argentina). Surprising analysts and policy observers, neither government chose to use its single-limb aggregation clauses, reportedly because designing "uniformly applicable" exit instruments to attract 75 percent of creditors holding a variety of bonds across the maturity spectrum was harder than meeting the lower 50 percent per-series voting thresholds in the two-limb procedure.

Both countries introduced new transactional techniques to prevent a dissenting series from blocking a two-limb aggregated vote, but this proved controversial with their creditors.⁴⁴ The new CACs afforded borrowers flexibility to tailor offers to diverse creditor preferences and left room for creditors to demand new safeguards as a condition of participation. Contracts adapted dynamically. Nonetheless, some creditors complained that the flexibility was entirely one-sided and used against them. Whether the new generation CACs and the safeguards adopted in Argentina and Ecuador would be accepted, ignored, or further refined in new issuances remains something of an open question. Experience with contract reform to date points to repeated cycles of innovation in response to shocks.

Chinese Government and Bank Lending: The Case of Ecuador

When Ecuador restructured in 2020, debt was 64 percent of GDP. Bonds were slightly less than half of the government's foreign debt stock. Chinese lending, largely from public banks and linked to oil, infrastructure, and other commercial projects was some 16 percent. After the bond restructuring, Ecuador secured an IMF Extended Fund Facility and reached an agreement to reschedule more than US\$800 million in debt payments on

⁴³ Fang, Schumacher, and Trebesch (2021) found 16 international bond restructurings between 1994 and the onset of COVID-19 that used CACs including three in Latin American and Caribbean. None of the 16 used the 2014-2015 ICMA CAC.

⁴⁴ Controversial actions included reshuffling bonds into different pools after the votes had been cast (re-designation) and repeated polling of investors to absorb more dissenting bond series (De La Cruz and Lagos, 2021; Clark et al., 2021).

⁴⁵ See IMF (2022) and Financial Times (2022)

loans due in 2020 and 2021 to the China Development Bank and China Ex-Im Bank. About two years later, in September 2022, another agreement lowered interest rates and rescheduled payments to the same lenders.⁴⁵

The experience highlights the growing complexity of sovereign debt restructuring in middle-income countries, where some debt may be secured and beyond the scope of the Paris Club (even if formally subject to comparability of treatment), not always fully transparent to all creditors, and not readily susceptible to state-of-the-art contractual tools like CACs.

Linking Debt and Climate Change

Heightened awareness of both debt and climate vulnerabilities has motivated governments, market, and civil society stakeholders to seek ways of dealing with both. The region was at the forefront of debt for nature swaps in the late 1980s and 1990s and therefore has considerable experience in these types of transactions. Not surprisingly, Latin America and the Caribbean has remained at the cutting edge of innovation in this area, as reflected in the recent developments in Barbados and Belize.

Barbados restructured US\$5.95 billion in domestic and more than US\$800 million in foreign sovereign and sovereign-guaranteed debt between June 2018 and December 2019 in conjunction with an IMF Extended Fund Facility. Legislation to retrofit majority amendment mechanisms in domestic-law debt, similar to the Greek restructuring in 2012 but reaching a broader set of instruments at higher voting thresholds, helped the government secure 97 percent participation between the launch of the exchange in September and its close in November. The creditors were overwhelmingly domestic regulated institutions and individuals in Barbados, and the treatment was tailored to their circumstances, with an estimated reduction in present value of the claims of between 28 to 76 percent, and 43 percent on average. Including short-term treasury bills and central bank holdings was unusual, but appeared to have no material adverse impact on domestic financial stability (Myrvin, Impavido, and Van Selm, 2020). In addition to the domestic restructuring, more than 93 percent participation was achieved for the English-law, U.S. dollar-denominated debt with

⁴⁶ Use of exit consents outside the context of bonded debt in a CSFB syndicated loan was novel and led to full participation in the restructuring. The NPV relief figure for foreign debt assumes a 12 percent discount factor used by the parties. A 7 percent discount factor was used in domestic debt. Barbados did not restructure multilateral or official bilateral debt, which stood at about 2 percent of GDP. Project-linked debt to the Chinese government was also excluded from the general restructuring.

an estimated 44 percent in present value debt relief, using first-generation CACs and exit consents.⁴⁶

The new debt issued as part of these exchanges included a natural disaster clause covering a broad range of events including hurricanes, floods, and earthquakes, and allows the government to postpone payments on the exit instruments for up to two years.⁴⁷ Postponed amounts would be distributed proportionally over the remaining repayment period, avoiding sharp payment spikes. The new clause employs triggers defined in the Caribbean Catastrophe Risk Insurance Facility (CCRIF) coverage. Barbados's natural disaster clause introduced a novel override mechanism, which would allow holders of 50 percent of outstanding debt to block a payment deferral (Ho and Crane, 2020). The sovereign has the initiative in this structure, but creditors retain the potential to block invocations of the disaster clause.⁴⁸

In November 2021, Belize bought back its entire outstanding “superbond” of US\$553 million, or roughly 25 percent of its external debt. The superbond itself was the product of prior distressed exchanges. The buy-back was executed at a 45 percent discount with the proceeds of a US\$364 million “Blue Loan” extended by the Nature Conservancy.⁴⁹ The Nature Conservancy, an established environmental NGO, in turn financed the loan with a “Blue Bond” issued by a special-purpose subsidiary. The loan had additional credit enhancements in the form of political risk insurance from the U.S. Development Finance Corporation and a commercial parametric insurance policy covering a principal and interest payment in the event of certain natural disasters.

The transaction resulted in debt relief estimated at 12 percent of Belize's GDP, with part of the savings committed to endowing a US\$23.5 million marine conservation fund. The central role of the Nature Conservancy bolsters the credibility of the government's conservation commitments, placing some 30 percent of Belize's ocean area under protection (The Nature Conservancy, 2022).

⁴⁷ These build on Grenada's 2015 bond clauses and ICMA 2018 suggested terms.

⁴⁸ Barbados has since launched a buy back operation using the proceeds of a bond issuance for some US\$150 million backed by a partial guarantee from the Inter-American Development Bank and The Nature Conservancy. The savings from this operation are to be dedicated to marine conservation.

⁴⁹ The secondary market price for the bond jumped from 40 cents to about 50 cents on the dollar in August 2021, harking back to the Bulow and Rogoff (1989) analysis of debt buybacks. A difference in this case is that the loan used to buy back the debt was provided at initial concessional rates, although with step-ups over time.

The Belize debt buyback adapts earlier Latin American innovations dating back to the 1980s. As argued in Chamon et al. (2022), as a portion of the benefits of the debt buyback accrues to other creditors, the attractiveness of this type of operation for the borrower may fade, and other mechanisms for providing debt relief combined with new resources may dominate. But that presumes those mechanisms are feasible. Linking buybacks to climate and environmental targets may attract new investors, allowing for a more ambitious operation. Moreover, alternatives may not enhance the transparency and monitoring of environmental goals in the same way. Linking the debt operation with the climate and environmental targets may then make for an attractive package, which would be further enhanced by mechanisms to bolster the credibility of future fiscal targets.

The Barbados and Belize restructurings adapted earlier innovations to address the contemporary challenges of debt and environmental resilience and conservation. It is too early to assess the medium-term impacts of these transactions. Both countries had a relatively large stock of debt with high debt servicing obligations, implying a drag on public finances and growth; in both cases, governments were willing to commit to verifiable climate and conservation action. If the climate crisis does not abate, more countries may wish to explore these mechanisms to address both high debt levels and the need to address climate and environmental challenges.

The Roles of Official and Private Institutions

Latin America and the Caribbean has been the backdrop for many of the main innovations in debt restructuring over the years, with official and private sector institutions being important members of the cast. This section outlines the roles of selected institutions but argues that greater coordination would be beneficial.

First Stop: The IMF

Countries facing potential debt-servicing distress are strongly advised to consult with the IMF. The IMF's Sovereign Risk and Debt Sustainability Framework (SRDSF) is intended to act as an early warning system for debt-related risks, identify policy recommendations, prevent potential stress from materializing, and assess public debt sustainability.⁵⁰ Where public debt is found to be unsustainable, the framework also provides a methodology for setting targets to guide debt restructurings undertaken

⁵⁰ The framework has been recently revised, see IMF (2022) for guidance.

in the context of Fund-supported programs. As IMF programs should be fully financed to be effective and ensure repayment, the Fund requires “financing assurances” from major creditors before approving a disbursing program. Beginning in 1989, the IMF has allowed members to run arrears to a growing range of private and official creditors in lieu of financing assurances.⁵¹ Among the preconditions for invoking its arrears policies, the IMF requires governments to engage in good faith discussions with their private and official creditors. In general, the IMF does not enter into the details of restructuring negotiations, leaving them to the country and its financial advisors.⁵²

MDBs: Debt and Development

Multilateral development banks also play an important role in the case of a country that may be entering a period of debt distress. If a sovereign loses market access, then typically the demand for lending from MDBs will rise. But while MDBs tend to focus on longer-term, development-oriented lending, the IMF normally takes the lead on shorter-term balance of payment or debt distress resolution. Still, MDBs also extend shorter loans on the basis of a set of agreed reforms, referred to as policy lending. But if macroeconomic conditions are not conducive, then MDBs may determine such lending is inappropriate; under conditions of stress, the likelihood of intended reform programs being accomplished is lower. This, then, sometimes serves as a trigger for a country to deepen its dialogue and seek assistance from the IMF. Then, once an IMF program is agreed upon, typically the IMF lends to support a country’s balance of payments, and the main MDBs provide financing to the fiscal authorities.⁵³

⁵¹ The IMF’s arrears policies do not extend to established multilateral development banks (MDBs) with broad-based global membership, underlining the preferred creditor treatment (PCT) of MDBs. Apart from this exception, the IMF LIA policies complement the comparability principle. See <https://www.imf.org/en/News/Articles/2022/05/17/pr22156-imf-completes-review-of-the-fund-policies-on-sovereign-arrears-and-related-perimeter-issues>.

⁵² See the discussion in Buchheit et al. (2019).

⁵³ See G20 (2022) on IMF and MDB roles. The IMF may also lend for fiscal support, see IMF (2020).

⁵⁴ The other 5 principles are: i) Solidarity (members agree to act as a group), ii) Consensus (between participating creditor countries), iii) Information sharing (among members, deliberations remain confidential to maximize their productivity), iv) Case by case (to tailor actions to each country’s individual situation, and v) Conditionality (countries that need relief and are committed to implementing reforms which in practice means an IMF program), see <https://clubdeparis.org/en/communications/page/the-six-principles>.

The Paris Club

As reviewed, the Paris Club has played an important role. Its six main principles include the comparability of treatment among creditors.⁵⁴ After the so-called 2003 Evian reforms, the Paris Club acts with greater flexibility to design bespoke debt flow and stock treatments, evolving from an agency largely concerned with debt collection to one focused more on overall sustainability. Agreement with Paris Club creditors has sometimes preceded those of commercial creditors with the debt treatment phased, for example in accordance with the targets of an IMF program. The Paris Club interacts with other international financial institutions, transcending its original informal set up. The potential influence of the Paris Club could extend well beyond the specific terms of a restructuring. An early resolution with Paris Club members with phased treatments could provide a strong signal to lead restructurings with commercial and non-Paris Club members.

Private Institutions

Private creditors are also represented by a set of institutions that have played a significant role in discussions of the international financial architecture and have influenced resolutions in particular cases. The Institute of International Finance (IIF), with over 400 members across more than 60 countries, claims to be the global association of the financial industry. Apart from providing research and data on many topics, it aims to support the financial industry in the prudent management of risks and to advocate for policies that foster global financial stability and sustainable economic growth. In the area of debt restructuring, it has developed a set of well-known Principles for Stable Capital Flows and Fair Debt Restructuring and monitors their implementation.⁵⁵ Among other topics, the Principles call for transparency of information, fair and equal treatment, and constructive and meaningful dialogue towards finding a resolution in cases of debt restructurings.

Other private groups, including the International Capital Market Association (ICMA), have also made substantial contributions. Working through committees composed of individuals from member firms, ICMA has developed guidelines on many aspects of market practice and regulatory issues focusing on three core fixed-income market areas: primary; secondary;

⁵⁵ See IIF (2022).

repo and collateral. In the area of debt restructuring, ICMA developed proposals on new generation collective action and *pari passu* clauses. Still, while these clauses have been widely adopted, they are by no means universal, and the way in which these clauses influenced events in the Argentine and Ecuadorian restructurings has provoked further discussion.

More generally, in each restructuring case, private sector creditor committees have played a significant role in the actual negotiations. The details regarding the formation of committees and their role and operation may vary, but some form of committee structure has generally aided the negotiation process.⁵⁶

Unfinished Business

These institutions all play important roles, but overall coordination is still lacking, particularly given the diversity of creditors and instruments. Old questions that linger include how to define the perimeter of the debt to be considered in a restructuring, and how to ensure all major creditors participate and feel well-represented; new questions have also emerged such as whether and how to best link climate and environmental goals to debt restructurings. A regional forum focused on Latin America and the Caribbean could play a useful role in this regard, complementing existing institutions and providing a neutral location for enhancing coordination between these and other players.

The idea would not be to supplant the Paris Club or the Common Framework but to try to improve how they function, taking into account the unique characteristics of countries in the region. Given the history and experience with debt restructurings, a regional body might be able to smooth the path towards restructurings where they were considered necessary as a last resort. It could serve as a repository of information about restructuring experiences, allowing for swifter and constructive dialogue. It could build on existing regional platforms to increase capacity in *ex ante* contract negotiations and *ex post* contract renegotiations, thereby developing generally accepted practices and norms. It could work with the IMF, MDBs, the Paris Club, and non-Paris Club lenders to elaborate and publicize the application of core concepts including sustainability and comparability in regional cases and help solidify the norms on creditor classification. It could assist in the design and oversight of climate-contingent contract terms, and even provide input on trigger design and use in contingent debt. It could also help elaborate standards on dealing with collateralized and

⁵⁶ See IIF (2022) for a recent review and recommendations on the role of creditor committees.

resource-backed lending in restructurings. None of this would put the proposed forum actually in the middle of debtor-creditor negotiations. Instead, it would leverage the region's existing institutions and deep history of dealing with debt crises to fill gaps in the existing architecture, building on the experiences of existing institutions.

Filling in the Gaps

Latin America and the Caribbean has been at the forefront of debt restructuring innovations for 40 years. Debt restructuring techniques have been influenced by decisions taken in the main international financial architecture policymaking bodies such as the G7, the Paris Club, and the IMF, adapted to the changes in international capital markets, and attuned to local or country-specific factors. From the lost decade in 1982 to the COVID-19 pandemic, countries in Latin America and the Caribbean launched and tested a succession of sovereign debt restructuring tools. Still, gaps in the architecture remain, and unresolved issues include:

- Domestic, political, and market pressures to postpone recognition of debt problems, and incentives for government to continue to finance at high and increasing interest rates
- Delays in debt restructuring, even after the problem has been acknowledged, or opting for relatively fast reprofiling, which may not restore sustainable growth
- Limited process and data transparency, which undermines inter-creditor and debtor-creditor trust and taints the legitimacy of a restructuring
- Limited tools to compel comprehensive creditor participation in debt restructuring, increased uncertainty, and incentives for free riding
- Greater creditor and instrument diversity including non-Paris Club creditors, commercial loans from official actors, and collateralized lending, which complicate restructuring processes

Official and private creditor restructuring methods have developed in an iterative fashion. Regulatory forbearance for banks, coupled with bridge lending from international financial institutions (IFIs), underpinned the Paris and London Club reschedulings in the early 1980s. Enhancements provided by official creditors and favorable accounting treatment created an opening for the Brady Bonds, which then resulted in the rapid subsequent growth of the bond market. The re-emergence of bonds as the

instrument of choice for most middle-income countries prompted the IMF and Paris Club to extend burden-sharing policies to bonds subject to certain safeguards. The official rejection of the Sovereign Debt Restructuring Mechanism and encouragement for adopting Collective Action Clauses (CACs), with subsequent officially-sanctioned enhancements, has shaped the current environment for commercial bond financing. At the same time, Paris Club financing has declined but non-Paris Club official lending has soared, raising new challenges.

The recent launch of the Common Framework attests to the centrality of expanding the scope of inter-creditor coordination. Building on the experience of the Paris Club, the Common Framework recognizes that some type of coordination from the official sector is extremely valuable to ensure a comprehensive approach with private and official participation. Key features of this approach include: i) comprehensive coverage of official claims and general debtor eligibility; ii) robust inter-creditor information sharing and internal coordination; iii) credible linkage of official and private creditor relief, and with IMF and other IFI financing; and iv) momentum provided by external coordination, as well as peer country and G7 participation. Still, three years since its launch, the Common Framework has achieved only limited success. A regional debtor and creditor coordination platform for Latin America and the Caribbean would complement the existing international financial architecture.

Such a platform would fill three key gaps: First, it would focus on facilitating cooperation among debtors and creditors common to countries in the region. Second, it would become the repository of expertise on matters most relevant to middle-income countries with large-scale commercial financing needs as well as official sector borrowing. For example, it could work with multilateral institutions to develop reporting, data sharing, and debt treatment mechanisms for hybrid creditors, identifying and accounting for debt-equivalent transactions, secured and project-linked debt, guarantees, contingent debt triggers, comparability standards, experiences with different types of CAC and with domestic debt restructuring, among other issues. Third, the platform would benefit from existing regional cooperation structures. Finally, the group would be able to harness and build on the experience and creativity in the region.

Potential objections to such a platform might include the risk of fragmentation, duplicating effort, and debtor moral hazard. The first two concerns could be addressed by specifying that the regional body should coordinate its standard-setting work with the global one, such as the Common Framework or a successor, expanded to include middle-income countries,

and universal membership institutions such as the IMF. Restructurings would continue to be negotiated case by case. Concerns about debtor moral hazard in a debtor-dominated coordination mechanism are likely misplaced. Recent history suggests that sovereign debtors—particularly those with market access—are generally reluctant to initiate a restructuring, and wary of restructuring mandates. Establishing a coordination process with shared reputational stakes could help anchor expectations and discipline outliers.

From a global debt architecture perspective, the result could be a hub-and-spoke or a network arrangement, depending on stakeholders' appetite for centralization. In either case, a regional mechanism would ensure that the unique challenges confronting Latin America and the Caribbean receive proper attention.

Sovereign debt stocks have not only grown in recent years, they have also become more complex. Financial, economic, security, environmental, and public health shocks threaten more people now than ever. Meanwhile, debt restructuring institutions with roots in the 1980s and 1990s are struggling to stay relevant. The existing international architecture remains a work in progress. The region would be well-advised to seek advances to enhance transparency, share experience, and improve coordination.

Managing Private Debt

Access to financial resources is vital to a company's performance. Borrowing allows firms that lack internal resources to invest, grow, become more productive, and create well-paid and stable jobs. Access to credit is particularly important in sectors where entry costs are high, such as capital-intensive manufacturing, and where innovation is key—all of which are activities that contribute significantly to economic growth and create high-quality jobs. Access to credit also allows firms to survive negative shocks, including both economy-wide crises such as Covid-19 as well as firm-specific events, such as a decline in product demand or a surge in costs. In those instances, firms may have unanticipated demands for liquidity or, if they expect a rise in demand, may wish to borrow to build precautionary buffers.¹

Access to credit is a significant benefit, but firms that contract too much debt can run into problems. The *pecking order* theory of corporate finance implies that the incentives to invest may decline with higher levels of debt because the benefits of investment accrue to existing debt-holders, rather than equity-holders. This situation can lead to a debt overhang, whereby firms, perhaps due to negative shocks, build up debt to a level so high that it then negatively impacts investment and growth.²

Many firms in the region, particularly small and medium-sized enterprises (SMEs), report poor access to credit or financial access that is too costly or burdensome. Thus, if there is a debt overhang problem after COVID-19, it will likely be concentrated among larger firms that have enjoyed good credit access. This is the focus of Chapter 12, which harnesses

¹ Buera, Kaboski, and Shin (2015) argue access to credit is particularly important for high productivity sectors. See Holmström and Tirole (1998), Acharya, Drechsler, and Schnabl (2014), Ivashina and Scharfstein (2010), Montoriol-Garriga and Garcia-Appendini (2013), and Huang and Wang (2010) on the importance of credit for precautionary liquidity or actual liquidity shocks.

² See Myers (1977).

data on firms listed on stock exchanges in the region (larger firms in the larger economies) to explore the debt overhang hypothesis.

This chapter focuses on issues related to credit access, how firms of different sizes fared during the huge shock of the pandemic, and how they are faring in the recovery phase. The chapter employs several data sources from different countries and subregions.

The chapter first establishes that credit access is indeed perceived to be a serious constraint, especially for smaller firms. The banking sector remains the most important source of external finance, but the levels of credit in the region remain low by international standards. This limited credit may stem from issues related to supply (a lack of savings, making credit expensive) or demand (a dearth of profitable projects, which reduces the demand for loans). New financial instruments made available by Fintech companies have grown in importance, suggesting that the cost of borrowing from the banking sector may be a contributing factor. The chapter argues that credit constraints are particularly important for female-led firms due to continued discrimination.

The chapter presents evidence, leveraging econometric methods and multicountry data, that firms with access to financial resources were more likely to survive the pandemic. A complementary analysis employing detailed trade and balance sheet data for Colombia finds that access to credit improved firms' export performance during the crisis. At the same time, however, higher pre-pandemic debt levels negatively impacted outcomes for exporters.

The analysis to this point focuses on firms and corporate finance. However, project finance, particularly to develop large infrastructure projects, had increased significantly in the region. The chapter describes how that financing fared during the pandemic and in the recovery phase.

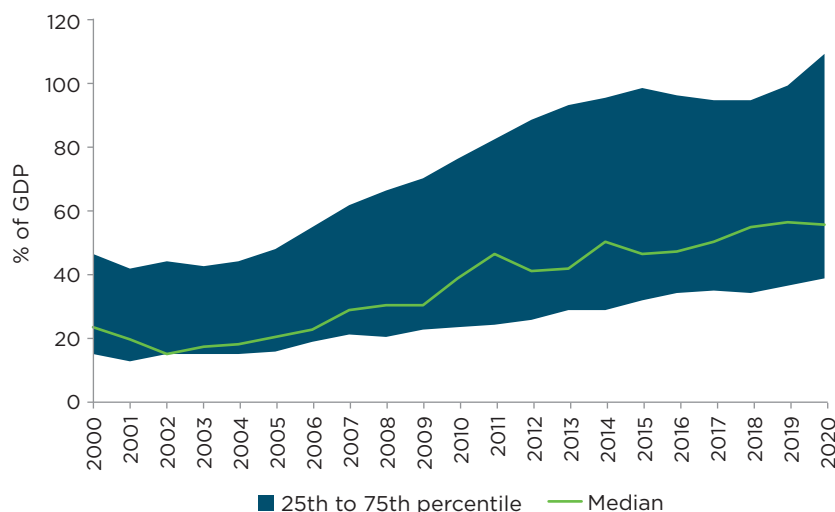
Finally, the chapter presents policy recommendations aimed at increasing credit access for SMEs to boost investment, allow firms to survive through future negative shocks, and expand nongovernment and public-private financing for infrastructure in the region.

Credit in the Region: Racing to Catch Up

Domestic credit to the nonfinancial private sector has grown significantly in the region over the last two decades but remains low by international standards.³ Figure 11.1 plots the weighted median and inter-quartiles range

³ Domestic credit to the private sector is defined as the amount of financial resources provided to the private sector by financial corporations, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment (World Development Indicators).

Figure 11.1 Domestic Credit to the Private Sector in Latin America and the Caribbean



Source: IDB staff calculations based on data from the World Bank's World Development Indicators.

Note: The figure plots the weighted median of domestic credit to the private sector as a percentage of GDP.

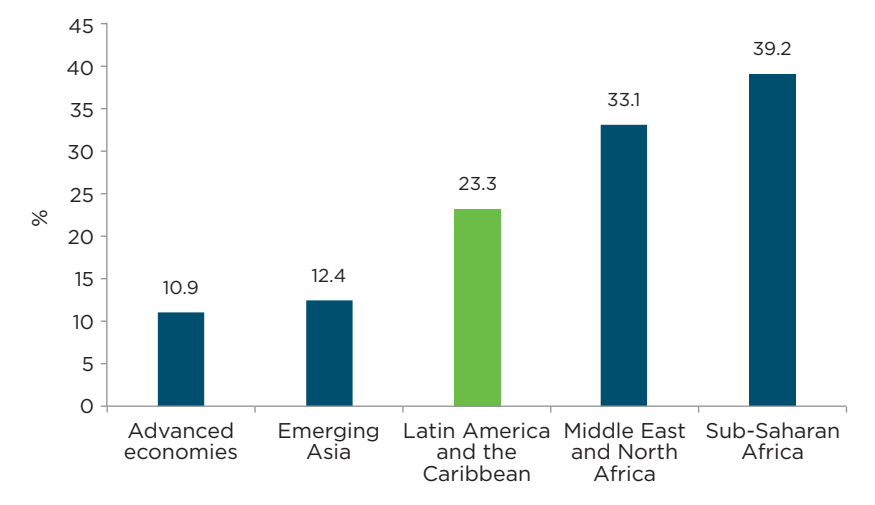
across countries as a percentage of GDP.⁴ Credit in the average OECD country is around 160 percent of GDP compared to less than 60 percent for the region. Still, credit to GDP varies widely across countries, from over 100 percent in Chile and Panama to less than 30 percent in Haiti and Suriname.⁵ Credit did not drop more than economic output during the COVID-19 shock, as the credit-to-GDP ratio remained flat, which can be explained by the government support throughout the region (see López et al. [2022], for an analysis of the Central American region).

Credit levels may be low for several reasons. On the supply side, a lack of savings may imply a low level of deposits, which restricts the availability of loans and increases their cost. High economic volatility may require banks to retain high levels of capital and liquidity, which again restricts loan supply.

⁴ Sample at the start of the period (2000) includes: Argentina, The Bahamas, Belize, Brazil, Barbados, Colombia, Guyana, Haiti, Jamaica, Peru, Paraguay, Suriname, Trinidad and Tobago, Uruguay, and Venezuela. Sample in 2020 includes: Belize, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Jamaica, Mexico, Panama, Peru, Paraguay, Suriname, Trinidad and Tobago, and Uruguay. Domestic credit to the private sector as a percentage of GDP for a constant sample of countries with full data (17) shows a similar trend, and was close to 70 percent in 2020.

⁵ All figures for 2020.

Figure 11.2 Share of Firms Identifying Access to Finance as a Major Constraint



Source: IDB staff calculations based on World Bank’s Enterprise Surveys. Latest data available.

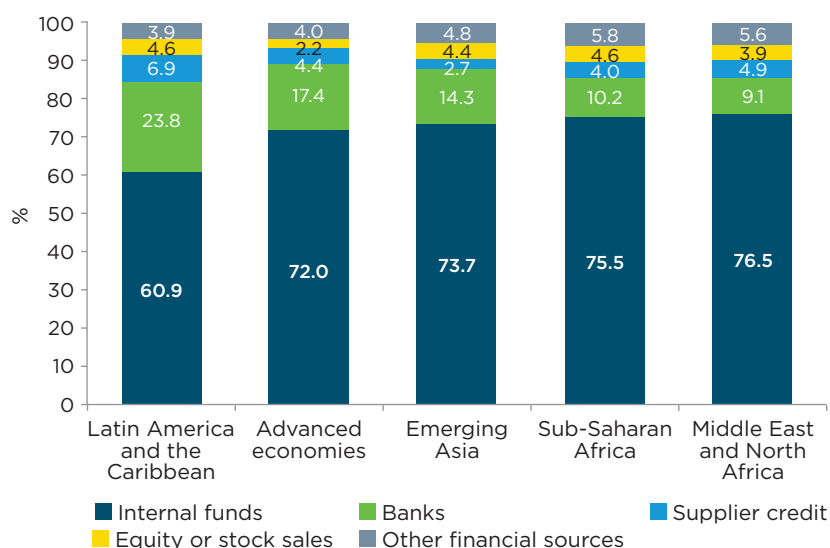
Tight regulations due to high volatility or weak governance may increase the cost of credit, as may a lack of competition, poor information, or an ineffective legal system that makes it difficult to enforce creditor rights. If firms lack profitable opportunities due to either a poor business environment, high levels of taxation, or other forms of appropriation, then low expected returns on investment may limit the demand for loans, particularly as lending interest rates remain higher than in other areas of the world.⁶

Access to Finance: An Important Constraint for Firms

Prior to the pandemic, almost a quarter of all firms (both large and small companies) in Latin America and the Caribbean identified access to finance as a major constraint, more than in any other region except Sub-Saharan Africa and the Middle East and North Africa (see Figure 11.2). After internal funds, banks are the most important source of financing for investment in Latin America and the Caribbean. Close to a quarter of firms in the region point to banks as their primary source of finance versus 14 percent in Emerging Asia and just 10 percent in Africa (see Figure 11.3).

Supplier credit (accounts payable), another kind of debt, is relatively more important in the region than in other parts of the world. Almost

⁶ See Cavallo and Serebrisky (2016) for further discussion on these points.

Figure 11.3 Sources of Investment Financing by Region

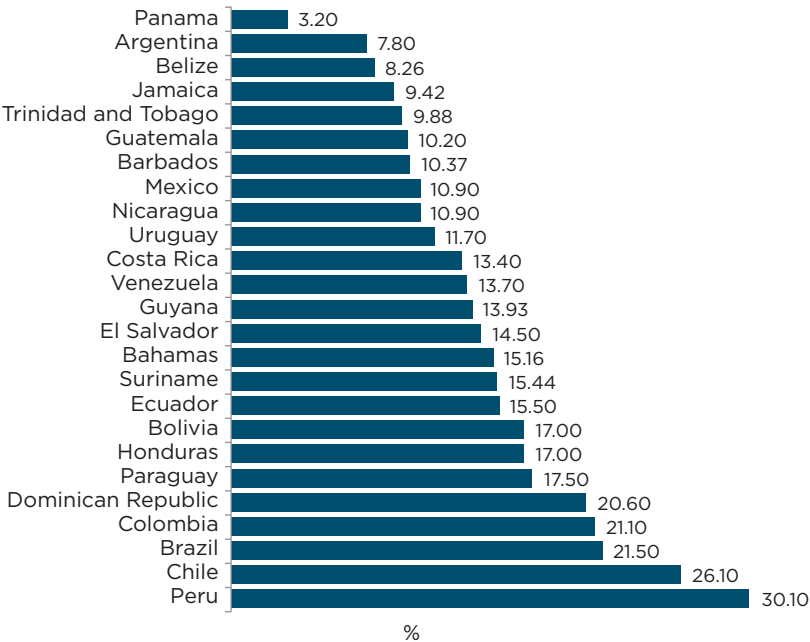
Source: IDB staff calculations based on World Bank's Enterprise Surveys. Latest data available.

7 percent of firms report using supplier credit to finance investments, potentially signaling credit constraints (see Figure 11.3). The maturity of supplier credit tends to be shorter than the return on investments, which occurs in the medium term. Venture capital and private equity funding remain relatively low in the region despite its potential to spur innovation. Firms' heavy reliance on internal funds for investment, on the other hand, may leave them exposed to economic volatility, creating a reinforcing pattern of economic performance and future investment. In good times, then, larger revenues could provide resources for acquisition of fixed assets and other productive investments; during economic contractions, if revenues and profits are hard hit, fewer possibilities to invest at the firm level can deepen recessions.

The region also relies more on banks to finance working capital than most other regions; banks finance 16 percent of working capital in Latin America and the Caribbean compared to 13 percent in Emerging Asia and 9 percent in the Middle East and North Africa. However, the share of banks as providers of working capital varies widely from a minimum of 3.2 percent in Panama to 30.1 percent in Peru (Figure 11.4).⁷

⁷ The source of financing also varies widely across sectors. Bank finance is the preferred source of financing for 27 percent of manufacturing firms and only 17 percent of firms in the retail sector.

Figure 11.4 Proportion of Working Capital Financed by Banks

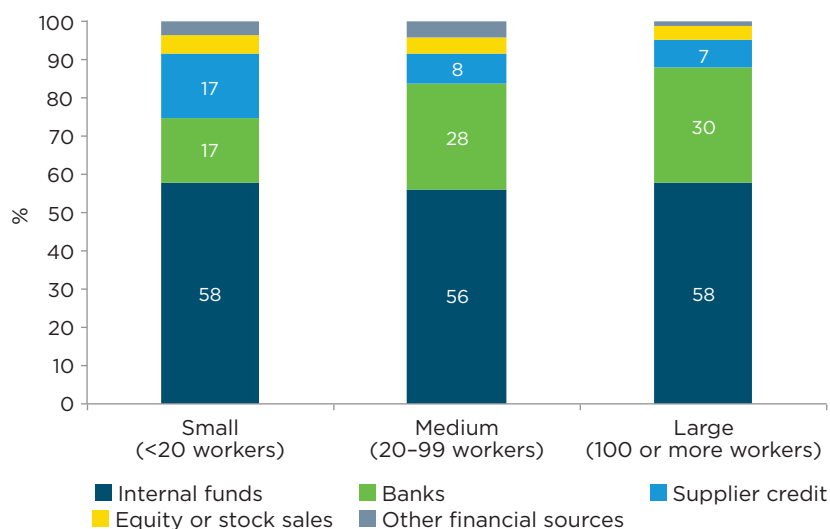


Source: IDB staff calculations based on World Bank’s Enterprise Surveys and IDB’s Firm Performance and Gender Survey (IFPG), latest data available.

The reliance on banks for financing investment and working capital points to the strong linkages between the health of the financial system and that of the productive sector. Shocks to the financial system are likely to affect firms and vice versa. It also suggests that reducing intermediation costs or expanding bank liquidity could help firms that are credit constrained.

SMEs: Challenged in the Quest for Bank Lending

The importance of bank funding tends to increase with firm size (17 percent for small firms compared to 28 percent and 30 percent for medium and large firms, respectively); the opposite occurs with credit from suppliers (Figure 11.5). SMEs tend to face greater challenges than larger firms when applying for a bank loan. Information asymmetries (e.g., information known to the firm but hard to prove to a financial institution) may be more serious for smaller companies. When financial intermediaries lack quality information about potential borrowers, they respond by charging more to cover the risk (or by not providing credit, according to their risk management policies). Other challenges include higher transaction costs, particularly relative

Figure 11.5 Sources of Investment Financing by Firm Size

Source: IDB staff calculations based on World Bank's Enterprise Surveys. Latest data available included.

to the smaller loan amounts, and a lack of financial skills, project preparation, and other business-related knowledge. For this reason, smaller firms rely more on internal funds to finance investments, and in some countries, on personal loans provided outside of the financial system, which are more expensive and have shorter maturities (López et al., 2022).

Given the many small firms in the region, the aggregate financial gap is large. Some estimates point to a gap of US\$1.8 trillion between demand and supply for funds available for SMEs in Latin America and the Caribbean, equivalent to 41.7 percent of regional GDP. In other words, the financial gap for micro, small, and medium-sized enterprises (MSME) in the region is 5.2 times the current supply (Herrera, 2020).

In theory, an alternative for SME funding could be capital markets. Capital markets help mitigate macroeconomic shocks or shocks emanating from the banking sector. However, while some countries have attempted to set up junior exchanges or marketplaces, they have not flourished in the region (Herrera, 2020).⁸ Equity markets have been dominated by relatively few larger firms, and IPOs have played only a minor role in firm financing; from 2012 to 2019, average investment flows channeled through domestic exchanges from IPOs represented just 2.3 percent of global flows for a region that accounts for 4.4 percent of world GDP (OECD, 2019).

⁸ Significant attempts have been made in Brazil, Colombia, Jamaica, and Peru.

Alternative sources of financing often labeled as Fintech were growing before the pandemic, and the crisis appeared to further propel these platforms. Approximately 65 percent of the total financing from alternative financing platforms in the region went to MSMEs (see Finnovista, IDB, and IDB Invest, 2022).

Some 56 percent of companies that obtained financing through these platforms in the region became more efficient.⁹ Similarly, 53 percent of the companies that obtained financing through fintech platforms reported increased revenue. Furthermore, in 70 percent of those cases, the recipient firms maintained their number of employees, and in 21 percent, the workforce grew (Finnovista, IDB, and IDB Invest, 2022). Some 95 percent of surveyed firms (out of a sample of 550), said fintech companies reacted quickly to provide financial resources, and 90 percent reported better customer service than at traditional financial institutions, despite the largely digital interaction with fintech companies (University of Cambridge, 2021).

An IDB Invest study implemented during the pandemic analyzed more than 1,000 MSMEs, with an average credit score below the threshold that commercial banks typically require for lending to this segment. It found that companies that received credit from a fintech institution that provides consumer loans and working capital to MSMEs, and then sell through its e-commerce platform, increased their quarterly sales through this channel by 34 percent in the first quarter of 2020 and 26 percent in the following quarter (Figal-Garone et al., 2021).

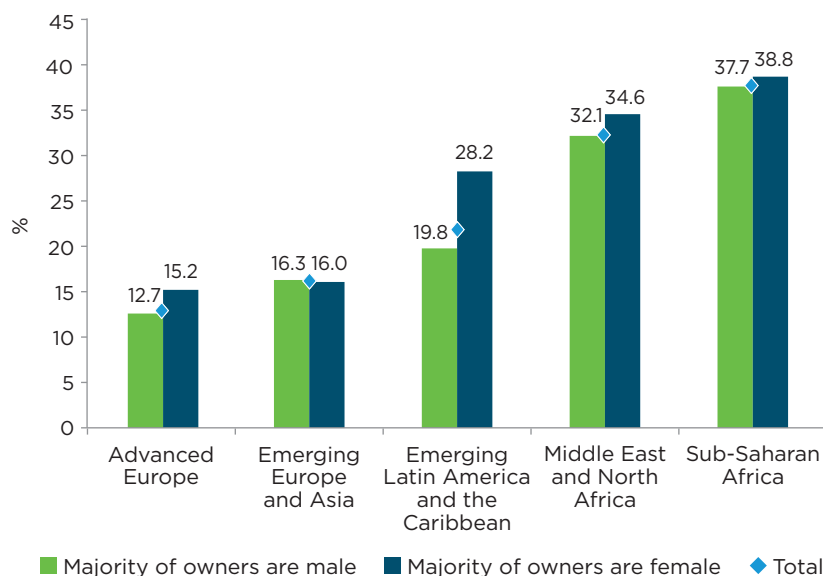
Fintech companies collect more and new types of data on firms, including nonfinancial information. This allows them to use artificial intelligence and machine learning techniques to analyze credit risks. New techniques may also lower the costs to find clients, and to distribute resources through digital platforms and mobile devices (Boot et al., 2021). Assuming information asymmetries and costs are then reduced, and risks are calculated more accurately, Fintech can then expand credit to companies that lack access to traditional bank finance or find it prohibitively expensive.

Gender Discrimination in Lending

Latin American companies with a majority of female owners identify access to finance as one of the greatest obstacles to growth. They also report it more frequently than firms that are predominantly owned by

⁹ This may be because these platforms successfully identified those firms that were less hard hit and that financing assisted those firms during the crisis. Alternative financing sources grew 15 times between 2016 to 2020 to reach US\$5.27 billion in 2020 in the region (University of Cambridge, 2021).

Figure 11.6 Share of Firms Identifying Access to Finance as a Major Constraint



Source: IDB staff calculations based on World Bank's Enterprise Surveys. Latest data available included.

men: female-owned companies are about 10 percentage points more likely to identify access to finance as a major constraint than male-owned firms (Figure 11.6). Moreover, even though in all regions of the sample women-owned companies perceive access to finance as a major constraint to a larger extent than male-owned companies, the widest gap by gender ownership is reported in Latin America and the Caribbean.

Many factors may explain why more female-owned and female-led firms report access to finance as a major constraint, or face higher barriers to access credit (or access financial resources with worse conditions than male-owned and male-led companies). Recent analyses at the Inter-American Development Bank suggest that a primary factor in Latin America and the Caribbean is gender discrimination.¹⁰

¹⁰ Gender discrimination in bank lending was first studied by Gary Becker, winner of the 1992 Nobel Prize in Economics. There is overwhelming evidence of gender discrimination in the credit market around the developing world, and that this discrimination yields lower levels of credit for women, as well as worse credit conditions. See, for example, Carter et al. (2007), Muravyev, Talavera, and Schafer (2009), Barasinska and Schafer (2010), Bellucci, Borisov, and Zazzaro (2010), Agier and Szafarz (2013), Alesina, Lotti, and Mistrulli (2013), Stefani and Vacca (2013), Mascia and Rossi (2017), and Beck, Behr, and Madestam (2018).

A recent study on the Chilean loan market, for example, aimed to identify how loan officers respond to identical loan requests from men and women (Montoya et al., 2020). If there were differences in loan approvals, the authors wanted to determine how much of that was due to an objective evaluation of the candidate's ability to repay the loan and how much was simply out-and-out gender prejudice. The authors recruited more than 400 potential borrowers and matched male and female profiles on demographics, incomes, employment status, and credit history, and had each of them submit four randomly assigned loan requests for amounts ranging from US\$1,500 to US\$13,500. They sent their application requests to four randomly chosen loan officers whose identities and gender beliefs could be tracked through the Chilean Financial Market Commission. The authors found that loan requests submitted by women were 18.3 percent less likely to be approved, with most of the gender effect coming from gender-biased officers (i.e., taste-based discrimination), particularly males.¹¹ The outcomes did not improve when officers were shown national statistics on the higher repayment rates for women, suggesting overconfidence bias as a potential mechanism behind taste-based discrimination. The authors estimated that the median forgone profit associated with applications rejected due to gender discrimination amounted to US\$1,785, or 23 percent of the median loan size (approximately US\$7,500). The authors confirmed through a set of different methodologies that at the root of this result was animus towards women, or taste-based discrimination, rather than worse financial vulnerabilities related to women.

New evidence from more than 1,153 firms in the Caribbean based on the Firm Performance and Gender Survey (IFPG) for the Caribbean suggests that credit rationing is more prevalent in firms where women play a key role in the strategic decisions of the company. Analysis using these data, collected during the pandemic in 13 Caribbean countries, reveals that female-managed companies are five percentage points more likely to identify access to finance as a major constraint for business than male-managed firms, even when accounting for size, age of the firm, economic activity, and location of the company.¹² Box 11.1 presents

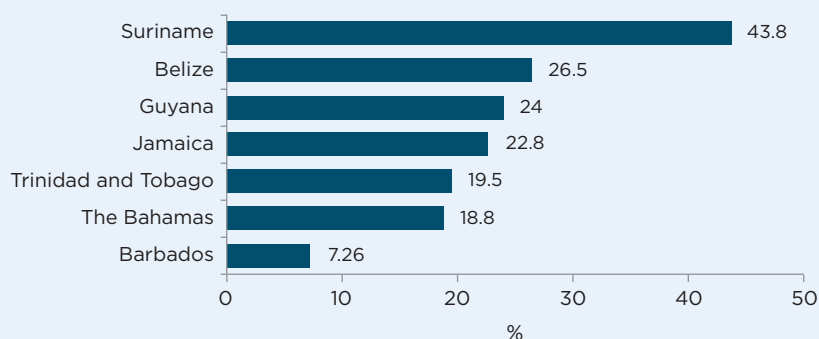
¹¹ Note that studies on Latin America and the Caribbean also conclude that female- and male-led firms have no notable differences in terms of productivity (Amin and Muzi, 2014).

¹² The sample consists of almost 2,000 firms and control variables include firm size, the log of firm age, and sector and country fixed effects. Some 71 percent of firms, both male- and female-managed, report access to finance as a major constraint. For more information on the survey and the impacts of the pandemic on Caribbean firms see Acevedo et al. (2021). This evidence is in line with previous studies in the Caribbean (Piras, Presbitero, and Rabellotti, 2014) as well as in European developing countries (Stefani and Vacca, 2013).

Box 11.1 Caribbean Firms in Need of Financing

The Firm Performance and Gender Survey (IFPG) for the Caribbean collected information from more than 1,153 firms in 7 countries; the sample included many SMEs and is representative at the country level.^a Analysis of the data indicates that SMEs and women-owned/led firms were negatively impacted more deeply by the pandemic crisis than other firms. Moreover, firms that adopted measures to avoid supply chain disruptions fared better than those that did not. Firm priorities have shifted because of the pandemic, with a much greater emphasis on access to digital payments and telecommunications. The survey also suggests that companies in the Caribbean require greater access to additional financial resources to ramp up operations after the pandemic (Acevedo et al. 2021). There was considerable variation across countries, with almost 50 percent of firms in Suriname indicating the need for more access to financing compared to fewer than 10 percent of companies in Barbados (see Figure 11.1.1).

Figure 11.1.1 Proportion of Companies Needing Additional Financial Resources



Source: IDB staff calculations based on the IDB's Firm Performance and Gender Survey (IFPG) for the Caribbean collected during 2020.

^a This survey was conducted during March and November of 2020 by the IDB Group through the Compete Caribbean Partnership Facility.

more information about this survey and the identified financing needs of Caribbean firms.

Access to Credit during the Pandemic

Could firms access credit during the pandemic? While most analyses focus on larger firms in larger economies, this section puts the spotlight on

Central America, leveraging information from samples that include smaller firms. The countries in the overall sample are Nicaragua, Honduras, Guatemala, El Salvador, and Panama (referred to as CA 5 from now on).

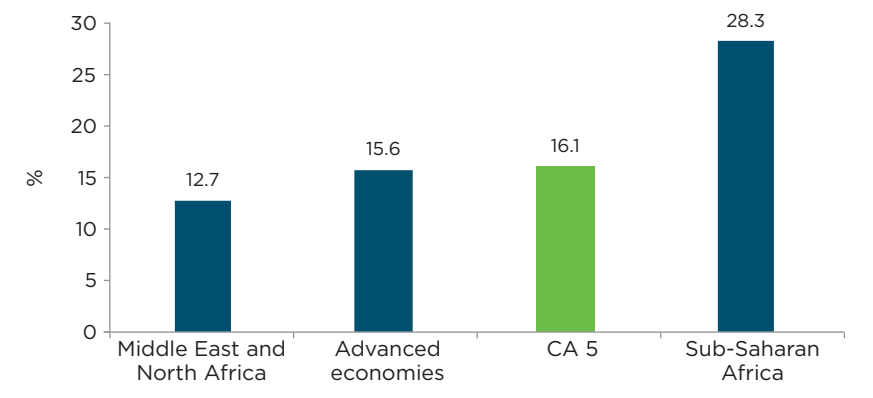
During the Covid pandemic, corporate revenues plummeted, cash flows dwindled, and working capital became increasingly scarce. While firms' cash flow and sales contracted substantially, fixed operating costs such as rents and interest payments still had to be paid. More than 80 percent of firms in CA 5 reported decreased liquidity or cash flow availability during the pandemic.¹³ Many firms tried to boost their liquidity by borrowing from financial institutions (23 percent and 40 percent for small and large companies, respectively). However, 16.1 percent of loan applications during the pandemic were denied (Figure 11.7); most denied applications came from SMEs (only 0.7 percent of large companies faced a loan rejection). This result is consistent with evidence from other emerging economies which indicates that smaller firms faced more severe financial constraints during COVID-19, even in advanced economies (Apedo-Amah et al., 2020).

Many companies struggled to service their debts during the pandemic. Of the surviving firms, 30 percent of CA 5 firms fell into arrears with financial institutions, compared to 19 percent of firms in other emerging economies around the world. Smaller companies make up a larger proportion of firms with overdue liabilities than large ones (Figure 11.8).

Econometric analyses based on firm-level information suggest a negative relationship between firm size and the probability of being in arrears with

Figure 11.7 Proportion of Companies with Rejected Loan Applications

A. Percent of firms whose most recent loan application was rejected, by region

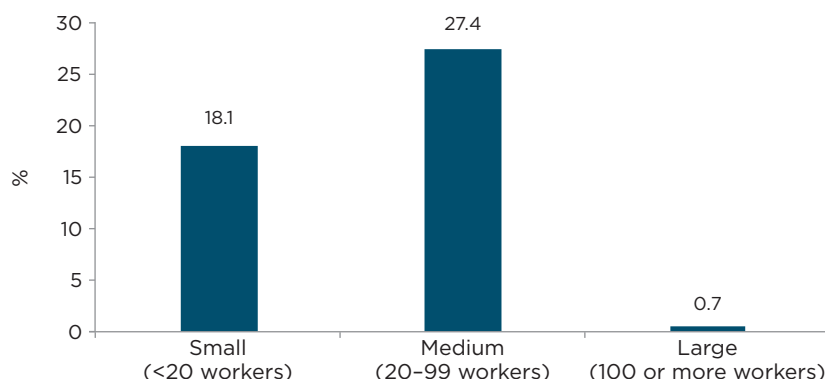


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¹³ The source of the data for this section is World Bank's Enterprise Surveys Follow-up and Business Pulse Surveys.

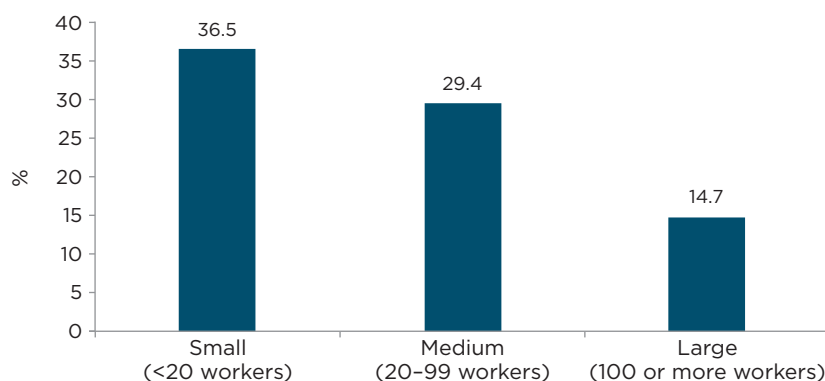
Figure 11.7 Proportion of Companies with Rejected Loan Applications
(continued)

B. Percent of firms whose most recent loan application was rejected in CA 5, by firm size



Source: IDB staff calculations based on World Bank's Enterprise Surveys. Latest data available included.

Figure 11.8 Proportion of Companies that Report being Overdue on Obligations



Source: IDB staff calculations based on World Bank's Enterprise Surveys Follow-up.

Note: CA 5 refers to Nicaragua, Honduras, Guatemala, El Salvador, and Panama.

financial institutions, comparing firms with other similar characteristics. Within CA 5, small firms were 20 percentage points more likely to fall into arrears with financial institutions than large firms.¹⁴ Interestingly, SMEs in CA 5 had the highest probability of being in arrears among SMEs from all regions, whereas CA 5 large firms were less likely to fall into arrears than similar companies

¹⁴ Considering firms in all countries across the world, that figure drops to 6 percentage points, indicating that credit constraints in Central America may be more significant than in other economies.

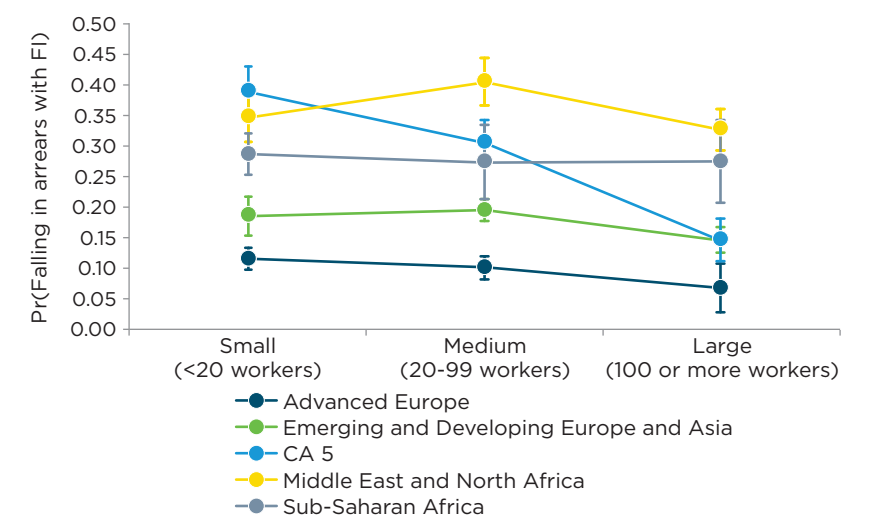
in most other regions.¹⁵ These results suggest that financial constraints were tighter for SMEs in the region than in other locations of the world.

Other variables also explain firm resiliency and the ability to timely serve their debt. CA 5 firms with more than 10 percent of foreign ownership are 26 percentage points less likely to be overdue in obligations with financial institutions than local companies, which may be more financially constrained. This result supports existing evidence (Hyun, Kim, and Shin, 2020), which suggests that firms with higher global connectedness and market power were more resilient following the pandemic.

Also, CA 5 firms that launched a new product or service (a form of innovation) during the pandemic were 6.3 percentage points less likely to fall in arrears with financial institutions than those that did not innovate. This result highlights the positive relationship between firm survival, innovation, and digital presence (Muzi et al., 2021). This positive association may be due to pre-existing conditions of the firms; more productive companies, capable of introducing innovations even during aggregate economic shocks, are more likely to meet existing financial obligations.

Many firms could not find the necessary liquidity to survive the crisis. Information from four of the five Central American countries studied (Honduras,

Figure 11.9 Probability of Falling into Arrears During the Pandemic



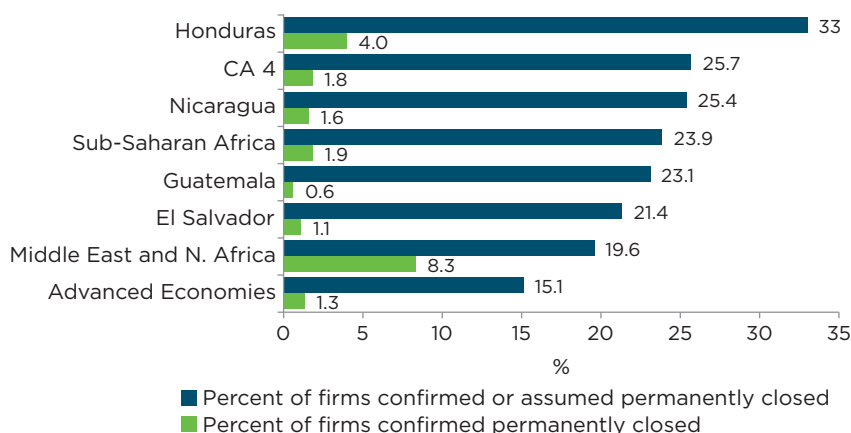
Source: IDB staff calculations based on World Bank Enterprise Survey Follow Ups and Business Pulse surveys.
Note: The figure illustrates the probability of falling into arrears with financial institutions by firm size according to the number of employees: fewer than 20 employees, between 20 and 100 employees, and over 100 employees. The 95 percent confidence intervals are shown for each point estimate.

¹⁵ The exception is large firms in European advanced economies.

Nicaragua, Guatemala, and El Salvador), suggests that more than 25 percent of firms were confirmed or assumed to have permanently closed during the pandemic, a higher percentage than in Sub-Saharan Africa (24 percent) and the Middle East and North Africa (20 percent). In these four Central American countries, monthly sales dropped by a third on average during the pandemic. To counter the effect of lower revenues, companies reduced their labor costs. However, small companies faced the largest declines in sales and the worst liquidity constraints, despite cutting their labor costs the most and shifting to remote work when technologically possible.

Governments in the region designed and implemented policies that helped firms face severe fiscal and other existing constraints. López et al. (2022) studied the effect of government support to firms during the crisis, based on data from Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Dominican Republic, and Panama, exploiting monthly data stemming from 2008 to 2020. The authors posit that loan moratoria and regulatory flexibility allowed for greater credit flows and suggest that, in the absence of those measures, the reduction in credit to the private sector would have reached 4 percent in 2020, rather than the 2 percent that was observed. In other words, without these measures, credit would have contracted twice as much as it did.¹⁶

Figure 11.10 Fraction of Firms that Closed



Source: IDB staff calculations based on World Bank's Enterprise Survey Follow Ups and Business Pulse surveys. Note: The figure illustrates the percentage of firms that were confirmed or presumed to have closed during the pandemic, either because they could not be contacted directly, or for which the information collected during the fieldwork suggests that they are likely to have closed permanently. CA 4: El Salvador, Guatemala, Honduras, and Nicaragua.

¹⁶ Still, relatively few formal firms received government assistance in the form of transfers, particularly SMEs and female-led companies (Aterido et al., 2021).

A Lifeline for Firms during the Pandemic

Did pre-pandemic financial constraints impact firm closures during the pandemic? An analysis of firm level data from 40 countries suggests the answer to this question is yes: firms facing financial constraints had a greater probability of closing during the pandemic.

The financial constraint indicator takes the value of one if the firm reported that it did not apply for a loan because it had enough internal funds or if the firm applied for a loan and it was approved in full; otherwise the indicator is zero.¹⁷ The first situation reflects a firm with access to finance while the second corresponds to a firm that faces financial constraints.¹⁸ The probability of firm closure was then estimated as a function of this indicator and a set of firm characteristics (such as firm size, age, employment growth, and others—all measured before the pandemic). Sector and country or regional dummy variables were also included.

The bottom line is that having access to financial resources lowers the probability of closure by 3.4 percentage points on average. This effect is economically significant, since in the full sample 17 percent of firms were confirmed or assumed permanently closed during the pandemic. This result is consistent with observations from other work. Amin and Viganola (2021), using the same financial constraint indicator, find that the probability of a decline in sales during the pandemic for a firm with access to finance is 25 percentage points lower than that of a firm with financial restrictions.¹⁹

When the sample is restricted to four countries in Central America—Guatemala, Honduras, El Salvador, and Nicaragua, hereinafter CA 4—the effect of access to finance on firm survival is larger. In this case, greater access to credit reduces the probability of closure during the pandemic by 5 percentage points.²⁰ Interestingly, the estimated effect of access to

¹⁷ This follows the existing literature such as Kuntchev et al. (2013), Amin and Soh (2020), Distinguin, Rugemintwari, and Tacneng (2016), and Amin and Viganola (2021).

¹⁸ Other possible outcomes for the firm are also contemplated such as i) having received a partial approval or a rejection of the loan application or ii) having not applied to a loan for reasons other than not needing it. The other possible reasons for not having applied to a loan are insufficient loan size/maturity; high collateral; unfavorable interest rate; complex application procedure; did not think it would be approved.

¹⁹ A caveat to this conclusion is that having access to financial resources, in the first place, might reflect firm characteristics that were not picked up correctly in the statistical exercise; for example, variables correlated with better business prospects or other drivers of business success may have played a role.

²⁰ Twenty-five percent of the firms in CA 4 were confirmed or assumed permanently closed due to the pandemic.

credit on firm closure for CA 4 is greater (more negative) than the result found in other developing regions in the world such as the Middle East and North Africa and Sub-Saharan Africa.²¹

This exercise also sheds light on the differences in the role of access to credit on firm survival by firm size. The effect of timely access to credit on firm survival is even larger for small firms in CA 4, as firms in that segment with access to credit are 6.8 percentage points less likely to close.²² Small firms, therefore, could enjoy the largest gains (in terms of their likelihood to survive) by securing access to finance.²³

Corporate Debt and Exporter Resilience during the Pandemic

Did access to credit during the pandemic help exporters avoid large declines in exports? Did it keep them from exiting export markets or breaking commercial relationships? Did export performance during the pandemic depend on the level of debt at the onset of the pandemic? This section addresses these questions as it analyzes the relationship between corporate debt and exporter performance during the COVID-19 crisis.

Manufacturers are often required to pay upfront costs before producing and selling goods, and exporters can cover these costs with cash advances from purchasers (importers in other countries). However, at a time of crisis and worldwide uncertainty, foreign clients may not be able to pay in advance for the imported goods and may lose access to letters of credit or other resources.²⁴ With access to financing, an exporter can continue to trade and preserve its client network. In contrast, a company with no access to credit might be forced to downsize production and exports.

²¹ These regional differences are statistically significant at standard confidence levels.

²² Thirty-two percent of small firms in CA 4 were confirmed or assumed permanently closed due to the pandemic.

²³ This result is consistent with the growing literature on this topic. For instance, taking the introduction of credit bureaus in a sample of 70 developing economies as a positive credit shock, Ayyagari et al. (2016) finds that improved access to financing increased employment growth by about 3.5 percentage points among SMEs compared with only 1.2 percent for larger firms. On the other hand, Chodorow-Reich (2014) and Popov and Rocholl (2018) show that increased financing constraints during recessions put more downward pressure on employment among SMEs than large firms.

²⁴ International transactions are more sensitive to credit access than their domestic counterparts since there is a substantial lag between the time when exporters incur costs and the time they realize revenues from sales to foreign markets. It takes exporters required on average two months more than manufacturers producing solely for the local market to receive sales revenue due to customs, long-distance transportation, and local distribution in the final market.

The data used in this section are for firms in Colombia with a relatively diversified export basket covering mining, agriculture, and manufactured products, as well as a diverse portfolio of trade partners, both from inside and outside the region. Colombia has excellent data available at the firm level for both corporate debt and international trade transactions making it an ideal case study.

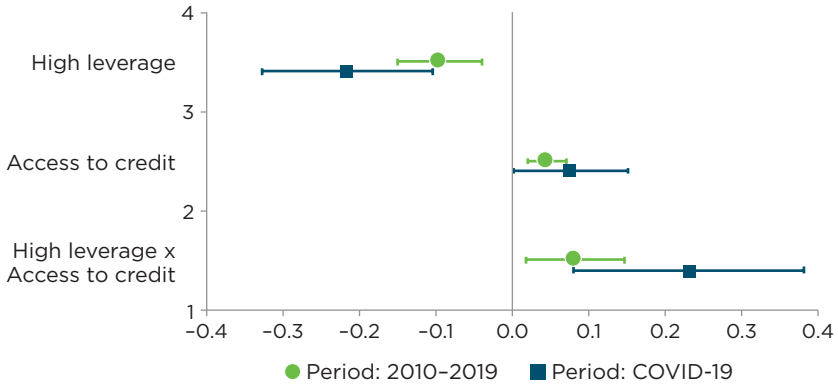
The change in exports in 2020 is modeled as a function of i) firm leverage in 2019 (measured as the ratio of total debt to assets), ii) access to credit in 2020 (whether the company contracted new debt), and iii) the interaction between these two variables, to understand the heterogeneous effects of access to credit on export performance for different levels of inherited leverage (see the equation below).

$$gr_{f,2020}^{exp} = \beta_1 lev_{f,2019}^h + \beta_2 credit_{f,2020} access + \beta_3 (lev_{f,2019}^h \times credit_{f,2020}) + Z_{f,2019} + \alpha_f + \alpha_s + \epsilon_{fn}$$

The model includes controls for firm level characteristics in 2019, such as $Z_{f,2019}$, the value of the firm's total assets and liquidity level, whether the firm is an importer or not, the number of years the firm has been an exporter, and the trade credit to total assets ratio. Finally, by including firm and sector fixed α_f effects, and α_s , the model controls for any fixed effects in export performance, as well as any sectoral demand shocks. Figure 11.11 displays the estimates of the main variables of interest as well as the results of the model for the pre-pandemic period.

The results reveal that firms that entered the pandemic with high levels of leverage have steeper declines in exports. Moreover, firms with access to credit markets suffered milder declines (export growth was less negative or more positive). Finally, the results suggest complementarities between access to credit and debt. High debt firms benefit more from external financing than those with lower debt, especially during the pandemic.

High pre-pandemic debt levels also appear to lower the number of export transactions during the crisis and reduce the number of markets (i.e., countries) that exporters reached, while access to credit during the pandemic appeared to help firms maintain markets and transactions (see Figure 11.12). These results are in line with the findings using export values. Firms with few debts and access to credit during the pandemic managed to keep exporting to more markets (the loss in markets was less) and maintain a greater number of export transactions (fewer lost

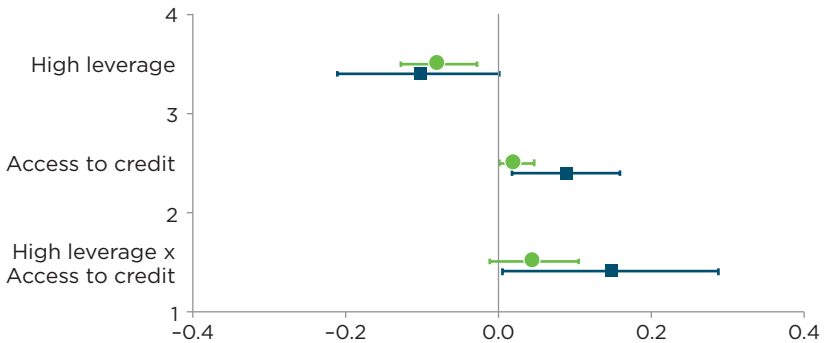
Figure 11.11 Exporter Performance and Corporate Debt

Source: IDB estimations based on data from the Superintendencia de Sociedades, and customs data from the National Administrative Department of Statistics of Colombia (DANE).

Note: The dot and the bar labeled Covid-19 refer to the results of the model for the year 2020 while the dot and the bar labeled Period: 2010-2019 show the results estimating the model for that period. The dot is the point estimate for the variable indicated on the Y axis, while the bar illustrates the 95% confidence interval. The figure reports estimates of a regression in which the dependent variable is the firm growth of exports, calculated using the mid-point method,

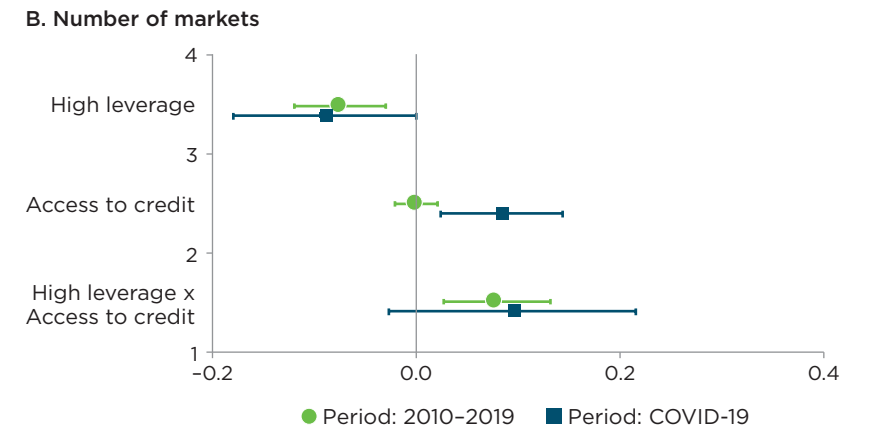
$$g_{ft} = 2(x_{ft} - x_{ft-1}) / (x_{ft} + x_{ft-1}),$$

and the three main explanatory variables are: i) “high leverage,” a variable that takes the value of one for firms with a leverage above the sample mean in 2019 and zero otherwise; ii) “Access to credit,” a variable that takes the value of one if the firm increases its total level of debt in the current year, and zero otherwise; iii) the interaction term between “high leverage” and “access to credit.” The regressions include the following firm level controls: log of total assets in the previous period, log of liquidity in the previous period, importer status of the firm, number of years the firm has been an exporter, and the trade credit-to-total-asset ratio. Firm fixed effects and sector-time fixed effects are included in the panel regression, and sector fixed effects are included in the cross-section regression.

Figure 11.12 Decline in Export Transactions, Markets, and Debt**A. Number of transactions**

(continued on next page)

Figure 11.12 Decline in Export Transactions, Markets, and Debt *(continued)*



Source: IDB estimations based on data from the Superintendencia de Sociedades, and customs data from the National Administrative Department of Statistics of Colombia (DANE).
Note: The figure reports estimates of a regression in which the dependent variable is the change in the number of export transactions (Panel A) and the change in the number of markets (Panel B). The three main explanatory variables are: i) a dummy called “high leverage” that equals one for firms with a leverage above the sample mean in 2019; ii) a dummy called “access to credit” that equals one if the firm increases its total level of debt in 2020; iii) the interaction term between “high leverage” and “access to credit.”

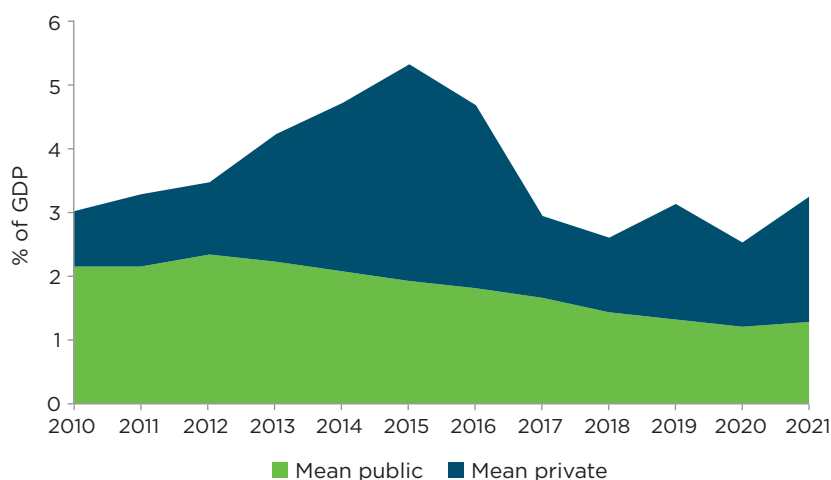
transactions) compared to firms with higher debts or those that could not borrow.

These results highlight that access to credit during a negative shock such as the COVID-19 crisis helps export firms not only smooth the shock and survive but also maintain the value of goods exported, the number of trade transactions, and the number of markets (countries) served. Policies that support exporters by ensuring their continued access to credit in tough times could have a significant impact on the export performance of the firm. Re-establishing international trade relationships once they have been disrupted is difficult, and losing foreign clients or exiting from certain export markets imposes long-term consequences on firm export growth. The ability to borrow during a crisis also provides exporters the possibility of extending trade credit to some of their foreign clients, allowing them to cover the lag time between production and export and when payment is received, while retaining clients who may also be facing financial constraints. The results also indicate that firms that contracted high levels of debt before the shock may suffer more in times of stress than firms with lower debt levels. The policy response should also take this into account while designing mechanisms to assist firms during tough times.

Infrastructure Financing during and after the Pandemic

Until now, this chapter has focused on corporate finance and credit constraints for firms in the region, particular among SMEs and female-led firms. These credit restrictions led to lower survival rates and poorer export performance through the pandemic for constrained firms. But the region faces other credit constraints as well. Latin America and the Caribbean has a significant infrastructure financing gap, and yet public financing for infrastructure is low and has been in steady decline since 2012 due to growing fiscal problems, even before the pandemic (Cavallo, Powell, and Serebrisky, 2020). At the same time, the region enjoyed growth in nongovernment financing of infrastructure through project finance at least until around 2015, although this then dissipated considerably in the years before the pandemic. This section reviews what happened to this form of financing through the pandemic and in the recovery phase.²⁵

Figure 11.13 Government and Nongovernment Investment in Infrastructure



Source: Infralatom, IJ Global, and the World Bank's PPI Database.

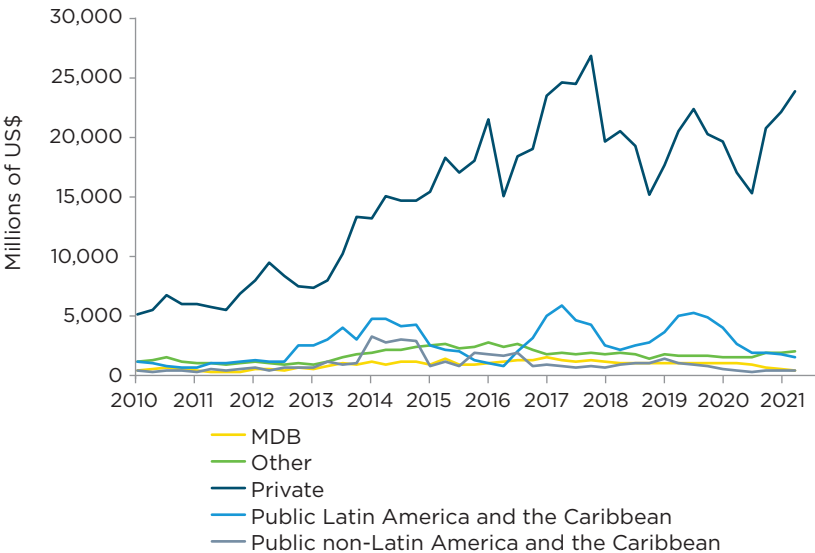
Note: Government investment is sourced from Infralatom. Nongovernment investment is sourced principally from the Infrastructure Journal's IJ Global database, supplemented by the World Bank's PPI database. Investment is agreed financing at financial close. Refinancings are excluded but infrastructure used solely for commercial purposes is included. Information from 11 countries is used to produce this figure.

²⁵ See Cavallo, Powell, and Serebrisky (2020) for an analysis leading up to the pandemic.

The total investment in infrastructure (public and nonpublic) fell as a percentage of GDP from 3.1 percent in 2019 to 2.5 percent in 2020. Importantly, since GDP fell by some 7 percent, the decline in infrastructure investment in nominal currency or dollar terms was actually much sharper. In 2021, this form of financing recovered to 3.2 percent of GDP (see Figure 11.4). The data include government investment (infrastructure financed through fiscal accounts as recorded in Infralatam) and nongovernment finance, which includes financing from private entities (such as private banks, firms, and funds) as well as financing from multilateral development banks (that does not go through fiscal accounts), state entities from outside Latin America and the Caribbean (such as public banks, export credit agencies, and the like), and some state entities from within Latin America and the Caribbean (mainly public banks).

Annual investment needs in the region are estimated at between 4 and 7 percent of GDP (see Cavallo, Powell, and Serebrisky [2020] for further discussion on infrastructure investment needs and the impact of new technology and climate change on that investment). Of this total, at least 3.2 percent of regional GDP must be invested annually by 2030 to meet

Figure 11.14 Nongovernment Financing of Infrastructure



Source: IJ Global.
Note: The “Other” category refers to uncategorized projects and, therefore, could be in the previous groups. The figure excludes refinancing. Transactions under refinancing have reached an average of US\$3,600 million per quarter since 2018 (Simon and Castillo Martinez, 2021).

Table 11.1 Minimum Additional Investment Needed to Meet Infrastructure SDGs Related to Public Services

Sector	New infrastructure (US\$ billion)	Maintenance and asset replacement (US\$ billion)	As a percentage of regional GDP
Water and sanitation	256.0	117.9	0.52%
Electricity	396.9	180.2	0.81%
Transportation	548.3	427.8	1.37%
Telecommunications	109.4	184.3	0.41%
Total	1,310.5	910.2	3.12%

Source: Brichetti et al. (2021).

Note: The table presents a lower bound of the additional annual spending on infrastructure investment required in Latin America and the Caribbean by 2030 if the region is to meet the Sustainable Development Goals. The calculation model is available at <https://interactive-publications.iadb.org/La-brecha-de-infraestructura-en-América-Latina-y-el-Caribe>.

the infrastructure component of the UN's Sustainable Development Goals related to water, sanitation, electricity, transportation, and telecommunications (excluding affordability, resilience, and sustainability issues) (see Table 11.1 and Brichetti et al., 2021).²⁶ Therefore, a large infrastructure investment gap remains.

In dollar terms, nongovernment infrastructure financing flows shrank from close to US\$28 billion to less than US\$22 billion in 2020, a 21 percent drop (see Figure 11.14). All sources of infrastructure financing fell. This reduction likely reflected more a decline in demand and the impact of attempted contract renegotiations than a sharp increase in credit restrictions.²⁷

Interestingly, private financing for infrastructure recovered strongly in 2021, increasing 40 percent between 2020 and 2021. The banking system finances 64 percent of infrastructure investment in the region (Figure 11.15). The most common instruments commercial banks harness are term loans and commercial bonds. Term lending has been trending downwards while bonds have increasingly been the preferred financing instrument of

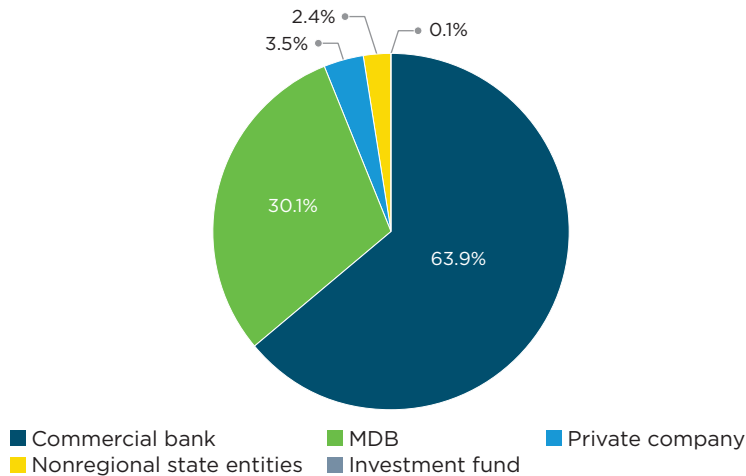
²⁶ The 3.2 percent of regional GDP does not imply complete fulfillment of the SDGs related to providing infrastructure services. Programs will also need to consider affordability, resilience, and sustainability issues, which will require, for example, targeted subsidies, demand management, and infrastructure design capable of withstanding the disaster risks related to climate change.

²⁷ This statement is supported by the otherwise strong capital flows to the region through the third and fourth quarters of 2020 with strong bond issuance by firms and governments (Cavallo and Powell, 2021), and the commentary on contract renegotiations in World Bank (2020).

commercial banks; this trend appears to have continued through the pandemic (see Figure 11.16).

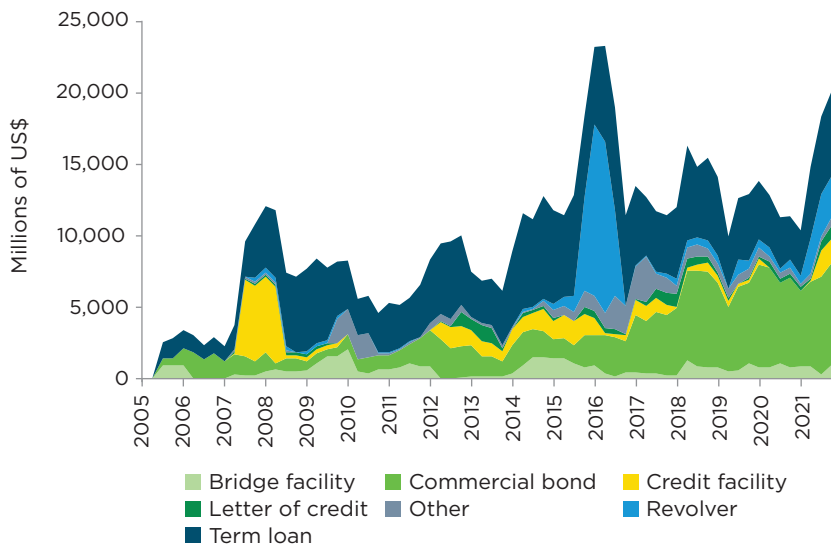
The private banking system faces growing constraints to supply longer term loans. Banks report that the concern over the gap between funding

Figure 11.15 Who Financed Infrastructure in the Region?



Source: IJ Global.
Note: The total excludes infrastructure financed by the public sector through fiscal accounts.

Figure 11.16 Commercial Bank Financing of Infrastructure by Instrument



Source: IJ Global.

maturities and the tenor of lending has made providing term loans more difficult, especially given regulatory changes (see Cavallo, Powell, and Serebrisky, 2020). This situation particularly affects structured financing, typical of infrastructure projects through Public-Private Partnerships (PPs), in which the project is financed privately (mainly through the banking system) and repaid using the income generated by the project, such as tolls, tariffs, or others, which are generally denominated in local currency (Prats and Ketterer, 2019). The use of bond financing (in which the project special purpose vehicle issues a bond that is initially bought by a bank) has grown, and banks are likely favoring this approach since it is easier to sell those infrastructure-backed bonds to other investors post financial close (see Ketterer and Powell [2018], for a discussion of risk sharing in infrastructure financing and the use of infrastructure bonds). As sources of infrastructure financing, banks may also be constrained by exposure limits to a single sector in a particular country (Simon et al., 2021).

Conclusions and Policy Recommendations

Credit constraints remain significant for firms in the region, particularly for SMEs and female-led companies. This played to the detriment of constrained firms during the pandemic that were less likely to survive, more likely to fall into arrears with financial institutions and, if they were exporters, likely to see their trade performance suffer. These results highlight the value of credit to cope with negative shocks, but undoubtedly those same constraints impact investment and firm growth. More generally, the region continues to have relatively few large, successful, and highly productive companies and a large tail of small and less productive firms. Indeed, the pandemic has increased the relative number of small firms even more.²⁸ The region also continues to invest too little in infrastructure and, as public finances will be constrained in the coming years, the need is to boost private sector investment in productive projects.

The analysis presented in this chapter gives rise to a number of policy recommendations that are advanced here. Each should be designed carefully and tailored to the particular characteristics of each country.

Credit information is key to ensure credit markets function efficiently. In turn, this entails well-constructed laws and regulations for collecting and sharing credit information that balance valid concerns over data storage and privacy with the commercial imperatives of lenders, who require good information in order to confidently lend to individuals and firms.

²⁸ See Powell and Rojas-Suarez (2022) for further discussion and analysis.

Regulations that prevent the sharing of both positive and negative information on clients will make credit less available and more expensive. Regulations that prevent innovation and the entry of new types of lenders such as fintech firms and allow them to use new technologies to collect and process information may also be counterproductive but should also be balanced against the necessary standards for consumer protection and financial stability.

At the same time, careful consideration should be given to the operation of the market for credit information. On the one hand, that market has the characteristics of a natural monopoly, but on the other hand, the availability of information should not be a barrier to entry for new financial institutions. Clearly, the legal framework and regulation of the market for credit information is critical. This framework should allow for efficient and low-cost credit bureaus to harness new technologies but at the same time ensure individuals and firms have confidence in the quality of the information provided.

Another area where reforms could help boost credit access relates to collateral. Collateral is a critical resource for borrowers to be able to obtain loans at low interest rates, especially if they face difficulties in providing and confirming the credibility of information on their balance sheet or credit history. However, lower rates will only be available if there is confidence in the value of the collateral and the lender's rights over the collateral in the case of a default. Reforms that improve the functioning of collateral registries may then provide significant benefits to borrowers. These reforms may allow for different types of collateral, including collateral that is movable (and not fixed), if that is not already contemplated.

Banks remain the most important source of external finance for firms in the region. The growth of local capital markets would provide more alternatives for firms to obtain financing. Chapter 3 of this report described in some detail the growth of these markets to date and suggested policies that would aid in developing them further. To date, domestic markets focus more on sovereign than corporate issues and equity markets remain underdeveloped. To enhance local financial markets for firms, corporate governance practices and third-party, minority investor protection should be improved. Reforming pension systems such that they become a cornerstone of the ecosystem for long-term finance in the region would help enormously.

Credit also plays a significant role in trade. Exporters that had access to credit posted a better trade performance through the pandemic; they better maintained export values, the number of trade transactions, and

the number of export markets (countries where they export). While this highlights the role of credit markets in protecting trade during a negative shock, undoubtedly, access to credit also allows for better trade performance more generally. Credit access for trade could be enhanced significantly by ensuring the smooth operation of general trade credit and supply chain mechanisms (including reverse factoring arrangements). Interruptions to exporting can be costly as connections with importing firms (or in importing countries more generally) may be lost and difficult to replace or reestablish. Consequently, an argument can be made for public support to maintain the flow of credit for exporters (or importers who may also face the specter of losing connections with exporting firms in other countries) particularly during periods of stress.

The pandemic prompted the creation or expansion of publicly supported guarantee schemes to maintain credit flows. These appear to have succeeded in allowing firms that may not have otherwise had access to credit, to borrow or to reduce the cost of credit given the uncertainty during the pandemic. As the economic impacts of the pandemic fade and fiscal accounts become more stretched, countries have been winding down such efforts. For firms with high outstanding debts, guaranteeing more debt may not be the best approach. Moreover, some sectors have done relatively well, particularly those that have benefitted from new digital technologies, and good firms in those areas do not need such support. The situation then calls for a more targeted approach, focusing first on SMEs that have good potential but may be held back given the aftereffects of the pandemic. While it was perhaps somewhat surprising that relatively few larger firms failed during the pandemic, surviving firms cut costs and reduced investment. Policymakers may wish to consider policy measures that would support investment for firms to rebuild their capital stock including guarantees on new borrowing for firms that have space to contract more debt or through the use of equity, or equity-like instruments.²⁹

Private financing of infrastructure in Latin America and the Caribbean should also be expanded in order to close the gaps that persist in the region, particularly in an environment of fiscal constraints. Private-sector

²⁹ See Powell and Rojas-Suarez (2022). These authors suggest that as the economic recovery continues, new forms of support are required including a public-private institution (such as a fiduciary fund), with a limited-time mandate that would identify viable firms and enable their growth through additional equity resources and improvements in governance arrangements. They also argue in favor of supporting venture capital networks from outside and inside the region, to help create new high-technology firms with strong international connections.

oriented multilateral organizations, such as IDB Invest, have an important role in infrastructure financing by providing advisory services that strengthen the enabling conditions for successful private sector participation in the sector, under the optimal contractual arrangement for society, either PPP or others (see Cavallo, Powell, and Serebrisky, 2020). MDBs can also crowd-in capital from private creditors and improve the terms for debt financing. In fact, MDBs can mobilize an estimated US\$7 in bank credit over a three-year period for each dollar invested (see Broccolini et al., 2021).

Since commercial banks may be increasingly constrained from financing infrastructure, more support for scaling financing instruments through capital markets will contribute to diversify the profile of investors and mobilize resources targeting specific impact areas (i.e., climate, social impact). Additionally, as many project revenues are in local currency, project structures that embed currency risk mitigation instruments can be instrumental in attracting international investors (Simon et al., 2021). Infrastructure project risks are many and varied. Some may be diversified and others can be hedged through market instruments. MDBs have a comparative advantage in mitigating political and regulatory risks that may be systemic and where market instruments for risk mitigation do not exist.³⁰

Appropriate financial engineering (including the use of guarantees, first-loss structures, and subordinated and mezzanine loans) can, on the one hand, exploit the comparative advantages of these different instruments and, on the other hand, match investor risk appetite.

As the region recovers from the pandemic, other risks including climate and environmental risks are growing, and consumers have become increasingly aware and interested in where products come from as well as the sustainability and environmental footprint of the manufacturing and other processes employed by firms. Firms—and their investors—have demonstrated considerable interest in improving their environmental, social, and governance (ESG) standards. National governments and international financial institutions have a significant role to play in supporting these trends. They can begin by simply providing information and advice to ensure all parties are aware of the issues and know how to best approach minimizing ESG risks and adopting better standards. In turn, this demands a credible system for ESG ratings. Convergence on a small set of well-understood and generally accepted standards would be beneficial. As the interest in and volume of ESG financing instruments grows, it becomes

³⁰ See Ketterer and Powell (2018) for a discussion.

increasingly important to ensure that the standards are meaningful and will properly address the relevant risks. If this can be achieved, then it could be an extremely potent force to improve environmental outcomes in the coming years.

Balance Sheet Vulnerabilities in the Wake of the Pandemic

The COVID-19-induced recession provoked a steep fall in firms' capital expenditures across the world. Latin America and the Caribbean was no exception. Investment rates fell 42 percent in the region compared to 39 percent across other emerging economies and 36 percent in advanced economies.¹ At the same time, corporate leverage rose as firms took advantage of low interest rates and public assistance where available, to build cash reserves to survive the crisis. Although extraordinary policy measures helped mitigate financial distress and avoid widespread bankruptcies, the corporate sector has emerged with more balance sheet vulnerabilities than before the crisis.

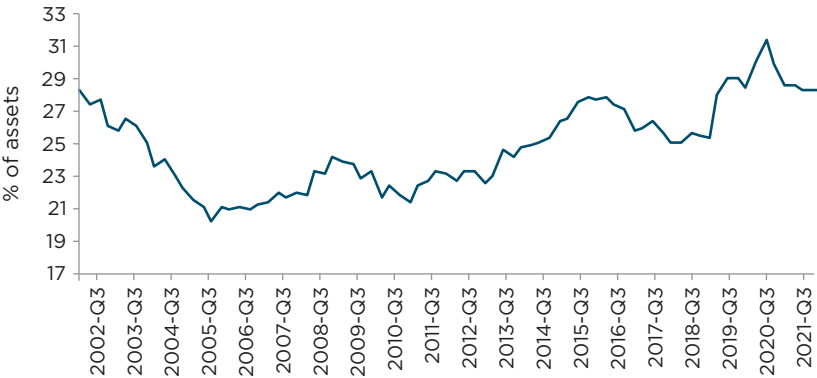
Corporate leverage has increased in the region since the end of the global financial crisis, reaching record highs during the COVID pandemic: a median of 31 percent measured as total debt outstanding over total assets and 59 percent considering total liabilities divided by assets (see Figure 12.1, Panel A and 12.1, Panel B). Although (interest-bearing) debt outstanding has subsequently returned to near pre-pandemic levels for the average firm in Latin America and the Caribbean, by year-end 2021, total liabilities, which also include trade credit and other types of firm obligations, remained at historically elevated levels.

Record high leverage levels and other risk measures in the first half of 2020 raised considerable concern over the possibility of a “debt overhang,” whereby high corporate debt levels prevent a firm from accessing new lending and thereby lead to low investment (see Myers, 1977; Brunnermeier and Krishnamurthy, 2020a; and Jordà et al., 2020). During the pandemic, many countries introduced loan moratoria and offered partial loan guarantees to maintain credit flows from banks to firms and

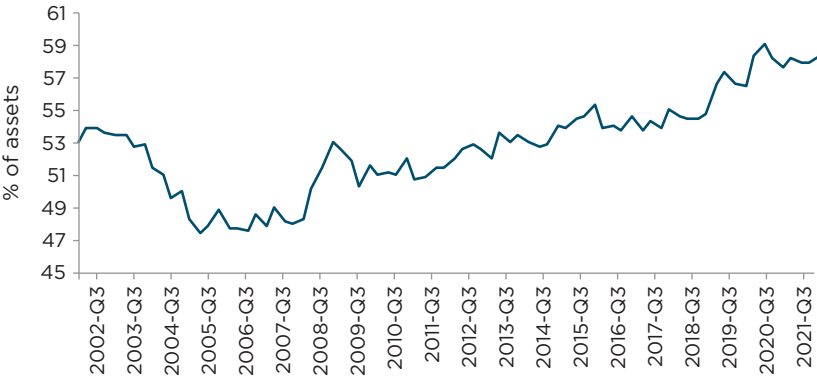
¹ The dataset used in this chapter includes information for five of the largest countries in Latin America and the Caribbean: Brazil, Chile, Colombia, Mexico, and Peru. Throughout the chapter, the term “emerging economies” is used to refer to other developing economies excluding Latin America and the Caribbean.

Figure 12.1 Soaring Debt, Plummeting Investment: The Buildup of Balance Sheet Vulnerabilities in Latin America

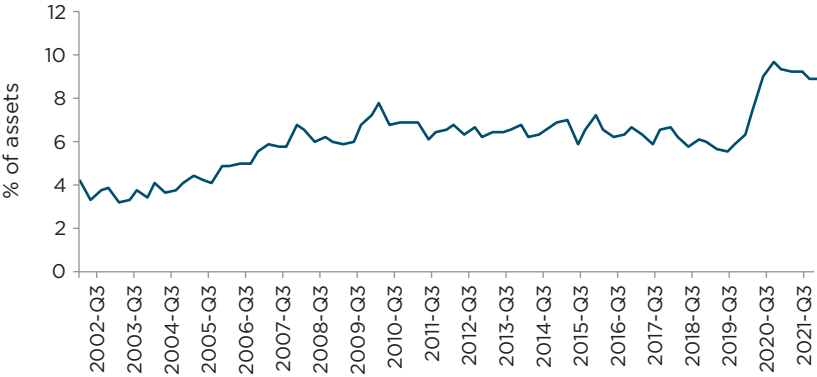
A. Total debt/assets



B. Total liabilities/assets



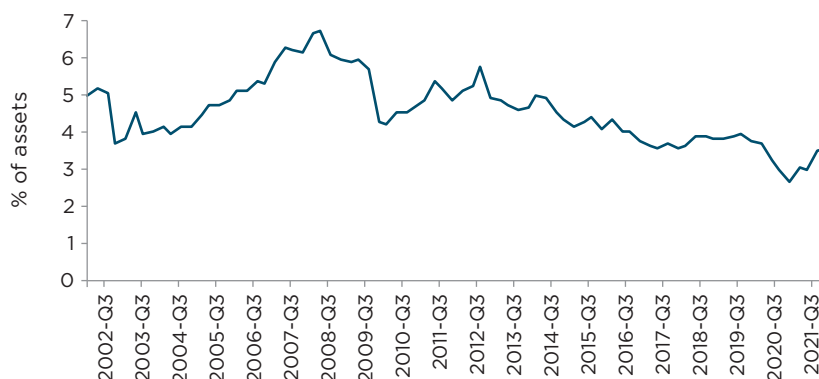
C. Cash/assets



(continued on next page)

Figure 12.1 Soaring Debt, Plummeting Investment: The Buildup of Balance Sheet Vulnerabilities in Latin America *(continued)*

D. Investment/assets



Source: IDB staff calculations based on data from Refinitiv (2022).

Note: The figures display the median value of the respective variable across firms in five countries in Latin America and the Caribbean: Brazil, Chile, Colombia, Mexico, and Peru. All figures are in percentage of total assets. Total debt in Panel A encompasses only debt obligations with interest-bearing debt outstanding, while total liabilities in Panel B encompass all firm's financial obligations. Cash in Panel C includes cash on hand and short-term investments. The investment rate in Panel D is measured as gross capital expenditures over total assets. The sample period is 2002q1–2021q4.

incentivize the economic recovery; however, many companies have used the proceeds of those loans to accumulate a buffer of precautionary cash reserves (Figure 12.1, Panel C) rather than invest in physical capital (Figure 12.1, Panel D). The historically low levels of capital expenditure led to lower fixed assets, often considered a company's productive capital, implying that larger amounts of physical investment will be required to sustain growth in future months (Powell and Rojas-Suarez, 2022).

Stock prices rallied aggressively towards the end of 2020 in many countries across the world, although that recovery in company valuations lagged in Latin America and the Caribbean. Firms in the region had lower stock market valuations, and those valuations are more volatile than they were before the pandemic, implying that risk had risen (see Figure 12.2). For instance, in first quarter 2020, the market capitalization in the region plummeted 30 percent compared to the last quarter of 2019, while other emerging economies fell only 20 percent in the same period and have recovered much faster. By the end of 2020, the stock market valuations of firms in advanced economies and in emerging economies in other regions had already recovered to pre-pandemic levels, while the valuations for the median firm in the region had not reached pre-pandemic levels, even by the end of 2021. The Russian invasion of Ukraine and interest rate hikes in

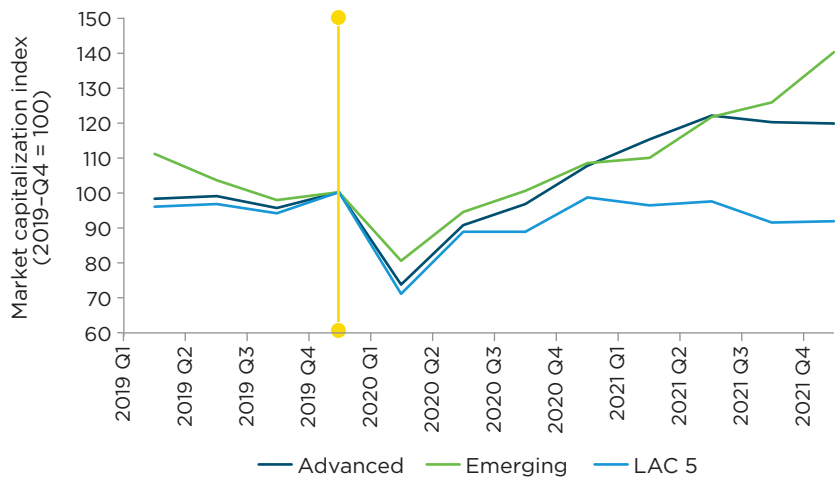
the United States and other advanced economies have since provoked further volatility in financial markets.

This chapter studies the impact of corporate debt and other measures of risk on corporate investment, based on 20 years of data covering the universe of listed companies across 47 developing and developed countries. The analysis suggests a somewhat nuanced view of a potential post-COVID corporate debt overhang problem. On the one hand, for high-risk firms, higher debt results in a debt overhang that induces lower investment. On the other hand, for investment grade firms with a low probability of default, the overhang effect of high debt on investment tends to vanish, and oftentimes higher debt levels are associated with more rather than less investment in physical capital.

In addition, economic crises tend to provoke greater debt overhang problems, and the dynamic effect on investment rates can persist for two to three years after a recession. Latin America and the Caribbean appears to suffer more from debt overhang effects than other emerging regions and advanced economies. Given the effects of the pandemic on debt and risk together, low investment may well persist in the coming years, particularly in high-contact sectors that suffered more during the COVID-19 crisis.

This chapter reviews the traditional literature on the debt overhang effect and details key firm balance sheet statistics. It then considers the historical

Figure 12.2 Incomplete Recovery in Stock Market Valuations



Source: IDB staff calculations based on data from Refinitiv (2022).
Note: Firm market value is calculated by multiplying the number of shares times the latest price. Firms market values in U.S. dollars are transformed to local currency units and indexed to 2019-Q4 = 100. The figure reports the median value of the index across firms within each region of analysis.

relationship between firm leverage, corporate risk, and investment and analyzes the debt overhang problem during large economic recessions employing recent data on corporate balance sheets, which suggests investment may be depressed for some time to come. The chapter ends with a discussion of potential policy options to speed up investment in the face of corporate risk and debt levels, to boost economic recovery after the pandemic.

Defining Corporate Debt Overhang

A corporate debt overhang refers to a situation in which companies in financial distress, defined as firms with relatively high debts or interest burdens, pass up valuable investment opportunities that would increase the value of the firm. The main intuition is that highly levered firms find it difficult to raise new debt because investors, fearing the firm might default, will either ask for higher spreads or ration credit to the firm. In this case, investors may refer to shareholders, reluctant to issue new equity, or junior debtholders, who fear being paid last in the case of default.² Either way, there is a friction or market failure due to possible insolvency and the pecking order of liabilities, which then provokes a failure of the Modigliani-Miller irrelevance theorem of corporate finance.³

The debt overhang problem can be understood as a conflict (friction) between equity-holders and debtholders (or between debtholders with different levels of seniority). In a typical corporate finance framework, maximizing shareholder value does not align with maximizing the company's value, simply because shareholders' cash flow (dividends) differs from the firm's cash flow (see Brunnermeier and Krishnamurthy, 2020b). The space between these objectives increases as the firm falls deeper into distress. As the firm edges close to default, the value of equity-holders' claims shrinks close to zero, and debtholders may be due whatever is the remaining value of the firm. Intuitively, the source of the inefficiency derives from the fact that shareholders do not consider ("internalize") the firm's recovery value in the case of bankruptcy. Hence, the higher the probability of default, the greater the gap between equity-holders and debtholders interests, thereby exacerbating the debt overhang effect.⁴

² There are also theories based on agency conflicts between managers and shareholders (see Hart and Moore, 1995).

³ At its most basic level, Modigliani and Miller's theorem argues that, under certain assumptions, it is irrelevant whether a company finances its operations by borrowing, issuing stock shares, or reinvesting its profits.

⁴ The asymmetry generated at default also explains why shareholders of firms on the brink of declaring bankruptcy may decide to distribute dividends or take inefficient

Similarly, in Myers (1977), the underinvestment results from the lower seniority of unsecured debt versus investors higher up in the pecking order. In a theoretical model of the firm, Myers shows that if the firm is too risky, then issuing further subordinated debt may actually reduce the present market value of the firm, as the firm does not invest optimally. More generally, firms face a tradeoff between the commonly found tax incentives to issue debt and the rising costs of debt issuance as leverage rises.

Myers (1977) emphasizes the debt overhang effect is not simply a matter of investment in plant and equipment; instead, a wide range of discretionary outlays can be distorted by debt overhang: "...There is advertising, sales, improving efficiency, incorporating new technology, and recruiting and training employees. All of these activities require discretionary outlays. They are options the firm may or may not exercise; and the decision to exercise or not depends on the size of payments that have been promised to the firm's creditors...." (Myers, 1977, 156). Similarly, Brunnermeier and Krishnamurthy (2020a) argue a debt overhang may create a distortion that leads financially distressed firms to fire workers, forgo expenditures that maintain enterprise value, and delay filing for bankruptcy longer than is socially efficient.

The next section presents descriptive statistics about firm-level investment rates and correlations with measures of leverage and corporate risk. The focus is on listed companies for two reasons. First, as Brunnermeier and Krishnamurthy (2020a) and Myers (1977) argue, the conflicts between different types of liability holders are more relevant for larger firms than smaller owner-run or family-run businesses. Second, the question is whether the debt overhang effect also depends on firm risk, which varies over time as suggested by Hennessey, Levy, and Whited (2007). An analysis below draws on information on listed firms as the daily data on stock market prices allow for estimates of firm risk.

Determinants of Corporate Investment

Building on the seminal paper of Myers (1977) and the rich research agenda that followed, Box 12.1 outlines a theory of debt overhang problems that implies that the impacts would become more severe as the level of debt rises or the risk of corporate default increases. This, in turn, might result from

gamble with the remaining credit lines and perhaps avoid restructuring. Jensen and Meckling (1976) propose a theory of risk-shifting (or asset substitution) in which highly levered shareholders have the incentive to invest in risky projects with negative present value, because they can reap the benefits if the gamble goes well, while declaring bankruptcy, at the expense of bondholders, if the gamble goes badly.

Box 12.1 A Simple Theory of Debt Overhang

Consider a firm with the opportunity to invest in a project with cost I and known payoff V . Naturally, the firm is willing to invest if $V > I$. Assume now that the firm carries a predetermined level of debt D , acquired before the investment opportunity is revealed and due in the investment period. In this case, the firm will only invest if $V > I + D$, a more stringent condition than without the “inherited” debt. In other words, if $I < V < I + D$, then the firm would refrain from carrying out an otherwise profitable investment based on a reason completely unrelated to the project: large inherited debt.^a

Now imagine a degree of uncertainty in the project’s payoff $V(s)$, where s in S indexes the “state of nature,” S is the set of possible states ordered from bad to good states, and $V(\cdot)$ is increasing and concave. There will be a critical state s^* in S such that $V(s^*) = I + D$: Firms are happy to invest in good times $s > s^*$ and optimally decide not to invest in recessions $s < s^*$. In some states of nature, a firm financed with risky debt will discard valuable investment opportunities. This is the classic debt overhang illustrated in Myers (1977).

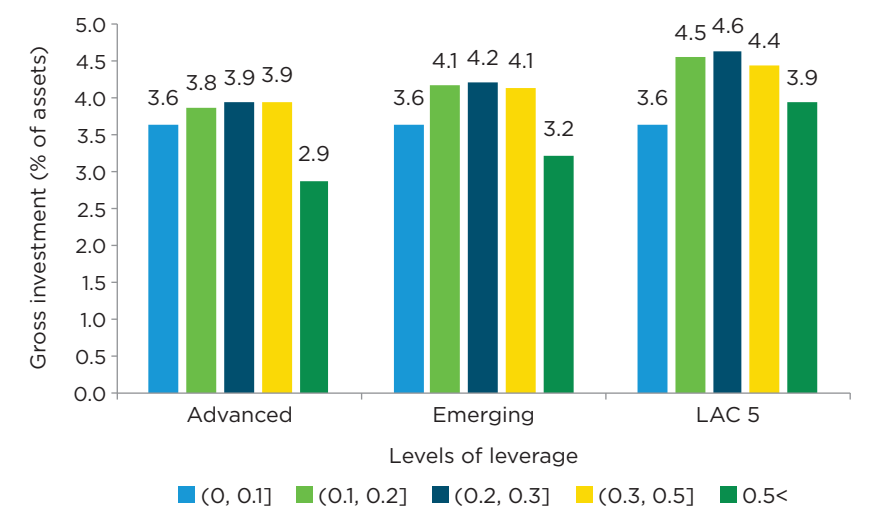
Finally, suppose many firms in the economy are indexed by i , and the state of nature corresponds to an idiosyncratic (firm-specific) component z_i (think, for instance, in firm-level productivity). For illustrative purposes, assume there is no aggregate state s . Also assume there are two types of firms: i) “safe” firms with sure productivity level $z_i = 1$ and payoff $V_{\text{safe}} = V(1)$, and ii) “risky” firms with random productivity z_i drawn from unit-mean Normal distribution with standard deviation σ , for which $V_{\text{risky}} = E[V(z_i)] < V(E(z_i)) = V(1) = V_{\text{safe}}$ (the inequality follows from Jensen’s Inequality applied to concave function $V(\cdot)$).^b Intuitively, risk-averse agents would prefer the sure value at the expected value than gambling on getting the expected value of all possible states. For the same level of D (and I), risky firms will have a harder time meeting the condition for investment $V_i > I + D$, i in {safe, risky}, because $\sigma > 0$ induces $V_{\text{risky}} < V_{\text{safe}}$. Hennessy, Levy, and Whited (2007) provide a formal theory predicting that debt overhang is most pronounced for firms with high leverage and high default probabilities.

To sum up, this simple model predicts stronger debt overhang when firms carry a large preexisting debt D , in bad states of nature like the COVID crisis $s < s^*$, and for riskier firms with high σ . The core of the analysis in the main text of this chapter is designed to empirically test these model predictions, finding strong evidence for their validity.

^a An implicit assumption is the firm starts with no other asset in place, no future cash flows, and so on. To capture the debt-overhang effect, in the model there is a preexisting public debt obligation with a perpetual coupon b . The value of the public debt is denoted D : The public debt cannot be renegotiated. This assumption is made for two reasons. First, the model should capture the distortion posited by Myers (1977). Renegotiation would eliminate the distortion. Second, the assumption is adopted in the interest of realism. In the real world, the difficulty of renegotiating public debt stems from coordination costs and free-rider problems.

^b Jensen’s Inequality for a strictly concave function $V(\cdot)$ states that $V(E[z]) > E[V(z)]$.

Figure 12.3 Median Investment Rates at Different Levels of Leverage



Source: IDB staff calculations based on data from Refinitiv (2022).
Note: Investment rates are measured as gross real capital expenditures over total assets, expressed in annual percent terms. Leverage ratios are measured as the ratio of total debt outstanding over total assets. The figure only considers firms with strictly positive levels of leverage. The sample period is 2002Q1 to 2021Q2. A parenthesis indicates that the variable lies strictly within the relevant range while a square bracket indicates that the variable may also be equal to the limit of the range indicated. LAC 5: Brazil, Chile, Colombia, Mexico, and Peru.

shocks that negatively impact firm valuations or increase volatility. The debt overhang problem would then likely deepen in recessions when cash flows are low, firm valuations tend to suffer, and overall volatility may rise.

To illustrate the relationship between corporate leverage and investment, Figure 12.3 shows median⁵ investment rates, defined as real capital expenditures as a share of total assets, for different possible levels of leverage, defined as the ratio of debt outstanding to total assets.⁶ The data

⁵ The median or 50th percentile is the quantity lying at the midpoint in a sorted and ascending list of values observed in a sample. The median is considered to be more illustrative than the average in the presence of outlier values, which is typically the case when using firm-level datasets.

⁶ To fairly compare across geographic regions, common leverage ranges are considered instead of a more statistical criterion, such as, region-specific quintiles of leverage. The bins or ranges considered are (0, 0.1], (0.1, 0.2], (0.2, 0.4], (0.4, 0.6], and (0.6, ∞), and they are designed such that the center group contains the mean leverage of 0.27 (27 percent of assets) and the median leverage of 0.22 (22 percent of assets) over the full sample. A parenthesis indicates that the variable lies strictly within the relevant range while a square bracket indicates that the variable may also be equal to the limit of the range indicated. For example (0.1,1.0] indicates that the variable is greater than 0.1 but may be less than or equal to 1.0 while [0.1,1.0) indicates the variable may be equal or greater than 0.1 but strictly less than 1.0.

show investment is increasing with leverage for low levels of leverage and then decreasing for high levels of leverage. Intuitively, having a reasonable level of corporate debt is beneficial to finance investment and smooth out operations, but excessive leverage pushes the firm into a vulnerability zone in which financial distress may deter investment.

Figure 12.3 reveals the investment pattern by leverage is stable across regions. Investment rates peak for moderate leverage levels of between 0.2 and 0.3 (20 percent and 30 percent of assets) in all regions. Those peak investment rates are 3.9 percent of assets in advanced economies, 4.2 percent in emerging economies, and 4.6 percent in Latin America and the Caribbean.

On the other hand, median investment rates tend to fall significantly for high or low levels of leverage. For instance, for leverage of less than 0.1, the median investment rate is 22 percent below the peak obtained for leverage between 0.2 and 0.3 (3.6 percent versus 4.6 percent of assets) in Latin America and the Caribbean. Eventually, too much debt tends to hurt investment and growth. For instance, investment rates fall from 3.9 percent to 2.9 percent of assets when comparing a typical firm with leverage in the 0.3–0.5 range versus a firm with leverage above 0.5 in advanced economies, from 4.1 percent to 3.2 percent of assets in emerging economies, and from 4.4 percent to 3.9 percent of assets in the region.

The theory as outlined in Box 12.1 also suggests that higher risk (a higher probability of the firm defaulting) will depress investment. The probability of default for a firm can be estimated using Merton's (1974) paper, and as described in Box 12.2. The key insight of this methodology is that the equity of a firm can be viewed as a call option on the underlying market value of the firm (V), with a strike price equal to the face value of the firm's debt (D). Merton then defines the distance-to-default as a measure of corporate risk: the larger is that distance the lower is the probability of default. That distance is the number of standard deviations by which the (log of the) ratio V/D must deviate from its mean for a default to occur.

Figure 12.4 presents median investment rates for different levels of the distance-to-default. As predicted by the theory, in general, investment rates increase as the distance to default increases, or as risk declines. This positive relationship between investment and distance-to-default becomes less pronounced as the distance to default grows, largely because some firms with little debt also display a lesser probability of default and, hence, invest little (see Figure 12.3).

At the other extreme, as firms, risk increases, median investment rates fall precipitously as the default probability rises. For instance, in the region, the riskiest firms with distance-to-default below 0.5 standard deviations (this is a

Box 12.2 Estimating Firm-level Distance-to-Default

Firm-level measures of default risk are constructed using the distance-to-default framework developed by Merton (1974). This method has been used extensively in the corporate finance literature. The exposition here closely follows the discussion in Gilchrist and Zakrajsek (2012).

Merton's framework relies on two simplifying assumptions. First, the value of a firm (V) follows a geometric Brownian motion (the continuous time analog of a discrete time random walk process):

$$\frac{dV}{V} = \mu_v dt + \sigma_v dW$$

where μ_v represents the expected (continuously compounded) return on V , σ_v governs the volatility of the process, and dW is a standard Wiener process. Second, for tractability, it is assumed that the firm has issued only 1 discount bond maturing in T periods, thereby ignoring coupons, dividends, penalties to short sales, and the like.

The key insight is that under these two assumptions, the equity of a firm can be viewed as a call option on the underlying value of the firm (V), with a strike price equal to the face value of the firm's debt (D). According to the Black-Scholes-Merton option-pricing theory, the value of the firm's equity satisfies:

$$E = V\Phi(\delta_1) - e^{-rT} D\Phi(\delta_2) \quad (1)$$

$$\text{Where } \delta_1 = \frac{\log\left(\frac{V}{D}\right) + (r + 0.5\sigma_v^2)T}{\sigma_v\sqrt{T}}, \quad \delta_2 = \delta_1 - \sigma_v\sqrt{T},$$

r is the *daily* risk-free rate (one-year constant maturity Treasury-yield), and Φ denotes the cdf of the standard normal distribution. The equation is solved for V and σ_v given observable variables (market capitalization) and D . After solving iteratively for V and σ_v , the firm's distance-to-default can be computed as:

$$dd = \frac{\log\left(\frac{V}{D}\right) + (\mu_v - 0.5\sigma_v^2)T}{\sigma_v\sqrt{T}} \quad (2)$$

The iterative algorithm is as follows:

- Guess initial value $V = E + D$.
- Get the implied firm's return as the daily log return on assets, $dV = \Delta \log V$.
- Estimate the mean μ_v and std. dev. σ_v of the firm's return over a 250-day moving window.
- Obtain a new estimate of V using (1) for every day of the 250-day moving window.

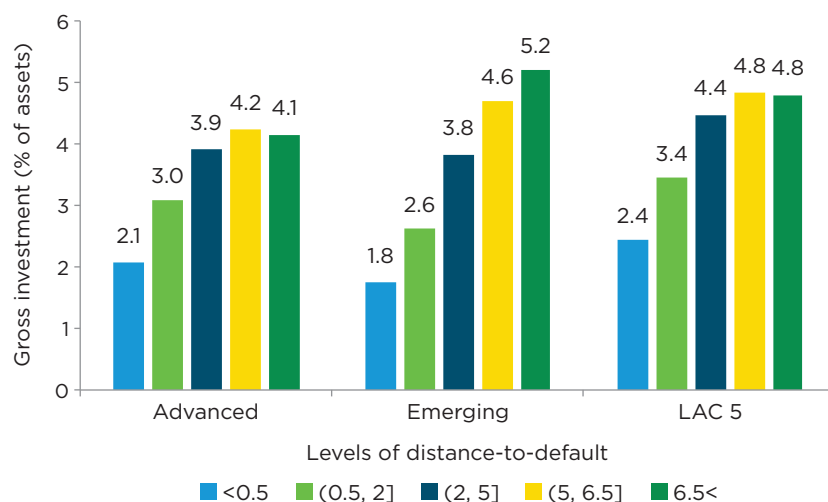
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- Iterate until V converges.
- Get dd using (2) and the probability of default using $pd = \Phi(-dd)$, where $\Phi(\cdot)$ represents the normal standard cumulative distribution function.

In this framework, dd measures the number of standard deviations the log of (V/D) must deviate from its mean for a default to occur.

The dataset in this chapter follows the common practice in credit agencies of measuring D as the sum of the firm's short-term debt and one-half of long-term debt. The market value of the companies, V , is obtained through their market capitalization, multiplying the number of shares times daily stock market prices.

Figure 12.4 Median Investment Rates at Different Levels of Distance-to-Default

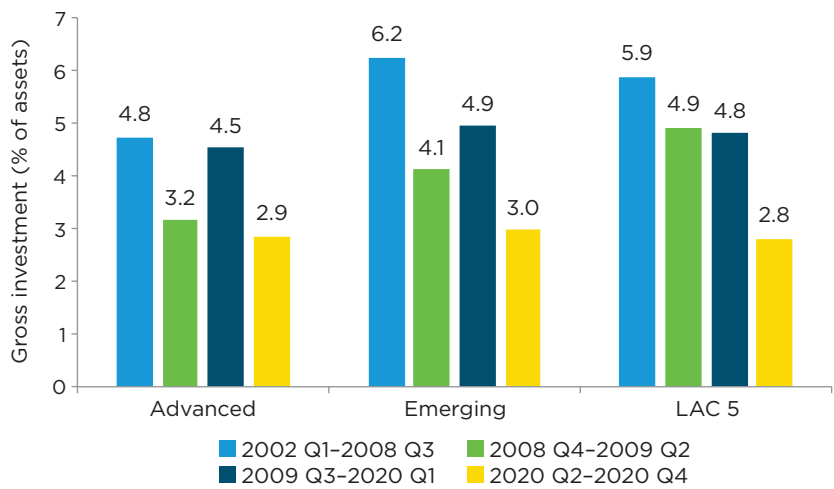


Source: IDB staff calculations based on data from Refinitiv (2022).

Note: Investment rates are measured as gross real capital expenditures over total assets, expressed in annual percentage terms. Distance-to-default measure is estimated using the framework by Merton (1974) and is measured in terms of the number of standard deviations by which the (log of the) ratio of market value to total debt must deviate from its historical mean for a default to occur; lower values mean the firm is closer to default. The sample period is 2002 Q1–2021 Q4. A parenthesis indicates that the variable lies strictly within the relevant range while a square bracket indicates that the variable may also be equal to the limit of the range indicated. LAC 5: Brazil, Chile, Colombia, Mexico, and Peru.

firm with approximately 30 percent default probability) invest 2.4 percent of assets, half the investment rate observed for the safest firms with distance-to-default above 6.5 (this is a firm with virtually zero default probability). The different investment performance is more marked in emerging economies where the median investment rate falls from 5.2 percent to 1.8 percent of assets when comparing the safest firm against firms with less than 0.5 standard deviations away from default (30 percent probability of default).

Figure 12.5 The Business Cycle of Investment Rates: Normal Times vs. Recessions



Source: IDB staff calculations based on data from Refinitiv (2022).
Note: Investment rates are measured as gross real capital expenditures over total assets, expressed in annual percentage terms. LAC 5: Brazil, Chile, Colombia, Mexico, and Peru.

At a more macroeconomic level, corporate investment varies with the business cycle and with systemic shocks like the COVID-19 pandemic and the global financial crisis. Investment rates are largely procyclical and tend to plummet during crises and recessions (see Lamont, 1995). For example, during the global financial crisis, investment rates fell from 4.8 percent to just 3.2 percent of assets in advanced economies and from 6.2 percent to 4.1 percent of assets in non-Latin American and Caribbean emerging economies (a decline of about 33 percent in both cases), although they fell by less (17 percent) in Latin America and the Caribbean (see Figure 12.5). As a result of the pandemic, however, investment rates fell dramatically in all regions: 42 percent in Latin America, 39 percent in other emerging economies, and 36 percent in advanced economies.

Debt and Risk: The Impact on Investment

How might investment behave after the pandemic? An empirical analysis of investment simulates potential paths for future investment in the region depending on general economic conditions. The methodology is to estimate a panel regression in which the dependent variable is investment and the main explanatory variables are lagged leverage (*lev*), lagged corporate risk or distance-to-default (*dd*), and other variables to capture the balance

sheet characteristics of the firm.⁷ As this is a panel regression and there are many firms in each sector and each country, economic conditions in each sector and country can be taken into account with sector-country-time effects. In other words, the regression analysis attempts to estimate the impacts of debt and risk on investment independently of the general economic conditions prevailing in each period. The empirical model or equation that is estimated for firm in period is then as follows:

$$inv_{i,t} = \beta_1 lev_{i,t-j} + \beta_2 dd_{i,t-j} + \beta_3 (lev_{i,t-j} \cdot dd_{i,t-j}) + \gamma' Z_{i,t-j} + \alpha_{sct} + \alpha_i + \varepsilon_{i,t}$$

where $inv_{i,t}$ is the investment rate of firm i in quarter t (measured either as gross or net investment to assets), $lev_{i,t-j}$ is the leverage ratio (debt outstanding to assets), and $dd_{i,t}$ is distance-to-default. The $Z_{i,t}$ in this equation represents a number of firm variables including cash and short-term investments, the interest coverage ratio, and firm size. The sector-country-time fixed effects are represented by the variable α_{sct} and firm fixed effects, α_i , are also included to take into account productivity differences across firms.

If higher debt results in lower investment, then coefficient β_1 should be less than zero; however, if higher risk results in less investment, then coefficient β_2 should be greater than zero. If coefficient β_3 is different from zero, then that would suggest an interaction between the level of debt and the level of risk.

The results indicate that higher leverage and higher risk negatively impact investment, especially in emerging economies (see Figure 12.6).⁸ In other words, coefficients β_1 and β_2 have the expected signs and are statistically significant. The size of these coefficients is also quantitatively important. For instance, Latin America in Panel A displays a negative effect of -2.3 percentage points of assets when considering either gross or net investment rates. This means that if leverage increases from 20 percent to 50 percent of assets, then all things being equal, the gross investment rate would fall from the mean of 5.6 percent to roughly 4.9 percent for the average Latin

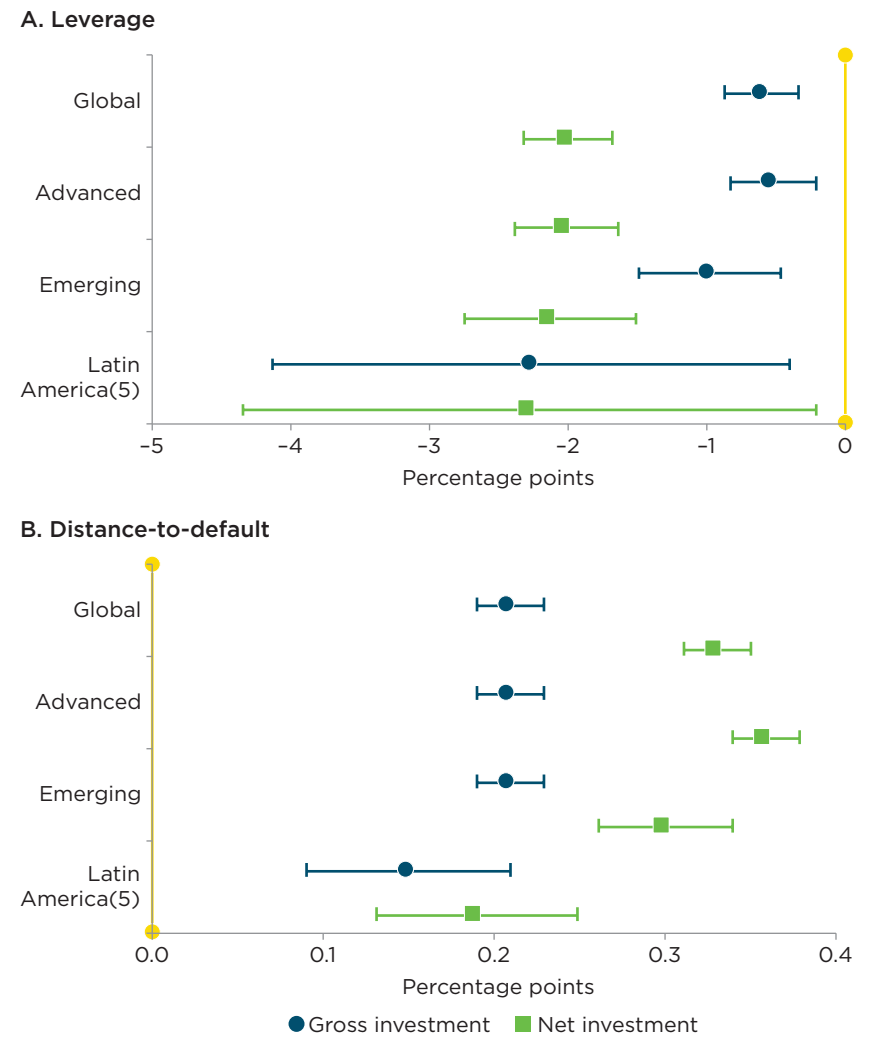
⁷ Box 12.2 describes the methodology used to estimate firm-level time-varying distance-to-default measures.

⁸ Advanced economies: Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, South Korea, Spain, Sweden, Switzerland, Taiwan, United Kingdom, and United States.

Emerging economies: China, Colombia, India, Indonesia, Malaysia, Pakistan, Philippines, Poland, Russia, Saudi Arabia, South Africa, Thailand, Turkey, Ukraine, and United Arab Emirates.

Latin America and the Caribbean: Brazil, Chile, Colombia, Mexico, and Peru.

Figure 12.6 Average Impact of Debt and Risk on Corporate Investment



Source: IDB staff calculations based on data from Refinitiv (2022).
Note: The figures report the total effects of leverage (Panel A) and distance-to-default (Panel B) on investment rates. Total effects for leverage are evaluated at the median value of leverage and vice versa. Investment rates are measured as net capital expenditures over total assets (in annual percent terms). Leverage is measured as the ratio of total debt outstanding over total assets. Distance-to-default is estimated using the framework by Merton (1974). The sample period is 2002q1-2021q4.

American firm in the sample. The results tend to be stronger for net than gross investment.⁹ For instance, for the same increase in leverage as above,

⁹ Net investment is gross investment minus depreciation. Net investment can be positive or negative although the latter would imply a declining capital stock.

the average net investment rate in the region would fall from a mean close to 0 percent to -0.7 percent of assets. On the other hand, Panel B reveals that if firm risk increases such that a company becomes one standard deviation closer to default, again with everything else being the same, then the net investment rate would fall from 0 percent to -0.2 percent of assets.

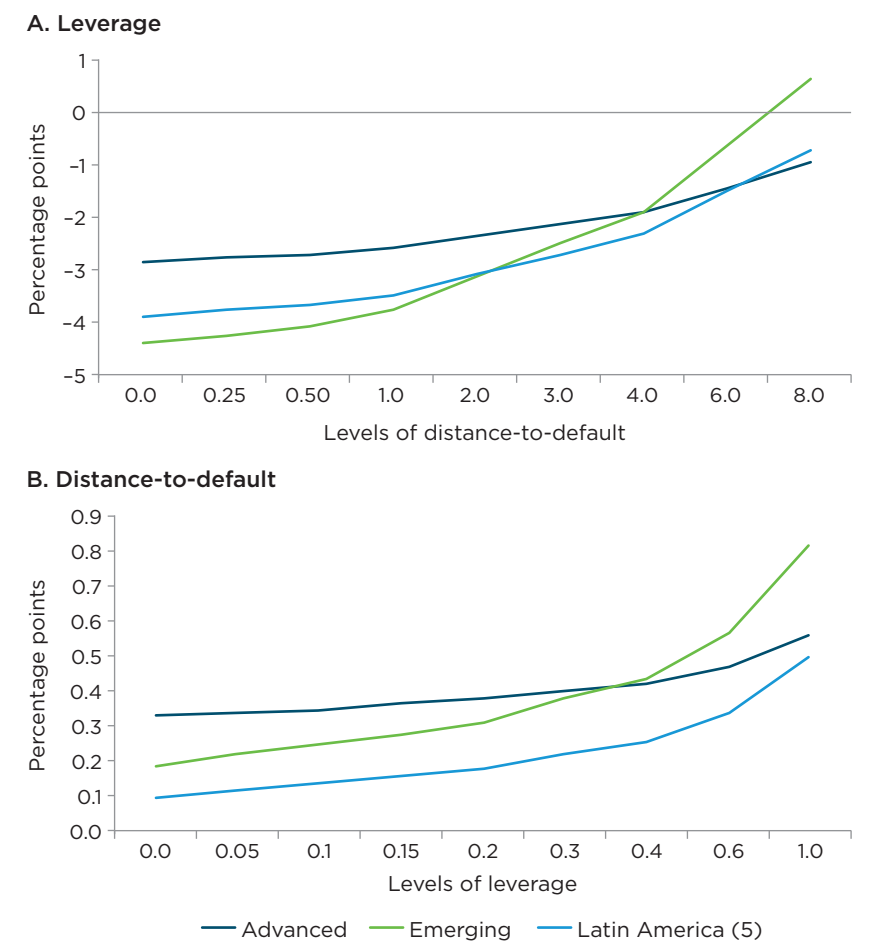
The results from Figure 12.6 reveal that the negative effect of high leverage tends to be one order of magnitude larger than the negative effect of high corporate risk, when looking at the average firm in Latin America or other regions in the world. However, the situation changes significantly when evaluating non-average firms. As explained above, the negative impact of high debt on investment tends to be dampened for safe firms with large distances-to-default (through a positive interaction coefficient, β_3 in the equation).

Figure 12.7, Panel A reports debt overhang coefficients for firms with different values of distance-to-default, ranging from the riskiest firms on the brink of default (represented by zero distance-to-default in Panel A) to investment grade firms with no risk of default (represented by a distance to default equal to 8 in Panel A). As a reference, the typical firm in the sample displays a distance-to-default equal to 4.

The total overhang effect in the region ranges from around -3.9 p.p. of total assets for the riskiest firms (distance-to-default equal to zero) to around -1 p.p. for the safest firms (distance-to-default equal to 8); recall that the baseline effect for the median firm is -2.3 p.p. (distance-to-default equal to 4). Advanced and emerging economies demonstrate important differences. For instance, firms on the brink of default in other emerging economies suffer a larger overhang effect (-4.5 p.p.) than their analogs in advanced economies (-2.9 p.p.). Notably, at the other extreme, the safest firms in advanced economies still display a negative overhang of -1 p.p., while in non-Latin American and Caribbean emerging economies, these firms display a 0.6 p.p. *positive* effect of leverage on investment. Overall, the negative effect of high leverage on investment is decreasing in corporate distance-to-default and may even become positive for some firms with close to zero default probability.

To illustrate the positive complementarity between leverage and distance-to-default, Figure 12.7, Panel B displays the effect of distance-to-default on investment for firms with selected values of leverage, going from firms with zero debt up to firms with leverage equal to one (that is, firms with a debt-to-assets ratio of 100 percent). Latin American and Caribbean countries display the lowest positive effect of distance-to-default on investment relative to other economies worldwide, for all the levels of leverage considered. For example, a typical firm in Latin America and the Caribbean

Figure 12.7 Positive Complementarity between Leverage and Risk



Source: IDB staff calculations based on data from Refinitiv (2022).
Note: The figures report the total effects of high leverage (Panel A) and distance-to-default (Panel B) on investment rates. Total effects for leverage are evaluated at different values of distance-to-default, while total effects of distance-to-default are evaluated at typical values of firm leverage. Investment rates are measured as net capital expenditures over total assets (in annual percent terms). Leverage is measured as the ratio of total debt outstanding over total assets. Distance-to-default is estimated using the framework by Merton (1974). The sample period is 2002q1-2021q4.

with median leverage equal to 0.2 (20 percent of assets) displays a positive effect of 0.17 p.p. of assets, that is 43 percent ($100 \times (1 - 0.17 / 0.30)$) below the effect estimated for other emerging economies (54 percent below the effect estimated for advanced economies). Highly leveraged firms in other emerging economies outside of Latin America and the Caribbean have the largest positive complementarity between debt and distance-to-default.

For instance, a typical emerging economy firm with a debt-to-assets ratio of one displays a positive effect of 0.81 p.p. compared to 0.55 p.p. in advanced economies and 0.49 in Latin America.

Learning from the Past: Firm Balance Sheets and Investment Behavior during Economic Crises

The COVID-19 crisis provoked the most significant decline in GDP in Latin America and the Caribbean in a single year in recorded history (see Cavallo and Powell, 2021). Not surprisingly, corporate investment plummeted. But what will happen during the recovery phase? How do firms that enter the pandemic with relatively high debt perform during the recovery phase compared to low-leverage firms? How does the pandemic recovery compare with other worldwide recessions such as the global financial crisis? In this section, investment behavior in previous recessions is analyzed to shed light on these questions.

A so-called difference-in-difference methodology is used to compare firms with high leverage to firms with low leverage before and after a crisis period. A high-leverage firm is defined as having a leverage ratio above the sample median in the year before the crisis under analysis. The technique considers other firm characteristics that vary over time such as risk and size, and includes firm fixed effects to take into account persistent differences between firms such as different levels of productivity. The results of

Figure 12.8 Sizeable Debt Overhang Effects after Economic Recessions

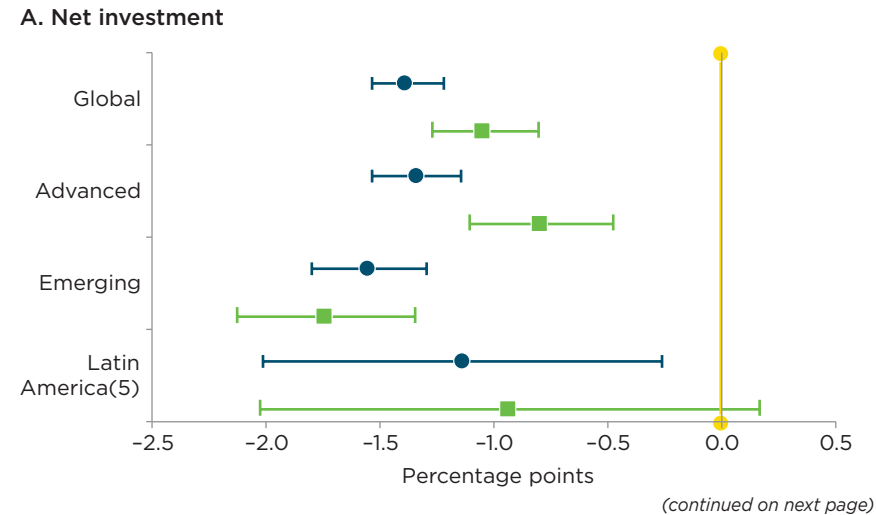
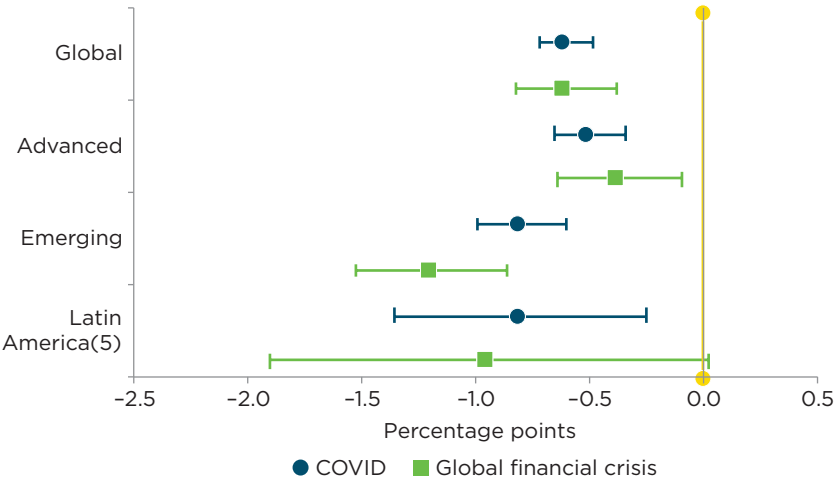


Figure 12.8 Sizeable Debt Overhang Effects after Economic Recessions
(continued)

B. Gross investment



Source: IDB staff calculations based on data from Refinitiv (2022).
Note: The figures report difference-in-difference coefficients measuring the differential investment performance in the aftermath of a crisis of firms with high leverage versus firms with low leverage. For the global financial crisis, the first crisis period is 2008q3, while for COVID, the shock period is 2020q1. Investment rates are measured as net capital expenditures (Panel A) or gross investment (Panel B) over total assets (in annual percent terms). Corporate leverage is measured as the ratio of total debt outstanding over total assets. The sample period is 2002q1-2021q4.

this analysis point to a systematic negative effect of high ex ante leverage on firm-level investment performance during/after an economic recession. This means firms entering a recession with above-median leverage reduce investment significantly more (relative to the pre-crisis period) than low-leverage firms, a classic debt overhang effect (see Figure 12.8).

The negative impact of debt on investment is stronger when looking at net investment rates (Panel A) versus gross investment rates (Panel B). For instance, in advanced and emerging economies, firms with high leverage reduced net investment rates by 0.8 p.p. and 1.7 p.p., respectively more than low-leverage firms during the global financial crisis, and by 1.3 p.p. and 1.5 p.p. throughout the pandemic. In Latin America and the Caribbean, the results are estimated around -1 p.p. in both crises, although the results for the region are not statistically significant during the global financial crisis.

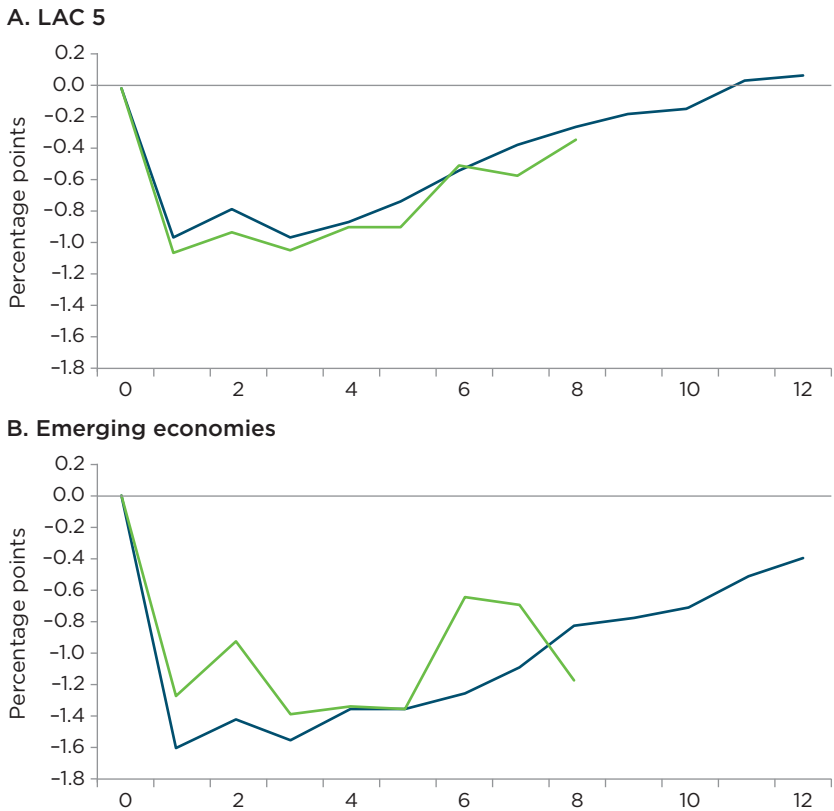
The Danger of a Delay: Debt Overhang and Economic Recovery

An important question looking to the future is how long the corporate debt overhang effect persists after a worldwide recession. The methodology

used to address this question is known as local projections, which captures the dynamic response of corporate investment following an economic crisis. Again, the comparison is between firms with high leverage and firms with low leverage before and after the crisis. In this case, a panel analysis of local projections allows fixed effects to take into account persistent differences between firms and controls for other time-varying firm characteristics.

The coefficients in Figure 12.9 illustrate the differential investment performance in the aftermath of a crisis of firms with high leverage versus firms with low leverage, measured in percentage points of total assets. Figure 12.9, Panel A displays the results for all countries in the dataset pooled together. As in the previous section, the results confirm a significant debt overhang effect during economic recessions, as highly levered

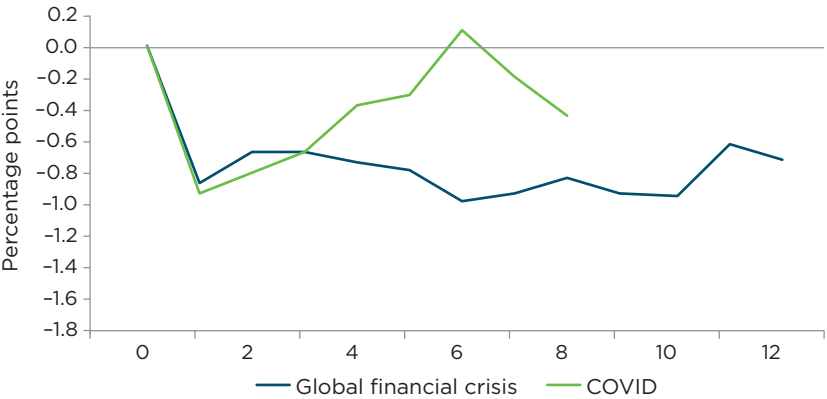
Figure 12.9 Debt Overhang and Slow Recoveries in Investment Following Large Recessions



(continued on next page)

Figure 12.9 Debt Overhang and Slow Recoveries in Investment
Following Large Recessions *(continued)*

C. Advanced economies



Source: IDB staff calculations based on data from Refinitiv (2022).
Note: The figures report dynamic coefficients based on local projections (Jordà, 2005), measuring the differential investment performance in the aftermath of a crisis of firms with high leverage versus firms with low leverage, in percentage points (p.p.) of total assets. The x-axis represents quarters after the crisis shock. For the global financial crisis, the first period is 2008 Q3, while for the COVID-19 crisis the first period is 2020 Q1. Investment rates are measured as net capital expenditures over total assets (in annual percent terms). Corporate leverage is measured as the ratio of total debt outstanding over total assets. The sample period is 2002 Q1-2021 Q4. LAC 5: Brazil, Chile, Colombia, Mexico, and Peru.

firms reduce investment significantly more than low leverage firms. The quantitative results are noticeably robust across regions, with an impact effect of around 1 percentage point during the first year (4 quarters) after the shock. The estimated effect seems to persist for two to three years in both advanced (Panel C) and emerging (Panel B) economies, while in Latin America (Panel A), the global financial crisis generated a more protracted overhang effect than the ongoing pandemic.

Policy Challenges

The crisis has left firms in the region with lower fixed assets, but similar debt levels on average to those before the pandemic. However, firms also have higher total liabilities, lower stock market valuations, and higher levels of uncertainty. The evidence presented in this chapter suggests that the combination of higher risk and debt may negatively impact investment, that this effect is worse during crises, and that it may be persistent. A danger is, then, that economic recovery will be delayed for years.

Countries supported firms through different types of programs through the pandemic, the most relevant being loan moratoria, flexible reporting

standards for banks, and guarantee programs to continue credit flows despite the deep recession and pandemic-induced uncertainty.¹⁰ These programs appear to have provided much needed relief. But now countries are phasing out the loan moratoria to regain transparency and regulatory discipline within financial systems and scaling back the exceptional guarantee programs as the economy recovers. In this new phase of recovery after the worst of the pandemic, the question is, which policies would best help firms build back the capital stock to at least pre-pandemic levels?

Unfortunately, any subsidy to promote investment that does not come with close monitoring may have unintended consequences. Funds are fungible and firms may use additional resources as they see fit. The eventual investment decision by the firm will reflect the negotiation between the different stakeholders: equity investors (who might favor more risk as they are protected by limited liability), existing debt holders (who would want to enjoy any additional guarantees), and managers who may have other incentives (for example, interest in growing the size of the firm more than minimizing costs or maximizing shareholder value). As shown in the quantitative sections of this chapter, the combination of debt and risk might act to reduce investment, and these type of coordination failures tend to increase in economic downturns and when uncertainty is high.

In addition, the pandemic has had disastrous effects on some sectors, while others have been hit less hard, and some firms have been well-positioned to take advantage of new ways of doing business and new technologies given the digital revolution. More targeted policies that differentiate between firms and take into account their specific characteristics would be highly beneficial.

For firms with relatively little debt and whose economic prospects are reasonably good, if intervention is justified at all, then guarantees on new debt may be a useful policy tool. But for firms whose combination of debt and risk is high, guaranteeing more borrowing may lead to even higher leverage with detrimental effects on subsequent investment. An alternative would be to offer an equity-like instrument or a combination of equity and debt. This approach was followed in some advanced economies during the global financial crisis with some success as they helped to recapitalize companies in distress and mitigate debt overhang. Equity injections also have the advantage of allowing investors to reap the benefits when the economy recovers. However, in Latin America and the Caribbean, equity injections are often associated with nationalization and a change in control. That would not be the objective here. Rather, the idea would be for

¹⁰ See Powell and Rojas-Suarez (2020) for a discussion.

investments to be managed by a professionally run investment fund (for example, a public-private fiduciary fund) with a strong private sector culture that would seek to make a profit on its investments and be free from political influence.¹¹ The governance and professionalism of the institution would be critical for its success. International financial institutions such as IDB-Invest or the International Finance Corporation (part of the World Bank Group) are well situated to provide advice and potential funding, and even participate in the institution if considered appropriate.

In cases where debt is particularly high, it may be preferable to renegotiate the financial structure of the firm before considering further investment, either through debt or equity. Consider a firm with a relatively high debt burden as well as a very attractive investment opportunity. If the profits of the project outweigh the payments already committed to creditors, then renegotiating the debt contract may be in both parties' interests, if the alternative is missing the opportunity altogether.¹²

It is important that countries' bankruptcy procedures are perceived to be fair and efficient. However, much work remains to be done in this area in the region. Perhaps surprisingly, relatively few firms sought formal bankruptcy protection from creditors during the pandemic. In part, this may be due to support policies from governments, but it may also reflect the perception that such processes are costly and oftentimes unpredictable. Instead, firms may have sought informal routes through direct and bilateral negotiations with stakeholders. Costly and unpredictable insolvency processes may also impact the behavior of existing firms, by shunning innovation and risk-taking, and inducing excessive amounts of precautionary liquidity in order to avoid such procedures at all costs.

As discussed in Chapter 11, small and medium-sized firms appeared to suffer more in the crisis than larger, listed firms (the focus of this chapter). Large companies that suffer less from credit access restrictions are more likely to have high leverage and suffer a debt overhang problem à la Myers (1977). Smaller firms are more likely to face borrowing constraints and, hence, may be saved from a debt overhang. Thus, assistance to these smaller entities might take the form of easing access to credit. But such firms were already the target of large-scale guarantee programs in several countries, and some may have built up higher debts and be in sectors that suffered persistent effects as a result of the pandemic. If guarantee policies are to be maintained, it is important to ensure that only partial guarantees

¹¹ See Powell and Rojas-Suarez (2022) for a similar proposal.

¹² Brunnermeier and Krishnamurthy (2020b) analyze this type of situation and find reorganization is preferable, depending on a set of assumptions.

are employed such that banks retain sufficient “skin in the game” to avoid lending to unviable firms in the recovery phase.

Something of a parallel exists between debt restructuring for firms and for sovereigns, as discussed in Chapter 10. Just as it may be in the interest of commercial creditors to restructure the debts of a firm so it can continue to invest in profitable opportunities, it may be in the interest of commercial creditors to restructure sovereign debt if there is a sovereign debt overhang as discussed in Chapter 8.¹³ A sovereign debt overhang may reduce investment (both public and private) as well as growth, which would then diminish the size of the pie for all creditors. Similarly, it may be in the interest of a firm's creditors to restructure debt if that then allows the firm to survive, escape a debt overhang, borrow more, invest more, and increase profits to repay all remaining liabilities.

Policymakers face a particularly challenging environment after the COVID-19 pandemic, and now monetary normalization in advanced economies and the Russian war in the Ukraine add to the heightened economic uncertainty. Optimal support policies for firms ultimately need to balance the trade-off between allowing a healthy reallocation process and inefficiently letting viable firms fail.¹⁴ Policies will need to increasingly shift from large-scale undifferentiated programs to more targeted support. Policymakers in the region will need to remain vigilant of debt levels and risks in the corporate sector given their potential negative impacts on investment. The scale and type of support should be calibrated carefully with many factors including the pace of investment, fiscal space, and institutional capacity.

¹³ See Krugman (1988) for a discussion of sovereign debt relief in this light.

¹⁴ See Powell and Rojas-Suarez (2022) for a set of recommendations to support firms in the region in the post-pandemic recovery.

The Bottom Line on Debt

Debt has risen across the world, and Latin America and the Caribbean is no exception. Total debt has risen to around 140 percent of GDP, or some US\$5.2 trillion for the five largest economies, and US\$5.8 trillion, or 117 percent of GDP, for the region.¹

Public debt ratios in the region rose to 57 percent of GDP in 2019 and jumped to 71 percent of GDP during the pandemic, driven by the recession, lower revenues, and fiscal support packages. Debt served to finance higher spending on health, transfers, and tax breaks to households and firms, while public investment waned. Baseline projections suggest debt ratios may rise in the next year or two, given low growth rates and only gradual consolidation, before they start to decline as growth reverts to long-term trends.

Corporate debt also rose before the pandemic and corporates borrowed heavily during the crisis. That financing was used to build liquidity rather than for investment, which collapsed. Debt levels have subsequently fallen back close to the relatively high pre-pandemic levels, but the lack of investment has resulted in a decline in fixed (productive) assets.

Still, standard measures of liquidity rose, and both sides of private and public sector balance sheets—not just liabilities—should be considered. Global financial integration has pushed both external assets and liabilities higher. While external liabilities for the region rose to around 125 percent of GDP, external assets also rose during the pandemic to over 75 percent of GDP. Those assets include the international reserves of central banks as well as private investment in foreign companies, bank accounts, and other financial assets. Empirical work suggests that higher levels of reserves may significantly reduce vulnerabilities, including those provoked by higher levels of debt.

¹ The figure for the five largest economies is sourced from the BIS while the estimate for the region as a whole is estimated from BIS, World Bank, and IMF data.

In addition to international reserves, some countries maintain fiscal reserves, commodity stabilization and sovereign wealth funds, swap lines with other country authorities, and contingent lines with the IMF and MDBs. While this book focuses primarily on debt issues across the region, a more detailed analysis of individual country risks should take into account liquid assets (at the very least) and other sources of liquidity. Contingent lines from credible counterparts may play an important role in reducing vulnerabilities and may buy time to implement policies to rectify more structural problems.

At the same time, the global economic context has become highly uncertain. Lingering impacts of the pandemic and the possibility of new COVID strains, the Russian invasion of Ukraine and its impact on global growth, the slowdown in China, inflation particularly in energy and food prices, rising global interest rates, and stock market volatility have together created a highly challenging economic environment. This book reviews past studies and presents novel research on debt in Latin America and the Caribbean. This chapter summarizes its conclusions and provides overall policy recommendations.

Public Debt: Time to Act

Public debt serves a critical role for countries to pursue public investment projects, implement countercyclical policies, and provide support to economies in the face of negative shocks. However, if public debt becomes too large or is not managed with sufficient caution, interest costs may balloon, growth prospects may suffer, and in the limit, a costly debt crisis may be provoked.

A Pattern of Debt Accelerations

Public debt surpassed 70 percent of GDP for Latin America and the Caribbean in 2020. Public debt had risen before the pandemic, with sudden debt spikes accounting for much of the increase. Spikes occurred largely during times of stress, fueled by a combination of low growth, high fiscal deficits, ballooning interest payments, currency depreciations, and significant off-budget and unfunded liabilities. Symmetric patterns during good times to reduce debt were far less common.

This pattern of debt increases in the region points to the need for stronger fiscal institutions to establish credible and sustainable medium-term objectives to limit debt spikes, and where they are necessary, to promote periods of debt reduction. Fiscal rules can help. Less than half of

the countries in the region had fiscal rules in place before the pandemic. Where they did exist, rules were suspended during the health emergency, and countries struggled to return to within-rule outcomes. The presence of a rule is not enough to improve fiscal performance; the quality of that rule is also important. Fundamental ingredients are solid legal foundations, credible enforcement mechanisms, an independent fiscal council, flexibility to deal with shocks, and well-defined escape clauses.

Gaps remain in designing and implementing fiscal rules to promote fiscal sustainability and mitigate macro-fiscal risks. Poorly designed fiscal rules in the region have contributed to a low compliance rate of around 57 percent. Strengthening fiscal rules is critical to achieving flexibility and proper integration with countries' medium-term fiscal frameworks. This would allow countries to provide credible fiscal guidance and promote resilient macro-fiscal strategies.

Improving fiscal institutions does not imply upfront fiscal spending or cutting benefits but can significantly boost the credibility of fiscal policy, reduce the perception of risk and, hence, lower the level of interest rates and the cost of financing. For example, strengthening independent fiscal councils would promote responsible and efficient fiscal policy and bolster fiscal policy credibility in the medium term, helping to reduce debt levels. The complementarity of fiscal institutions is also essential. More generally, a combination of reforms and improved institutions would help promote automatic stabilizers that dispel the need for hard-to-reverse increases in discretionary spending, dampen the procyclical behavior of deficits and interest rates, monitor the potential sources of unfunded liabilities to limit surprise increases in debt ratios, and promote the growth of domestic capital markets.

Debt Sustainability

The pandemic created the need for sharply higher spending while it reduced tax revenues, thereby further increasing public debt. Naturally, the concern is whether this debt increase will provoke problems of sustainability, a new debt crisis, and another lost decade for the region. Debt sustainability is complex; it relates to the concept of solvency but also incorporates elements of cash-flow, to ensure a debt crisis due to a temporary lack of resources does not ensue. In addition, sustainability today depends critically on expected action in the future. Where there is confidence that countries will act to reduce deficits and run primary surpluses to bring down debt in better times, then higher debt levels can be supported. However, doubts that countries will react appropriately push up interest rates and reduce investment and growth, expanding the amount

of consolidation required and, ultimately, increasing risk. Such risks can push countries—even those with stronger fundamentals—into a danger zone in which a liquidity or self-fulfilling crisis might occur.

Estimates based on historical data suggest that the average fiscal response to higher debt levels across the region in the past would be sufficient to maintain sustainability, but insufficient to bring debt down to prudent levels. To reduce debt enough to lower risk more aggressively would require an additional fiscal effort.

Beyond Sustainability: Prudent Debt Levels

Prudent debt levels are estimated at significantly below the current baseline trajectory. Individual country estimates depend on a wide set of country characteristics. A prudent level of debt limits interest costs, reducing the amount of consolidation required, provides space for high-quality investment, allows for greater financing if additional negative shocks arise, and reduces the risk of a debt crisis. Prudent levels depend critically on the quality of fiscal institutions. Institutions such as debt-anchored fiscal rules consistent with macro-fiscal aggregates can bolster a credible medium-term fiscal strategy and enhance confidence that higher deficits in bad times will be matched by higher surpluses when growth is strong; together these factors lead to higher sustainable debt ratios. As a result, these fiscal rules can also help reduce financing costs and lessen the probability of sudden stops. Improving institutions is, therefore, just as important as reducing debt. A concerted effort to improve fiscal institutions and bring down public debt levels to more prudent levels would enhance credibility and counter the growing risks from higher interest rates, a strong dollar, and volatile commodity prices.

Public Debt Overhang: A Threat to Growth

Current high debt levels in many countries also reduce growth. Higher debt boosts growth at lower debt levels, particularly if additional spending is focused on investment rather than consumption. However, at high debt levels, growth declines as debt rises. Public investment declines, financing costs rise, and private investment dwindles as debt levels soar. The public debt overhang tends to set in at debt levels above 60 percent of GDP on average for the region, although thresholds for individual countries depend on idiosyncratic country factors.

Once again institutions are key. Fiscal rules help safeguard economic growth and protect public investment. Improved public investment

frameworks would help increase the efficiency of public spending boosting growth multipliers. It is not just about investing more; it is also about investing wisely. Strengthened fiscal institutions that improve the credibility of medium-term policy, lower perceived risks, and reduce interest rates, tend to raise the point at which higher debt reduces growth, and reduce the negative impact of debt on growth beyond that threshold.

Reducing Debt

There are many reasons why public debt levels should be lower than they currently are and several ways to reduce that debt. An analysis of past debt reduction episodes around the world points to countries that have reduced debt-to-GDP ratios by increasing growth and improving fiscal balances. In Latin America and the Caribbean, Brazil (2002–2013), Colombia (2002–2008), Jamaica (2010–2020), Peru (2002–2013), and Trinidad and Tobago (1993–2008) are all such examples. Still, the region has more cases in which significant debt reductions have been achieved through low real interest rates or higher inflation, although they have typically not been as smooth or resulted in as good growth performance. An exception appears to be where moderate inflation, coupled with central bank independence, kept inflation expectations in check. Still, in today's environment, with inflation stoked by high energy prices, fuel subsidies may take away some of the gains.

Fiscal Policy to Reduce Debt: No One Size Fits All

The best way for a country to reduce debt levels through fiscal consolidation depends critically on each country's specific characteristics; there is no one-size-fits-all set of recommendations.

All countries should focus on improving the efficiency of both spending and tax revenue collection. In particular, the quality of public investment can be enhanced at all stages of project cycles, as can the efficiency and targeting of transfer payments. Prior to the pandemic, even at the lower levels of spending, the IDB estimated that simply improving spending efficiency could result in savings of over 4 percent of GDP. These measures are particularly important for countries where both public revenues and spending are high as a percentage of GDP. In this group of countries, raising taxes is likely to be counterproductive, and additional savings probably has to come from cuts in spending.

In countries where revenues and spending are a lower percentage of national income, enhancing the tax base and increasing public sector

revenues can allow for greater rates of public investment that positively impact growth. If designed well, these reforms can be progressive; poorer households benefit from better access to public services at little, if any, additional cost.

Improvements in public investment frameworks also increase growth multipliers. Even at current quality levels, public investment has a significantly higher multiplier than government consumption, yet public investment has been reduced over the years. Many countries would benefit from rebalancing public expenditures in favor of investment, financed from greater efficiency and better targeting of transfers.

Labor informality remains high in many countries, and after the pandemic, it is higher than ever. Reducing informality requires a set of concerted actions including reducing the tax incentives for firms to hire informal labor by shifting the financing of benefits from labor taxes to more general taxation. At the same time, new technologies to enhance monitoring and collection offer many opportunities to improve tax takes.

Timing is Paramount

The timing of fiscal consolidation measures is also key. Front loaded consolidation measures have the advantage of reducing debt more quickly and saving valuable resources by reducing interest payments more quickly. However, a sharp cut in spending if growth is below potential may harm growth. Arguably, under current circumstances of high inflation and potential supply constraints, this assertion may be more debatable. Fiscal policy should complement monetary policy; an expansive fiscal policy, which the monetary authority has to counter with higher policy interest rates, may be highly inefficient. Still, a more gradual approach may be appropriate given the need for continued support to poorer households or particular sectors due to the pandemic. Reform packages that mix efficiency gains and lower, poorly targeted, and inefficient real spending with greater well-targeted support and investment may have a better chance of garnering support. Improved fiscal institutions that help guarantee medium-term sustainability may also allow for a more gradual consolidation while maintaining lower interest rates.

Debt Composition Matters

The composition of debt is just as important as its level. Debt management has improved considerably in the region in recent years. Many countries created dedicated debt management units with well-trained technical

staff and a measure of independence to pursue a medium-term debt strategy. During the 1990s and 2000s, debt composition improved; the focus was on reducing debt in dollars and extending maturities in both local and foreign currency. These trends were supported by the growth in domestic financial markets, ample liquidity in international markets, and low international interest rates.

However, following the commodity price decline after 2012 and the COVID-19 pandemic, these advances have stalled, debt dollarization has risen, and maturities have shortened. Several countries face relatively high debt servicing costs of over 5 percent of GDP and more than 15 percent of public revenues. Countries face the challenge of improving debt composition while they pursue fiscal consolidation. Countries should take full advantage of multilateral development banks and other official lenders that provide long-term financing at competitive rates. They should also pursue active liability management strategies to smooth amortizations and reduce roll-over risks.

While many countries have created dedicated debt management units, debt composition cannot be considered in isolation of current fiscal policy and future fiscal plans. Fiscal plans should take onboard the current composition of debt and the potential future costs and risks of fiscal actions. This calls for close coordination between the debt management and fiscal planning functions. Both functions are critical to develop robust fiscal plans that can deliver predictable and sustainable outcomes, are consistent with debt management strategies, and can be communicated effectively to build confidence and lower financing costs.

Debt Restructuring with a Regional Focus

International financial institutions responded to the pandemic with new resources and initiatives to assist countries, particularly those with debt distress. The IMF and MDBs boosted disbursements and a new allocation of IMF Special Drawing Rights (SDRs) provided US\$650 billion to IMF members, who continue to discuss how to best reallocate those resources to developing countries. The international community focused on providing debt relief to low-income countries. The Debt Service Suspension Initiative (DSSI) offered a temporary suspension of debt payments and its successor, the Common Framework, continues to offer the potential for debt relief. Three low-income African countries are currently going through that process.

Latin America and the Caribbean has been front and center in the development of innovative debt restructuring techniques in recent years.

Five countries in the region restructured since the onset of the pandemic in 2020. Innovations include bond restructurings with new generation Collective Action Clauses (CACs), debt payment suspension disaster-related clauses, debt for environment buybacks, and restructurings employing a range of instruments to deal with a diverse mix of creditors ranging from nonfinancial firms to Paris Club and non-Paris Club official institutions. While international efforts continue to focus on the plight of low-income countries, many challenges remain for countries in the region. Among the most salient issues is whether and how to best link debt renegotiations with climate and environmental goals. A regional forum would be a valuable complement to the global financial architecture. The idea would not be to substitute the Common Framework or other initiatives but rather to enhance the coordination and momentum that was envisaged. The forum would not interfere with any actual negotiations between a country and its creditors. Rather, it would serve as an overarching mechanism to coordinate the many institutions involved in debt restructurings in Latin America and the Caribbean including multilateral institutions, the Paris Club and other bilateral creditors, private institutions representing creditors and industry groups, and borrowing countries. It could support the development of new approaches (for example, related to ESG financing and how to link climate and debt objectives), refine existing standards where necessary, and establish norms for defining the perimeter of restructurings and the treatment of collateralized debt, commercial lending from official players, and other current or future market innovations.

Private Sector Debt: Households and Firms

Reducing public debt levels, strengthening fiscal institutions, and improving debt management would also benefit the private sector. When the sustainability of debt is more certain, interest rates are likely to be lower, credit conditions are easier as banks and other lenders perceive risks to be lower, and private investment is likely to rise.

While the overall levels of credit to the nonfinancial private sector have grown in recent years, they remain relatively low by international standards. Credit to the nonfinancial private sector on average is over 60 percent of GDP, but there is considerable variation across countries and sectors.

Household Debt: Growing Across the Region

Households gained greater access to credit pre-COVID and borrowed more during the pandemic. Still, the overall levels of indebtedness of families in

the region remains relatively low by international standards. While there may be heavily indebted households in particular countries, especially if other sources of credit from outside the formal banking system are considered, the risks to systemic financial stability from this sector appear limited at the current time.

Small Firms: Credit Access is Key

Small and medium-sized firms continue to face credit constraints, especially in Central America and the Caribbean. Despite many programs to keep credit open to firms during the pandemic, access remained a significant factor in allowing companies to survive the health crisis. Still, a considerable portion of firms reported being in arrears with lenders. In terms of access, arrears, and closures, smaller and female-led firms reported more problems than larger and male-led enterprises.

Large Firms: High Liquidity Cushions

Larger firms listed on stock markets in the region enjoy relatively good access to credit and in recent years borrowed, either through loans or issuing domestic or external bonds, at attractive rates of interest. Debt rose before the pandemic as corporates took advantage of the liquid global financial conditions. During 2020, corporate debt rose further, and firms issued considerable amounts on both international and domestic markets. Investment collapsed and the financing was used to build a strong cushion of liquidity to survive the crisis. This cushion, plus government support programs (direct assistance to firms and indirect support to consumers) plus financial policies (including loan moratoria and regulatory flexibility) allowed many firms to survive the pandemic. However, the lack of investment implies that firms' fixed assets (normally considered their productive capital) have declined.

After the pandemic, debt has returned to its relatively high pre-pandemic levels. Corporates in the region on average have higher leverage than in most other world regions. Corporate stock market valuations have not returned to pre-crisis levels and volatility remains relatively high. This combination implies that indicators of corporate risk (such as the distance to default) continue to suggest greater vulnerability than before the pandemic. The relatively high corporate debt levels in the region combined with relatively high volatility may have a persistent negative impact on investment. Interestingly, the empirical results indicate that debt and risk work in a complementary fashion to deter investment. In other words, at

high debt levels an increase in volatility has a negative impact on investment, as does an increase in debt at higher levels of volatility.

Next Steps

Many countries implemented programs to assist firms during the crisis including loan moratoria and large-scale guarantee schemes that provided banks with incentives and liquidity to continue to lend. Few large firms failed, thanks to these policies and their access to credit at reasonable rates. Smaller and female-led firms fared worse and many closed their doors. As economies recover from the pandemic, countries have been paring back these policy measures. In this phase, more selective programs that carefully screen firms and provide equity as well as debt financing could be extremely valuable, as firms have relatively high debt levels already but fixed (productive) assets have dwindled. A private-public entity that provides a range of financing options could be considered. The key would be to ensure a strong governance structure with a robust mandate to provide financing to promising firms that have profitable plans but lack access to credit. Involving the private sector arm of MDBs (IDB Invest or the International Finance Corporation) would enhance the credibility of such entities to resist political pressure, allow them to improve corporate governance more generally, and provide upfront financial resources.

Competing Challenges

As the region emerges from the pandemic, it faces a number of challenges: a global growth slowdown, high energy and food prices, inflation, and numerous structural problems with social and political, as well as economic consequences. High debt levels complicate the picture and reduce the room for maneuver. Policymakers face difficult choices, in particular to manage high public debt levels, improve institutions, and bring those debt levels down. This book aims to provide useful recommendations to inform their decisions as they weigh the difficult tradeoffs inherent in dealing with debt.

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Index

- affordability, 95, 118–19, 277
- allocation of resources, 156, 171, 174, 183, 210, 225, 315
- amortizations
 - balance sheet management and, 34
 - debt management and, 148–50, 158
 - liquidity and, 24
 - MDBs and, 143, 315
 - MTDS and, 127
- Argentina
 - 2001 financial crisis, 72, 85n, 228, 238–43
 - austerity intolerance, 203
 - bond markets and, 40, 47–48, 155
 - CACs and, 231, 244
 - debt
 - household, 78, 81
 - litigation, 235
 - reduction of, 206
 - restructuring, 73, 243, 249
 - spikes, 88
 - subnational, 86
 - external liabilities, 21
 - IMF and, 71
 - net external credit, 6, 10n
 - Tequila Crisis and, 71
- Asian Bond Markets Initiative (ABMI), 56–57
- Association of Southeast Asian Nations (ASEAN), 56–57
- austerity intolerance, 203–4, 221
- The Bahamas, 6n
- bailouts, 71n, 72n, 74, 85–86, 88, 237, 240
- Baker Plan, 234
- balance sheet risk indicator (BSRI), 25–26, 30–31
 - See also* external balance sheets
- Bank Advisory Committees (BACs), 234
- Bank for International Settlements (BIS), 54, 60, 235
- bankruptcy
 - Argentina and, 240
 - corporate debt overhang and, 289–90
 - COVID-19 crisis and, 47, 285, 306
 - debt restructuring and, 224
 - lack of international system for, 224, 243
 - subnational debt and, 87
 - treaty-based, 237
- Barbados, 6n, 40, 78, 155, 245–47, 265
- Basel III regulations, 50, 73
- Belize, 245–47
- benefit systems, 98
- bilateral debt, 162–63, 177–79, 238, 245n
- bilateral lending
 - determinants of, 179–80
 - explained, 176–78
 - MDB lending vs., 180–81
- Blue Loan/Blue Bond, 246
- Bolivia, 73, 80, 105, 143n, 206
- bond markets
 - 1980s debt crisis and, 227
 - Argentina and, 40, 47–48, 155
 - Brady Plan and, 236, 251
 - Brazil and, 40, 47–48, 64

- burden-sharing policies and, 251
- CAT bonds, 155
- Chile and, 40, 47–48, 51, 60, 64, 157
- Colombia and, 40, 48, 51, 57, 64, 155, 157
- COVID-19 crisis and, 44–47, 50
- debt structure and, 42
- drivers of development, 53–57
- credit and, 38, 51, 56, 70, 192
- expansion of, 38–42
- foreign investors and, 58
- GSS bonds, 64
- IMF and, 46, 62, 251
- improving, 46–47
- inflation and, 46, 63
- infrastructure bonds, 51
- Jamaica and, 40
- liquidity and, 40, 46–47, 50–51, 56–60, 155–57
- Mexico and, 40, 47–48, 51, 64, 155
- multinational initiatives and, 56–57
- overview, 37–38
- Peru and, 40
- private sector and, 47–53
- reforms and, 225
- regulation and, 46–47, 56, 63
- Uruguay and, 64
- World Bank, 46
- See *also* domestic bond markets
- Brady Plan
 - bond market and, 236, 251
 - contingent debt and, 155
 - debt restructuring and, 229
 - Ecuador and, 238
 - impact of, 236–37
 - launch of, 69, 236
 - Tequila Crisis and, 69–71
- Brazil
 - amortizations, 149
 - bilateral debt, 179
 - bond market and, 40, 47–48, 64
 - debt
 - deceleration, 17n
 - litigation, 235
 - management, 143–47
 - reduction, 200–1, 203, 313
 - spikes, 84, 88
 - sustainability, 105
 - global financial crises and, 72–73
 - infrastructure bonds, 50–51, 57, 64
 - London Club and, 234
 - Paris Club and, 225
 - portfolio equity, 21
 - public debt management, 144–47
 - subnational debt, 86
 - Tequila Crisis and, 71
 - See *also* National Treasury Secretariat
- broad money, 42
- Buchheit, Lee C., 224, 236, 238, 243
- CAT (catastrophe) bonds, 155
- central banks
 - Baker Plan and, 235
 - bilateral loans and, 177
 - Colombia, 72n
 - COVID-19 crisis and, 309
 - credibility, 207, 213
 - debt reduction and, 207, 213–14, 313
 - DMOs and, 151
 - handling of debt, 129–31
 - independence of, 216–17, 221
 - interest rates and, 198
 - market liberalization and, 70
 - Mexico, 71n
 - quantitative easing and, 73
- Chile
 - austerity and, 203
 - balance sheets and, 133n
 - bond markets and, 40, 47–48, 51, 60, 64, 157
 - credit and, 257
 - debt and, 78, 105, 206
 - foreign investment and, 21
 - inflation and, 73
 - loan market, 264
 - SFA and, 88
- China
 - 2008 financial crisis and, 73–74
 - ASEAN and, 56
 - commodity boom and, 72, 110

- economic slowdown, 310
- Ecuador and, 244–45
- loans to developing countries, 177–79, 181
- Paris Club and, 225
- Citibank, 60
- climate change, 169, 179, 182, 243, 276–77n, 282
 - See also Green, Social, and Sustainable (GSS) bonds
- climate, debt and, 154, 239–40, 245–47, 250, 316
- CoCos (contingent convertible debt), 155–56
 - See also bond markets
- collateral, credit and, 280
- collateralization, 51, 236, 250–51
- Collective Action Clauses (CACs), 231–32, 236–45, 251–52, 316
- Colombia
 - austerity intolerance, 203
 - bond markets and, 40, 48, 157
 - CAT bonds, 155
 - Exchange Traded Funds (ETFs), 57
 - GSS bonds, 64
 - infrastructure bonds, 51
 - credit and, 256
 - debt
 - household, 78
 - management, 127
 - reduction, 200, 313
 - subnational, 86
 - sustainability, 105
 - exports, 272
 - Flexible Credit Line and, 143n
 - global financial crisis and, 72–73
 - inflation and, 73
 - mortgage credit market, 72n
 - SFA and, 88
- commodity boom, 72, 106, 110, 124
- Common Framework for Debt Treatments, 167, 225, 250, 252, 315–16
- contingent debt, 132, 154–56, 236, 250, 252
- convertibility law, 71n
- corporate debt
 - COVID-19 crisis and, 75–78, 271–75
 - credit and, 289–90
 - debt overhang and, 285, 288–92, 306–7
 - impact on investment, 1
 - interest rates and, 93
 - liquidity, 93, 309–10, 317–18
 - tax and, 90
- Costa Rica, 40, 105, 155, 206, 235–36, 269
- countercyclicality
 - See cyclical
- COVID-19 crisis
 - Argentina and, 239
 - balance sheets and, 9, 15–19, 32, 285, 288, 291
 - bond markets and, 44–47, 50
 - Brazil and, 143, 146
 - CACs and, 243–44
 - capital flows and, 19n
 - corporate investment and, 296, 301
 - credit and, 3, 257, 266–71
 - debt and, 67–69, 74–75, 92, 110, 114, 315
 - corporate, 75–78, 271–75
 - household, 78–80, 316
 - management, 142–43, 167
 - overhang, 255
 - private sector, 165, 255
 - public, 121, 197
 - renegotiations, 228
 - surge, 104
 - exporter resilience during pandemic, 271–74
 - foreign investment and, 58, 61
 - financial constraint indicator and, 270–71
 - fiscal stability and, 98–99
 - infrastructure financing during, 275–79
 - interest rates and, 107
 - MDBs and, 167, 170–74
 - tourism-dependent economies and, 112n

credit

- access to, 255–60
- Argentina, 239–42
- BACs and, 234–36
- bond markets and, 38, 51, 56, 70, 192
- Brady Plan and, 237–38
- CACs and, 231–32, 244–45
- climate concerns and, 245–46
- contingent debt and, 154–56
- corporate debt and, 289–90
- COVID-19 crisis and, 78, 146, 243, 266–78
- debt management and, 124
- debt restructuring and, 223–29, 238–39, 251–52, 316
- debt spikes and, 88, 185
- gender and, 263–65
- IMF and, 247–48
- interest rates and, 184
- Iraq, 243
- Latin America and, 256–58
- liquidity and, 317
- need for coordination of, 240
- net external creditors, 6
- Paris Club and, 248–49
- policy recommendations for, 279–82, 306–7, 318
- private sector and, 74, 249, 256, 316–17
- public debt and, 97, 129–30
- rating agencies, 223
- reserves and, 27, 34
- SMEs and, 260–62, 317
- sovereign risk and, 192
- trade credit, 75n
- See *also* Flexible Credit Line; official credit
- Credit Linked Notes (CLNs), 60
- cryptocurrency, 63
- cyclicality
 - countercyclical fiscal policy, 67, 73, 75, 95, 120
 - creditors and, 161, 166
 - debt overhang and, 184
 - debt reduction and, 198

- lending and, 180–82

- public debt and, 310

- timing and, 171–73

- investment rates and, 296

- procyclical financing, 3, 93, 198, 221, 311

- taxes and, 134n

- debt-for-nature exchanges, 234, 237, 239, 245

- See *also* Nature Conservancy

- Debt Management Offices (DMOs), 151–57

- creation of, 124

- importance of, 143

- in Latin America and Caribbean, 151–54

- role of, 158

- steps for creating effective DMS, 126–27

- treatment of liabilities, 131

- Debt Market Harmonization program, 46, 64

- debt overhang

- bankruptcies and, 289–90

- corporate debt and, 285, 288–92, 306–7

- debt spikes and, 185–87, 190–93

- economic recovery and, 302–5

- estimating thresholds, 188

- growth and, 184–87, 190–93

- institutional quality and, 189–90

- private debt and, 255–56

- public debt and, 183–84, 193–95, 312–13

- risk and, 299, 302

- subnational debt and, 86

- theory of, 291

- debt, rise in

- corporate debt, 75–78

- debt spikes

- decomposing, 85–88

- determinants, 88–92

- household debt, 78–81

- learning from the past, 92–94

- overview, 67–68

- public debt, 81–85

- sovereign debt
 - first wave (1989–1997), 69–71
 - second wave (1997–2008), 72–73
 - third wave (2008–present), 73–75
- debt spikes
 - Argentina and, 88
 - avoiding, 93, 217n, 221
 - Brazil and, 84, 88
 - credit and, 88, 185
 - currency depreciation and, 135
 - decomposing, 85–88
 - determinants, 88–92
 - explained, 81–82
 - growth and, 184–87, 190–93
 - IMF and, 90
 - methodology for analyzing, 75n
 - overhang and, 188, 190–93
 - public debt and, 310
 - stock flow reconciliation and, 210
 - Uruguay and, 84–85
 - waves of, 81–85
- Debt Suspension and Sustainability Initiative (DSSI), 167, 225n, 315
- debt-to-GDP ratio
 - contingent liabilities and, 132
 - debt reduction and, 198–99, 200, 204, 208, 218, 313
 - debt renegotiation and, 108
 - debt spikes and, 83, 85, 88
 - debt structure and, 42
 - deficits and, 69
 - global financial crisis and, 74–75
 - growth and, 72, 185, 189
 - household debt and, 78–79
 - inflation and, 221
 - MTDS and, 127
 - sustainability and, 102–3
- debt trading, 225
- decomposition analysis
 - debt reduction, 197
 - debt spikes, 85
 - use of, 88
- depreciation
 - currency, 2, 59, 72, 74, 112, 135
 - debt management and, 158
 - exchange rate, 52, 69, 85–86, 92
 - foreign investment and, 60–62
 - inflation and, 137
 - Uruguay and, 59
- discrimination, 256, 262–65
 - See also* female-led firms; gender
- diversification
 - bond markets and, 38, 46, 64, 157
 - diversified economies, 99–101, 106, 109, 112, 116–18
 - ETFs and, 57
 - of exports, 272
 - of external assets, 21
 - foreign equity and, 34
 - risk and, 10–11, 23, 99, 282
- dollarization, 58–59, 124–25, 135, 139, 143, 158, 315
- domestic bond markets
 - Asian Bond Markets Initiative (ABMI), 56–57
 - Brazil, 50–51
 - building better bond markets, 46–47
 - COVID and, 44–46
 - drivers of development, 53–57
 - expansion of, 38–42
 - foreign investors and, 57–62
 - future of, 62–65
 - improvements in debt structure, 42–44
 - overview, 37–38
 - private sector and, 47–53
 - Uruguay, 59–60
 - See also* bond markets
- Dominican Republic, 269
- Early Warning Systems (EWS), 113–14
- Ecuador
 - 2000 financial crisis, 72
 - austerity intolerance, 203
 - CACs and, 244
 - China and, 244–45
 - debt and
 - bilateral, 179
 - household, 78

- reduction, 206
- restructuring, 73, 226n, 228, 238, 249
- external liabilities, 21
- SFA and, 88
- El Salvador, 143n, 266, 269–70
- Elliott Associates, 238
- See *also* litigation
- emergency facilities, 143
- Euroclear, 59, 239
- Eurozone, 11–12, 73, 242
- exchange rates
 - bond markets and, 37, 50, 52
 - COVID-19 crisis and, 17
 - debt and, 42, 105, 137, 144, 218
 - de-dollarization and, 59
 - depreciation, 69, 74, 85–86, 92
 - external balance sheets and, 6n, 135
 - flexibility of, 73, 75
 - foreign investors and, 58–60, 62
 - misalignment, 24
 - risk and, 125–26
- Exchange Traded Funds (ETFs), 57
- external balance sheets
 - explained, 5–11
 - financial integration and, 11–13
 - impact of COVID on, 15–19
 - international reserves and, 27–29
 - management of, 32–35
 - risk and, 23–26, 30–32
 - shifts in composition of, 19–23
 - transformation of, 13–15
- female-led firms, 3, 262–64, 275, 279, 317–18
- See *also* gender
- financial crises
 - 1997, 72
 - 2008–2009, 12, 14–15, 21–22, 26, 61, 69, 92
 - Argentina and, 240
 - assessing risk, 5
 - commodity price boom and, 198
 - corporate leverage and, 285, 296, 302
 - debt and
 - management, 138, 165
 - overhang, 304–5
 - reduction, 198–200, 203
 - waves, 69, 73–77
 - external balance sheets and, 26, 31
 - fiscal sustainability and, 97–98
 - interest rates and, 58
 - MDBs and, 171–72
- financial integration
 - debt management and, 33, 159
 - impact of, 9n
 - increase in, 11–13, 15
- financial repression, 40, 46, 63, 207, 216
- Fintech companies, 256, 262–63, 280
- Firm Performance and Gender Survey (IFPG), 264
- fiscal fatigue, 102–4, 110–11, 114
- Fiscal Reaction Functions (FRFs), 102–4
- fixed interest rates, 38, 43–44
- Flexible Credit Line, 26, 34, 143
- See *also* International Monetary Fund
- foreign investment, 10, 17, 19–21, 25–26, 30
 - bond markets and, 50–51, 64
 - Brazil and, 144–46
 - corporate risk and, 19n
 - debt management and, 144
 - domestic debt markets and, 57–62
 - liquidity and, 24, 38
 - risk and, 32–34, 139
- gender
 - discrimination in lending and, 262–64
 - MDBs and, 169, 182
 - See *also* female-led firms
- Germany, 157
- Global Depository Note (GDN), 60
- Global Financial Crisis (GFC), 12, 14–15, 21–22, 26, 61, 69, 92
- See *also* financial crises
- Green, Social, and Sustainable (GSS) bonds, 64, 156
- See *also* climate change
- growth, debt and

- debt spikes, 185–87, 190–93
- institutional quality and, 189–90
- overview, 183–85
- thresholds, 188
- Guatemala, 73, 266, 269–70
- Guayana, 80, 179, 206
- haircuts, 166, 226, 229–31
- Heavily Indebted Poor Countries (HIPC), 167, 206, 208n, 210n, 237
- Honduras, 105, 206, 266, 268–70
- household debt
 - COVID-19 crisis and, 68, 79
 - debt-to-income ratio, 79
 - increase in, 2, 67, 78–81, 316–17
 - as percentage of GDP, 78–79
- inflation
 - austerity and, 203
 - bond markets and, 46, 63
 - Brady Plan and, 71
 - Brazil and, 144–46
 - commodity boom and, 72–73
 - debt and, 43, 67, 85, 87, 105, 107, 144–46, 183–85, 310, 314, 318
 - reduction, 197–204, 207, 210, 213–18, 220–21, 313
 - restructuring, 223–24
 - exchange rates and, 58
 - fiscal crises and, 113
 - hyperinflation, 69
 - post-pandemic fiscal policy and, 99–100
 - stock flow adjustment and, 86
 - targeting, 135, 137
 - Uruguay and, 59–60
- infrastructure
 - bond markets and, 38, 46, 48, 156, 282
 - Brazil and, 48, 50–51, 57, 64
 - Ecuador and, 244
 - of financial systems, 87, 241
 - financing for
 - during/after the pandemic, 275–79
 - public-private, 256, 281–82
 - investment in, 38
 - MDBs and, 173–75, 181
 - multinational initiatives and, 56
 - public debt and, 183, 191
- insolvency
 - See solvency/insolvency
- international reserves
 - debt management and, 158
 - debt spikes and, 90
 - diversification and, 11
 - external assets and, 10
 - external balance sheets and, 17, 19, 21
 - insurance value of, 27–29, 71n
 - liquidity and, 309–10
 - rise in, 22–23
 - risk and, 23, 25–26, 33
 - stabilization and, 9
- interest rates
 - 1970s and, 69
 - 1980s and, 233, 236, 241
 - affordability and, 118
 - bond markets and, 38, 43, 58
 - Brady Plan and, 70
 - Colombia and, 72n
 - COVID-19 crisis and, 68, 76, 81, 99–100, 285
 - credit and, 161, 184, 258, 280
 - currency and, 2
 - debt and
 - composition of, 43–44, 124, 150
 - corporate, 93
 - household, 78, 316
 - impact of debt and growth, 106–10
 - managing, 125, 128, 144, 146, 158–59, 314
 - reducing, 198, 200–3, 208, 210, 221–22, 313
 - restructuring, 224
 - spikes in, 85, 88
 - sustainability, 97, 102–3, 112, 121, 184, 188, 311–12
- Ecuador and, 244
- fixed, 38, 43
- foreign investment and, 61

- global rise in, 5, 81, 223, 310
- inflation and, 210, 214
- international reserves and, 27
- lessening the effects of, 195
- liabilities and, 131
- MDBs and, 169, 171
- Uruguay and, 60
- volatility of, 54
- See *also* credit
- International Debt Statistics (IDS), 177, 179
- See *also* World Bank
- International Monetary Fund (IMF)
 - amortization and, 149
 - Argentina and, 71, 239–40
 - Barbados and, 245
 - bond markets and, 46, 62, 251
 - Common Framework and, 252
 - contingent debt and, 156
 - countercyclicality and, 172
 - debt reduction and, 217, 219–20, 225n
 - debt spikes and, 90
 - debt sustainability and, 96
 - Early Warning Systems (EWS) and, 113
 - Ecuador and, 244
 - emergence in 1980s, 234–36
 - Flexible Credit Line, 26, 34, 143
 - Guidelines for Public Debt Management, 151
 - interventions, 71–72
 - “Lending into Arrears” policy, 236, 238
 - MDBs and, 166–67, 182, 248
 - MTDS framework, 126
 - as official creditor, 161, 163
 - Paris Club and, 249
 - Rapid Financing Facility, 143
 - SDRs, 315
 - solvency and, 97n
 - Sovereign Debt Restructuring Mechanism, 237n
 - Sovereign Risk and Debt Sustainability Framework (SRDSF), 247–48
 - international reserves
 - default states and, 27
 - liquidity risk and, 27–29
 - intertemporal government budget constraint (IGBC), 102–3
 - Jamaica
 - BACs and, 234
 - bond markets and, 40
 - debt
 - bilateral, 179n
 - household, 79
 - litigation, 228n
 - reduction, 198–202, 206, 313
 - fiscal policy, 221
 - Japan, 56, 242
 - Jensen’s Inequality, 291
 - JP Morgan’s Government Bond Index-Emerging Markets (GBI-EM), 59
 - Knowledge Bank, 168n
 - See *also* World Bank
 - knowledge creation, 165–66, 168n
 - Krugman, Paul, 184
 - labor
 - costs, 269
 - informality, 314
 - Lending into Arrears policy, 166, 236–38
 - See *also* International Monetary Fund
 - liquidity
 - Argentina and, 71
 - balance sheet management and, 34–35
 - banks and, 260
 - BIS and, 235
 - bond markets and, 40, 46–47, 50–51, 56–60, 155–57
 - borrowed reserves and, 27–29
 - Brady Plan and, 155, 236, 238
 - Brazil and, 144–46
 - CAT bonds and, 155–56
 - COVID-19 crisis and, 266, 268–69
 - crisis, 34
 - debt and, 68–69, 75n, 76, 78, 107, 312
 - corporate, 93, 309–10, 317–18
 - management, 123, 125, 129,

- 132, 135, 138, 158
- restructuring, 224, 229–30
- EWS and, 113
- foreign investment and, 38
- financial volatility and, 257–58
- risk and, 24, 26–29
- shortages, 171
- solvency and, 96–97, 306
- Uruguay and, 59
- litigation, 42, 59, 228–31, 235, 238–39, 241
- loan moratoria, 166, 269, 285, 304–5, 317–18
- London Club, 234–35, 251
- Medium-Term Debt Strategy (MTDS) framework, 126–27
- Mercado Integrado Latinoamericano (MILA), 57
- Mexico
 - amortization and, 149
 - bond markets and, 40, 47–48
 - CAT bonds, 155
 - GSS bonds, 64
 - infrastructure bonds, 51
 - Brady Plan and, 236
 - CACs and, 240, 242
 - debt, 69–71, 73, 105
 - bilateral, 179n
 - household, 80
 - SFA, 88
 - London Club and, 234
 - Tequila Crisis, 237
 - “moral suasion,” 63, 236
- multilateral development banks (MDBs)
 - advantages of, 165–69
 - countercyclicality and, 171–73
 - preferred creditor treatment for, 166–67
 - as providers of development finance, 169–71
 - resource mobilization, 173–76
- multinational initiatives, 38, 56–57
- National Treasury Secretariat (NTS, Brazil), 144–47
- See *also* Brazil
- Nature Conservancy, 246
 - See *also* debt-for-nature exchanges
- net foreign liabilities (NFL) position, 6n
- New Zealand, 133
- Nicaragua
 - COVID-19 crisis and, 266, 269–70
 - credit and, 266
 - debt litigation and, 235, 238–39
 - debt reduction and, 206
 - DSSI and, 225n
- nongovernment financing, 256, 275–77
- nongovernmental organizations (NGOs), 239, 246
- no-Ponzi condition, 102–3
- official credit
 - bilateral lending, 176–81
 - borrowing trends, 162–65
 - importance of, 181–82
 - multilateral development banks
 - advantages of, 165–69
 - countercyclicality and, 171–73
 - preferred creditor treatment for, 166–67
 - as providers of development finance, 169–71
 - resource mobilization, 173–76
 - overview, 161–62
 - See *also* credit
- oil prices
 - Brady Bonds and, 236
 - debt ratios and, 135
 - Ecuador and, 72n, 244
 - global economy and, 74
 - inflation and, 69, 100
- O'Neill, Paul, 240
- Organisation for Economic Co-operation and Development (OECD), 133n, 181
- overhang
 - See debt overhang
- Pacific Alliance, 57
- Panama, 78, 206, 257, 259, 266, 269
- Paraguay, 21, 78, 81, 105, 143n

pari passu clause, 235–39, 241–43, 249

See also Argentina

Paris Club

COVID and, 243

debt restructuring and, 225, 248–51, 316

IMF and, 236

origins, 225n

PCT and, 166

role in 1980s, 234, 236

role in 1990s, 237–38

pecking order theory of corporate finance, 255

Peru

austerity and, 203

BACs and, 234–35

bond markets and, 40

CAT bonds and, 155

debt

litigation, 238–39

management practices, 133n

reduction, 203, 313

foreign investment and, 21, 60

GSS bonds and, 64

inflation and, 73, 136n

pesification, 240

See also Argentina

Plan Real stabilization program, 71

See also Brazil

preferred creditor treatment (PCT), 165–67, 182, 248n

private debt

access to credit, 258–60, 265–69

COVID-19 crisis and, 265–79

corporate debt and exporter resilience, 271–74

credit access during, 265–69

financial constraint indicator, 270–71

infrastructure financing, 275–79

domestic credit, 256–58

gender discrimination in lending, 262–65

overview, 255–56

policy recommendations, 279–83
SMEs and, 260–62

public debt management, 144–47

public debt, reducing

debt reduction spells, 198–204

debt-to-GDP ratio changes, 208–17

episodes and correlates, 204–7

overview, 197–98

smooth vs. abrupt debt reduction, 207–8

social costs of, 218–20

ups and downs of, 217–18

quantitative easing, 73

Rapid Financing Facility, 143

See also International Monetary Fund

reforms

balance sheet approach and, 135

bond markets and, 225

CACs and, 242–44

collateral and, 280

financial markets and, 37, 311, 314

IMF and, 90

MDBs and, 248–49

Paris Club and, 237

tax reforms, 144

Washington Consensus, 70

regulation

ABMI, 56–57

BACs and, 234

Brady Plan and, 236

Brazil, 50, 144

bond markets and, 46–47, 56, 63

central banks and, 130

credit and, 249, 251, 258, 269, 280

debt increase and, 73, 93

flexibility of, 249, 269, 311, 317

MDBs and, 282

private banks and, 278

Uruguay, 59–60

renegotiation of debt, 35, 103, 105, 108, 228, 250, 277, 316

reserves

See international reserves

Resilience and Sustainability Trust

- (RST), 225n
- risk
 - affordability and, 118–19
 - balance sheets and, 15, 17, 19, 32–35, 93, 133
 - balancing fiscal policy with, 99–103
 - bilateral institutions and, 181
 - bond markets and, 46–47, 51, 155
 - CACs and, 231
 - central banks and, 130
 - corporate debt overhang and, 288–94
 - debt and, 75–76, 86–87, 111, 184
 - composition, 135–39
 - impact on investment, 296–301
 - management, 123–28, 144, 151–52, 154–56, 158–59
 - spikes in, 187, 191–92
 - sustainability and, 120–21, 312
 - diversification and, 10–11
 - EWS and, 113–14
 - exchange rates and, 144
 - foreign investment and, 57–59
 - IMF and, 247
 - infrastructure and, 282
 - interest rates and, 69
 - international reserves and, 27–28
 - liquidity and, 97, 132
 - MDBs and, 166–67, 170–74, 182
 - natural disasters and, 245–46, 282
 - PCT and, 166–67
 - public policy and, 228, 304
 - reducing, 23–31, 114
 - roll-over, 149
 - SMEs and, 260–62
 - solvency and, 23–24, 87
 - taxes and, 127
 - transparency and, 221
- Russia
 - 1998 default, 72, 92
 - bilateral debt, 179
 - invasion of Ukraine, 3, 5, 92, 100, 143, 146, 183, 223, 287, 307, 310
 - Paris Club and, 225
- small and medium-sized enterprises (SMEs)
 - access to credit, 255–56, 275, 279
 - bank lending and, 260–62
 - COVID-19 crisis and, 281
 - debt and, 267–68
 - gender and, 265
- solvency/insolvency
 - balance sheets and, 135
 - bankruptcy and, 306
 - bond markets and, 47
 - corporate debt overhang and, 289
 - debt sustainability and, 96–97, 311
 - explained, 96
 - liquidity and, 24, 29, 132
 - risk and, 23–24, 87
- South Korea, 56, 72
- sovereign debt, management
 - balance sheet structure and, 133–35
 - Brazil and, 144–47
 - contingent debt, 154–56
 - debt service and amortization, 148–50
 - Debt Management Offices, 151–57
 - evolution of debt composition, 135–43
 - growing role of, 158–59
 - optimal debt composition, 125–28
 - overview, 123–24
 - public agency debt, 129–31
 - thematic bonds, 156–57
 - unfunded and contingent liabilities, 131–32
- Sovereign Debt Restructuring Mechanism (SDRM), 239–40, 243
- sovereign debt, restructuring of
 - Argentina, 239–43
 - banks to bonds, 226–27
 - climate change and, 245–47
 - coordination problems, 228–32
 - costs and delays, 227–28
 - COVID and, 243
 - Ecuador, 244–45
 - Greece and Europe, 242

- IMF and, 247–48
- Iraq and, 243
- Latin America and Caribbean
 - 1980s, 233–36
 - 1990s, 236–39
- limitations, 250–53
- MDBs and, 248
- new generation CACs and, 244
- overview, 223–25
- Paris Club and, 248–49
- private institutions and, 249–50
- sovereign guaranteed (SG)
 - loans, 169
- Special Drawing Rights (SDRs),
 - 225, 315
- spikes
 - See debt spikes
- state-owned enterprises (SOEs), 88,
 - 93, 131–34
- “states of nature,” 291
 - See *also* debt overhang
- Stock Flow Adjustment (SFA),
 - 85–88, 90
- stock flow reconciliation, 86, 197,
 - 208, 210, 212–13, 216–17
- subnational debt
 - debt spikes and, 85, 88
 - decline in 86–87
 - handling of, 130–31
 - regulation and, 93
 - unfunded liabilities and, 131–32
- Suriname, 207, 219, 228, 257, 265
- sustainability of debt
 - affordability and debt levels,
 - 118–19
 - challenges to fiscal sustainability,
 - 97–99
 - defined, 95–97
 - Early Warning System and, 113–14
 - fiscal fatigue and, 110–11
 - fiscal policy and, 114–18
 - fiscal reaction functions, 102–3
 - impact on interest rates and
 - growth, 106–11
 - lessons from the past, 104–6
 - post-COVID pandemic, 99–101
 - prudent vs. sustainable debt
 - levels, 111–13
 - restoring and maintaining, 120–21
- Sustainable Development Goals
 - (SDGs), 156, 171, 174, 277n
- taxes
 - affordability and, 118
 - balance sheets and, 134
 - Brazil, 50–51, 64, 144
 - corporate debt and, 90
 - COVID and, 311
 - credit and, 258
 - debt and, 68, 90, 220, 309,
 - 311, 313
 - fiscal sustainability and, 98–99,
 - 120–21
 - incentives, 290, 314
 - infrastructure bonds and, 50–51
 - risk management and, 127
 - Uruguay, 59
- Tequila Crisis, 68, 71, 92, 135, 237
 - See *also* Mexico
- thematic bonds, 154, 156–57, 159
- tourism-dependent economies, 100,
 - 106, 109, 112, 114, 118
- transparency
 - bond markets and, 46
 - climate change and, 247
 - debt management and, 130, 139,
 - 158–59, 195
 - debt reduction and, 221
 - debt restructuring and, 245
 - fiscal rules and, 86–87, 93
 - loan moratoria and, 305
 - NTS and, 146
 - private institutions and, 249
 - trust and, 251
- Trinidad and Tobago, 40, 203, 207,
 - 313
- treaty-based bankruptcy, 237
 - See *also* bankruptcy
- treaty-based SDRM, 240
- twin issuance, 157
- two-limb aggregation mechanism,
 - 242, 244
- Ukraine, 3, 5, 92, 100, 143, 146, 183,

- 223, 287, 307, 310
- unfunded liabilities, 2, 131, 310–11
- United Kingdom
 - 2008 global financial crisis and, 73
 - Iraq and, 243
- United Nations, 177n, 180, 243
- United States
 - 2008 global financial crisis and, 73
 - China and, 73n
 - Brady Plan and, 70–71, 237
 - debt, 76
 - bilateral sovereign debt, 178
 - household, 79
 - interest rate hikes, 287–88
 - Iraq and, 243
 - mortgage-backed securities market, 63
- Universal Debt Rollover Option (UDROP), 156
- Uruguay
 - bond market, 64
 - Brady Plan and, 236
 - CACS AND, 240, 242
 - debt
 - reduction, 206, 219
 - spikes, 84–85
 - foreign investment and, 58
 - IMF and, 72–73
 - reducing dollarization, 59–60
 - SFA and, 88
 - two-limb aggregation mechanism, 242
- Venezuela
 - bilateral debt, 179
 - Brady Plan and, 236
 - foreign investment and, 10
 - net foreign liabilities, 6
 - oil recapture clause, 155
- Washington Consensus, 70
- World Bank
 - Baker Plan and, 234
 - bilateral lending and, 176–77
 - bond markets and, 46
 - countercyclicality and, 172
 - debt management and, 151
 - International Finance Corporation and, 306
 - as “knowledge bank,” 168n
 - MTDS framework, 126–27
 - official borrowing and, 161, 167
 - rating, 170n
 - SG loans and, 169
 - zero haircut, 230–31

Debt has risen around the world, and Latin America and the Caribbean is no exception. Total debt has grown to US\$5.8 trillion, or 117 percent of GDP, for the region and as much as 140 percent of GDP for its five largest economies. Public debt soared to over 70 percent of GDP during the pandemic, and corporates issued substantial amounts to survive the crisis. While the spending that led to this debt helped the region weather the pandemic, it is now weighing down the economy. This book examines the rise in debt in Latin America and the Caribbean and offers recommendations to policymakers to ensure debt is used wisely, avoid the harmful impacts, manage high debt levels well, and bring down debt where it is too high. It is hoped that the analyses and policy suggestions in this volume contribute to successfully confronting the challenges, lowering risk, boosting growth, and improving living standards across the region and beyond.

This book is a must read for anyone interested in the public finance challenges of Latin America and the Caribbean. The region needs to confront problems of fiscal sustainability while dealing with the scarring effects of the pandemic, a global downturn, and exacerbated social tensions. The climate crisis will be an increasing source of fiscal pressure. The study is an indispensable guide for policymakers to navigate this complex outlook and avoid past mistakes. Through comprehensive and innovative research, it lays out in detail the institutional reforms needed to achieve sustainability, and provides practical recommendations to solve the region's fiscal conundrum.

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Debt, in and of itself, may be either good or bad, in the words of the authors of this report. What is clear is that managing inherited debts will be one of the signal challenges of the post-COVID world. The IDB leverages deep knowledge of Latin America and the Caribbean to develop recommendations tailored to the region. Policymakers will face difficult choices as they seek to enhance and restore governments' capacity to borrow, widen debt- and credit-market access for households and SMEs, and wind down fiscal support for large firms. There may be no simple solutions to this hydra-headed problem, but *Dealing with Debt* contains an excellent set of analyses to confront the dilemmas.

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The Inter-American Development Bank (IDB) is an international institution created in 1959 to foster economic and social development in Latin America and the Caribbean.

