

# Debt and Entanglements

## BETWEEN THE WARS

ERA DABLA-NORRIS EDITOR



# Debt and Entanglements Between the Wars

**Editor**

*Era Dabla-Norris*

I N T E R N A T I O N A L M O N E T A R Y F U N D

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Cover design: Six Red Marbles

Composition: Six Red Marbles

**Cataloging-in-Publication Data**

**IMF Library**

Names: Dabla-Norris, Era, editor. | International Monetary Fund, publisher.

Title: Debt and entanglements between the wars / editor, Era Dabla-Norris.

Description: [Washington, DC] : International Monetary Fund, 2019. |

Includes bibliographical references.

Identifiers: ISBN 978-1-51351-179-5 (paper)

Subjects: LCSH: Debts, Public—20<sup>th</sup> century. | War—Economic aspects—20<sup>th</sup> century. | Economic history—20<sup>th</sup> century.

Classification: HJ8015.D43 2019

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ISBN: 978-1-51351-179-5 (Paper)

978-1-51351-676-9 (web PDF)

978-1-51351-686-8 (ePub)

Please send orders to:

International Monetary Fund, Publication Services

P.O. Box 92780, Washington, D.C. 20090, U.S.A.

Tel.: (202) 623-7430

Fax: (202) 623-7201

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Internet: [www.elibrary.imf.org](http://www.elibrary.imf.org)

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# Contents

Acknowledgments.....	<a href="#">vi</a>
Foreword by Thomas J. Sargent.....	<a href="#">vii</a>
Preface by Era Dabla-Norris and Vitor Gaspar .....	<a href="#">xi</a>
Contributors .....	<a href="#">xv</a>
<b>1   Complications for the United States from International Credits: 1913–40 .....</b>	<b><a href="#">1</a></b>
<i>George J. Hall and Thomas J. Sargent</i>	
<b>2   Funding the Great War and the Beginning of the End for British Hegemony.....</b>	<b><a href="#">59</a></b>
<i>Martin Ellison, Thomas J. Sargent, and Andrew Scott</i>	
<b>3   Whom Do You Rescue? Honored Debts and Selective Defaults in Four British Dominions.....</b>	<b><a href="#">81</a></b>
<i>Era Dabla-Norris and Marina Marinkov</i>	
<b>4   Two Decades of Walking on a Tightrope: Public Debt Management in France during the Interwar Period.....</b>	<b><a href="#">121</a></b>
<i>Nicolas End</i>	
<b>5   Conquering the Debt Mountain: Financial Repression and Italian Debt in the Interwar Period .....</b>	<b><a href="#">173</a></b>
<i>Marina Marinkov</i>	
<b>6   Germany in the Interbellum: Camouflaging Sovereign Debt.....</b>	<b><a href="#">205</a></b>
<i>Mark De Broeck and Harold James</i>	
<b>7   Japan during the Interwar Period: From Monetary Restraint to Fiscal Abandon.....</b>	<b><a href="#">241</a></b>
<i>Nicolas End</i>	
Appendix: The Interwar Debt Database .....	<a href="#">283</a>
Index .....	<a href="#">291</a>



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*For Jason and Shubh*

# Acknowledgments

This book has been a collective endeavor and has benefited from contributions from both inside and outside the IMF. The book gained momentum and inspiration from Professor Thomas Sargent, following his inaugural Richard Goode Lecture on “A History of U.S. Debt Limits” on December 2, 2015. I would like to thank Professor Sargent for his exceptional contributions and inspiring example as well as the other contributing authors for their close collaboration and enthusiasm for the topic. A very special thanks to David Lipton, Acting Managing Director of the IMF, for his enduring interest and support. Thanks also to Vitor Gaspar for his constant presence and engagement during the various stages of the work and his invaluable guidance and to Maury Obstfeld for his generosity.

Jeffrey Hayden and Joe Procopio of the IMF’s Communications Department efficiently managed all aspects related to the production of the book, and I am grateful for their excellent work. Patricia Quiros, Von Allena, Joey Kilpatrick, and Fedor Miryugin provided excellent administrative and research assistance during the many steps needed to bring the book into completion. Mary Fisk provided excellent editorial assistance and Kevin Bradley performed layout services for the book.

Era Dabla-Norris  
Editor

# Foreword

**THOMAS J. SARGENT**

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**HOOVER INSTITUTION**

**JUNE 17, 2019**

The seven chapters in this volume tell stories about correlated macroeconomic and political events that occurred in six countries and four Dominions of the British Commonwealth between 1914 and 1940. By a story, I mean a collection of observations ordered in time together with causal interpretations that come from projecting the observations onto a theory. Correlations among our stories arise partly from the international aspects of the events being studied here and partly from the economic theories that we authors share.

Prices, quantities, and political arrangements in all countries under study responded to common forces discharged by World War I: (1) large disturbances to each government's taxes, expenditures, and debts; (2) disruptions to an international gold standard, surges of uncertain durations in agricultural and other primary product prices, destruction of transportation networks, and new military and political barriers to international trade; (3) collateral stresses on political and economic arrangements for sharing costs of government services and transfers; (4) consequent uncertainties about how failing fiscal plans would eventually be renegotiated that reduced prices and marketability of debts, further complicating government finances; (5) common movements in growth rates in national GDPs (for example, a worldwide boom in the 1920s followed by the Great Depression in the 1930s) that affected government finances; and (6) a postwar web of international debts and reparations that aggravated conflicts of interest between creditors and debtors. The chapters assembled here provide cross-country comparisons of economic and political outcomes that were responses to a common set of problems that had been created by these forces.

Confining our attention to the 1914–40 period brings risks. Responses to the enormous disruptions associated with World War I did not start from a blank slate. Decision makers knew how countries had coped during earlier wars: in the United Kingdom during and after the wars from 1792 to 1815 against France, and in the United States during and after the Civil War. Those experiences had formed a conventional wisdom about how to finance wars and how to manipulate returns on government debts through price level adjustments that could be engineered by temporarily suspending convertibility of government notes into gold but eventually resuming convertibility at prewar rates of exchange. Thus, an issue that confronted many countries after World War I was how to reconstruct a prewar gold standard. That same problem

had also been faced in the 19th century. UK monetary-fiscal authorities after 1815 had awarded high real returns to government creditors by presiding over a fall in the price level sufficient to allow the Bank of England in 1821 to make its notes convertible into gold once again at the same rate that had been maintained before convertibility was suspended in 1797. US monetary-fiscal authorities did something similar after the US Civil War ended in 1865. Greenback dollars issued by the Union during the dark days of the war at big discounts relative to gold dollars were ultimately made convertible into gold one for one starting in 1879. Authors of these policies wanted wartime suspensions of convertibility to be temporary because they wanted observers to infer that future suspensions would also be temporary. Subsequent monetary and fiscal decision makers praised those episodes for fostering expectations among creditors that public debts would be honored, thus enhancing the marketability of public debts and providing future government officials opportunities to borrow at the low interest rates brought about by low default probabilities. But, digging deeper, post-US Civil War debt repayment and currency policies had, in truth, emerged only after bitterly contested political struggles that had pitted the interests of government creditors against the interests of both tax payers and the private borrowers who had issued bonds dominated in paper units of account. Those disputes should have warned post-World War I policy-makers that the foundations of the conventional wisdom were fragile and subject to substantial political risks.

Nevertheless, the idea that a government earns a reputation as a trustworthy creditor by honoring promises to award high returns to government creditors has been treated well by modern theories of how sovereign debts are valued and optimally managed. Theories of sovereign and domestic government debts are driven by assumptions about the different consequences of paying and defaulting. These consequences are affected by and feedback on how government deficits are chosen. Models differ in their assumptions regarding consequences of defaults and about incentives to repay. Even when they are not mentioned explicitly, authors of the papers in this volume had a suite of modern models of sovereign borrowing and tax-expenditure policies in mind both when they selected observations to report and when they created stories about those observations. Our accounts are thus frankly prejudiced by our theories.

Information theory is the science of communication between a theoretical statistical model and a data set. The chapters in this volume emerged from informal iterative processes in which models were projected onto information that authors had first censored by projecting onto theoretical models. Storytellers always select data to report and to emphasize. Sometimes data reveal patterns that send us back to our drawing boards as theorists and storytellers. For example, some useful modern models of sovereign debt assume that it is easier for a sovereign government to default on foreigners than on its own citizens. Some episodes in this volume belie that assumption. In other episodes, governments promised creditors convertibility options in order to contain the classic

debt-dilution forces that had weakened markets for their sovereign debt. How creditors exercised those options when interest rates rose and whether and how successor government authorities honored promised options to convert old low-coupon bonds to new higher-coupon bonds are among the good stories presented here.

When interpretations in the chapters appear difficult to square with available theories of sovereign debt, a likely culprit can be the failure of government monetary, fiscal, and debt policies to take forms envisioned in the theories. World War I presented governments with unprecedented situations and ambiguities that made it difficult to evaluate fiscal resources. Events stressed and sometimes broke long-standing conventions for separating monetary and fiscal policies within and across countries. Damaged political systems were reconstituted on the fly. This diminished the ability of government administrators and majorities to honor promises that earlier governments had made and to make new promises that future governments would want to implement. Complicated and ambiguous webs of intergovernmental debts and reparations payments made present values of future government deficits difficult to estimate.

The chapters in this volume remind me of several adages. The first is the saying that “monetary policy has the power to convert bad loans into good ones.” When debt contracts are denominated in a domestic nominal unit of account, monetary policy can accomplish that “miracle” by generating an unanticipated increase in the price level, thereby transferring wealth from creditors to debtors. When contracts are indexed, for example, to gold units of account, as US government and many private bonds were before 1933, a monetary authority can engineer the “miracle” by abrogating gold clauses and declaring that a depreciated paper currency is a legal tender for all debts public and private.

A second adage is that fiscal crises have provoked political revolutions. By “political revolution,” I mean a rearrangement of protocols for deciding who chooses what and when. A rearrangement need not be accompanied by violence, but it often has been. Fiscal crises occurred when earlier governments had made incoherent promises about future streams of revenues to taxpayers, government creditors, and beneficiaries of government expenditures and transfers. The promises were not coherent in the sense that they violated intertemporal government budget constraints. To render expenditure and tax revenue streams coherent, some promises had to be broken, but existing political institutions were unable to renegotiate promises in a way that would make fiscal promises fit together. Sovereign debt crises have occasionally provoked rearranged lines of sovereignty, for example, either by strengthening or by weakening the center vis-à-vis the constituent states of a federal system.

A final adage is a “law of unintended consequences,” something not comprehended by the rational expectations assumption used in most modern models of sovereign debts and macroeconomic fluctuations. World War I was a tragedy brought about by misunderstandings and miscalculations by all belligerent countries. The world still suffers from their adverse unintended consequences.

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# Preface

**ERA DABLA-NORRIS AND VITOR GASPAR**

The seven chapters in this book—about the United States (US), the United Kingdom (UK), the four Dominions of the British Commonwealth (Australia, New Zealand, Canada, and Newfoundland), France, Italy, Germany, and Japan—describe how, by affecting fiscal policy, political and economic interests influenced alliances, defaults, or quasi defaults and the unwinding of debts. We describe the data compiled for this volume in more detail later, but as an introductory note, the distinct domestic and external debt securities issued by these countries and the intricate network of sovereign debts and credits that emerged at the end of World War I (WWI) underpin our analysis.

The interwar years offer an exceptionally rich laboratory for studying international monetary and debt policies. With the onset of WWI, the unprecedented trade and capital flows seen in the prewar period of globalization ceased, and the gold standard was suspended. But the war also proved to be a watershed for sovereign debt. The US emerged as a major creditor nation; the governments in Europe were swamped with debt. The victors had borrowed to win, and the losers were saddled with reparations. Buoyed by the fragile monetary and trading system assembled in the 1920s, American banks entered a period of massive international lending to allies and belligerent governments alike, partly intermediated by British banks. The boom in private and sovereign credit ultimately ended spectacularly in a crash, turning a financial panic into a worldwide depression.

The decades after WWI are replete with instances of commodity price busts, financial catastrophes, hyperinflations and deflations, devaluations, protectionist pressures, and stabilizations—both failed and successful. The ensuing implications for debt management, restructurings, and repudiations of domestic and external loans were similarly momentous. And although today's circumstances are undoubtedly different from those experienced in the past, parallels exist with the historical episodes covered in this volume. Taking stock of past events can thus provide insights into the theories, opinions, and interests that motivated how governments managed situations that resemble ones that we confront today, as well as those that lie ahead.

The country narratives exploit granular information on the nature, size, and characteristics of public debt instruments and the purposes for which they were



issued (Appendix).<sup>1</sup> This offers unique insights into how countries managed their debt, its composition (for example, denomination, maturity, coupon rates, and marketability), and the role that debt conversions and restructurings played. In theory, a sovereign debt contract is an ownership title expressing a claim on part of a state's future revenue. These claims transcend international borders. In this respect, the comprehensive inventory of domestic and external debt instruments assembled can shed light on the linkages among debt, macro-economic policies, and the political interests they create.

## What Does This Book Cover?

In each of the countries covered in this volume, fiscal policy and its distributional impacts grew in importance as questions regarding who would pay for postwar reconstruction and how to cope with fallout from the depression came to the fore. This boiled down to the questions of whom to tax and how much. However, the international dimension was equally relevant. Large government debts politicized issues about units of account, monetary policies, and exchange rate policies. Indeed, inflation and deflation fueled the debate surrounding currency stabilization—namely the level at which to peg the currency to gold—and the resulting implications for creditors and debtors. Ultimately, domestic politics and international entanglements shaped the constellation of fiscal-monetary and sovereign debt outcomes observed during this period, a connection highlighted in this book.

The chapter on the US constructs a quantitative account of Henry Carter Adams's (1887) "political complications sure to come with an extension of international credits" by the US during WWI and the absence in 1914 of "a clearly [US] formulated policy, upon which the public may rely." WWI and the emergence of New York as a major financial center led to investment decisions by private US citizens that influenced US foreign policy and federal expenditure, monetary, debt management, and taxation policies in unintended and long-lasting ways. The impact of these decisions for belligerent and Allied countries was no less consequential. Ultimately, what began as foreign loans by the US during the war became subsidies by the early 1930s.

The chapter on the UK presents a narrative account starting with the forces that contributed to the beginning of the end of British hegemony. As the country with the deepest financial markets, the UK borrowed to finance its own war efforts; it also extended loans to its colonies and other allies in Europe. On the domestic front, conversion provisions extracted by financial players in London

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<sup>1</sup>The data compilation exercise was inspired by the painstaking efforts of Professors Hall and Sargent (2011, 2018) and Professors Ellison and Scott (forthcoming) to compile historical data on prices, quantities, and characteristics of individual debt instruments for the US and the UK, respectively. Some of these data are also featured in their chapters in this volume. Price data on marketable securities, however, proved to be elusive for a larger group of countries (see Appendix and End, Marinkov, and Miryugin 2019).

left the government more heavily indebted than it needed to be at the end of the war. On the external front, the decision to borrow from the US to finance the war and the emergence of the US at the epicenter of the international debt network heralded the end of British financial might.

The four Dominions of the British Commonwealth—Australia, Canada, New Zealand, and Newfoundland—offer case studies of external dependence, boom-bust cycles, macroeconomic adjustments, bailouts, and restructuring not unlike those seen today. Once overseas lending dried up, what bound them to London (New York in Canada's case) was “the crushing weight of accumulated debt” (Cain and Hopkins 2016). All four Dominions faced difficult choices between honoring debts and selectively defaulting on their domestic and external debt obligations and on contracts denominated in different currencies. This chapter documents the trade-offs they faced and highlights the role that reputational considerations played in ensuring that some debts were paid.

The chapter on France examines how the country answered the “who should pay” question to reduce its sizeable debt overhang during the interwar period. In the 1920s, France partially taxed away its large pile of domestic debt through inflation. Budget deficits were predicated on the premise that reparation payments from Germany would eventually permit the retirement of any new debt. When these payments failed to materialize, higher deficits were covered by printing money. But the government also resorted to short-lived austerity measures and a wide range of debt management tactics—from setting up mechanisms that signaled willingness to pay to strategic structuring and marketing of domestic bonds—to keep the sovereign afloat.

On August 18, 1926, amid speculative attacks on the currency, Benito Mussolini declared that he would defend the exchange rate “whatever the cost.” This chapter documents how altering the cost and composition of the country's debt through external debt consolidations and reputation-eroding forced domestic conversions was an integral part of the strategy to achieve the exchange rate objective. In an environment of weak tax capacity, large budgetary financing needs were met by financial repression—the government required banks and other captive financial institutions to hold debt at artificially low interest rates. This was tantamount to a tax on savings.

The chapter on Germany documents how a sovereign can try to “camouflage” its fiscal position in an attempt to obfuscate the extent of its financing needs and level of indebtedness. With memories of the Weimar hyperinflation still fresh, the Nazi government resorted to creative accounting and domestic financing mechanisms that deliberately misrepresented its fiscal position. It manipulated fiscal data and price indices to misinform the public about the underlying inflationary pressures from rearmament. It misled foreign creditors on its intentions to service reparations and external loans. Exchange controls formalized a default on foreign obligations, even as bilateral trade negotiations were used to play creditors against one another.

The chapter on Japan relates the nation's experience in the interwar period in the form of a narrative in three acts of how the balance of power between fiscal and monetary policies shaped macroeconomic and sovereign debt outcomes. In the first act, monetary dominance and fiscal discipline were anchored by a desired return to the gold standard and the ambition to internationalize the currency. The second act, characterized by monetary subordination and cooperation to aid economic recovery, followed in the wake of the worldwide depression. The final act was one of fiscal dominance amid capital controls and limited access to international markets. The result was a significant debt overhang and one of the longest quasi-sovereign default episodes in history.

### Looking Forward: The Case for International Cooperation

The sequence of macroeconomic events and debt and economic crises described in the chapters are country specific. But common economic forces and disturbances were clearly in play. The narratives also illustrate how the absence of effective international collaboration and resolution mechanisms can amplify shocks and inflict enormous damage on the global economy. The interwar period saw recurrent failures of international cooperation. Often, policymakers seemed to be mostly looking backward, hoping to reconstruct the pre-WWI monetary and trading arrangements. But that world was lost. In 1944, at Bretton Woods, the delegates with the voices that counted were looking forward and wanted to create something new. Nevertheless, the fundamentals of international sovereign debt politics endure.

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## CHAPTER 1

# Complications for the United States from International Credits: 1913–40<sup>1</sup>

GEORGE J. HALL AND THOMAS J. SARGENT

*The granting of foreign credit is a first step toward the establishment of an aggressive foreign policy.*

Adams (1887, 25)

*Money is the worst of all contrabands. . . . I know of nothing that would do more to prevent war than an international agreement that neutral nations would not loan to belligerents.*

Secretary of State William Jennings Bryan to President Woodrow Wilson,  
August 10, 1914

*We are going into war upon the command of gold.*

Senator George Norris  
(speech before the Senate, April 4, 1917, 65th Congress, 1st Session)

*It is the instigators of this war who deserve to bear this lead weight of billions. Let them drag it through the decades to come, not us.*

Dr. Karl Helfferich, Secretary of State for the Treasury  
(August 20, 1915, speech before the Reichstag)

*And forgive us our debts, as we forgive our debtors.*

Matthew 6:12, King James Bible

*It is highly improbable that Congress or popular opinion in this country will ever permit cancellation of any part of the debt of the British Government to the United States as an inducement towards a practical settlement of the reparation claims.*

Woodrow Wilson to David Lloyd George, November 2, 1920

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<sup>1</sup>We thank William Berkley for supporting our research. Hall thanks the Theodore and Jane Norman Fund for financial support. We thank Mark De Broeck, Dominique Guillaume, Paul Jankowski, Juna Luzi, Jonathan Payne, Jeremy Siegel, Balint Szoke, and Ellis Tallman for helpful comments and Jeffery Cheng and Rahim Damji for excellent research assistance. Balint Szoke wrote Python code to estimate the term structure of yields on Treasury bonds, and Jonathan Payne wrote Python code to organize the bond price and quantity data.



## INTRODUCTION

Before 1914, the US was a net *debtor* to foreigners. But in 1887, the American economist Henry Carter Adams had forecast that US economic growth and falling returns on US securities would eventually transform the US into a net foreign *creditor*. Adams said that would threaten George Washington’s “true policy to steer clear of permanent alliance with any portion of the foreign world.”

It lies altogether within the range of possibilities that the city of New York, like the cities of London and Paris, should become a storehouse of capital to which the sovereigns of petty states may resort to fill their depleted treasuries. This tendency is fraught with danger to the policy of isolation thus far maintained by the United States, and it becomes an important question, what attitude this country should assume with regard to the interests of those who place their funds beyond the control of American law. One of two policies must be declared, nor ought the nation to be permitted to drift in this matter. Either citizens of this Republic should know that money placed in foreign bonds is at their own risk, or they should prepare themselves to see questions of foreign policy become much more important than they now are. It seems, then, from whichever point of view we consider the question, that the United States can not reasonably expect to avoid political complications sure to come with an extension of international credits; and it is on this account desirable that the Federal Government should present a clearly formulated policy, upon which the public may rely.

Adams (1887, 37–38)

We do not know whether Professor Woodrow Wilson had read Henry Carter Adams’s 1887 book, but we do know that Secretary of State William Jennings Bryan conveyed the essence of Adams’s message to President Wilson in an August 10, 1914, letter that we reproduce in Annex 1.2. President Wilson rejected Secretary Bryan’s advice to prohibit US citizens from lending to belligerents. Instead, in 1914 Wilson urged but did not compel US citizens to be “impartial in thought as well as in action.” American banks and other investors ignored Wilson’s advice and bought billions of dollars of UK and French government bonds.<sup>2</sup> J.P. Morgan & Co. marketed those bonds to US citizens and also served as sole agent for the British and French governments when they purchased billions of dollars of war supplies from US producers.

When war began in August 1914, the UK was a net creditor to the US. During the war, the UK government forced its citizens to exchange their US securities for British sovereign debt and then used those securities as collateral for sovereign UK bonds sold to American citizens. By the late fall of 1916, the UK government had nearly exhausted that collateral. Therefore, on November 27, 1916, at the urging of President Wilson, who by then had reconsidered his rejection of Secretary Bryan’s August 1914 advice, the Federal Reserve Board publicly warned US

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<sup>2</sup>As Hofstadter (1948, ch. 10, Part IV) says of Wilson’s recommendation, “but he and his most important advisers were utterly incapable of obeying the injunction themselves.”

citizens not to buy more British or French government debt.<sup>3</sup> UK citizens and civil servants including John Maynard Keynes welcomed the Federal Reserve Board's message because they were then using the UK government's financial distress to strengthen their recommendation that the UK accept what Woodrow Wilson would soon call a "peace without victory."<sup>4</sup>

But hawkish British and German government officials interpreted the November 27 Federal Reserve memorandum as only a temporary setback to British credit in America and focused instead on what they recognized as the same decisive interest that Henry Carter Adams had identified in 1887: private US creditors of the UK and French governments and US export producers who had benefited from those credits wanted Entente victory. Opponents of peace without victory in both the UK and Germany pointed to those American interests. Hawkish Germans argued that, because American private creditors had lent so much to Entente governments, the US would soon enter the war on the Entente side, whether or not Germany began unrestricted submarine warfare.<sup>5</sup> Germany resumed unrestricted submarine war on February 1, 1917, and the US entered the war on April 6, 1917. The US thus failed to "avoid political complications sure to come with an extension of international credits" as forecast by Henry Carter Adams in 1887.<sup>6</sup>

## COMPLICATIONS FROM INTERNATIONAL CREDITS

Before the US entered the war on April 6, 1917, it was private US bondholders who had lent to the British and French governments. Afterward, it was the US government. On April 24, 1917, President Wilson signed the First Liberty Loan Act. It authorized the Treasury to borrow up to \$5 billion and to purchase up to \$3 billion of Entente and Allied debts. Britain and France soon refinanced their short-term debts to private US citizens by borrowing from the US government, which in turn borrowed from US citizens.<sup>7</sup> Congress eventually passed three more Liberty Loan Acts and one Victory Loan Act. Table 1.1 describes features of the

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<sup>3</sup>See Link (1965, 202), Meyer (2006, 422), and Tooze (2014, 51).

<sup>4</sup>See Skidelsky (1983). President Wilson coined the phrase "peace without victory" in his January 22, 1917, speech to the US Senate. That speech contains a description of conditions for a sustainable peace that President Wilson and the other victors would ignore at the Peace Conference at Versailles: "Victory would mean peace forced upon the loser, a victor's terms imposed upon the vanquished. It would be accepted in humiliation, under duress, at an intolerable sacrifice, and would leave a sting a resentment, a bitter memory upon which terms of peace would rest, not permanently, but only as upon quicksand. Only a peace between equals can last. Only a peace the very principle of which is equality and a common participation in a common benefit. The right state of mind, the right feeling between nations, is as necessary for a lasting peace as is the just settlement of vexed questions of territory or of racial and national allegiance." Wilson changed his mind about these things after the US entered the war.

<sup>5</sup>Hofstadter (1948, ch. 10) and Tooze (2014) document this self-confirming alignment of beliefs.

<sup>6</sup>Schuker (1988) describes complications and consequences.

<sup>7</sup>In June 1918, roughly \$1.75 billion in private loans to Britain and France remained outstanding.

**Table 1.1. Liberty and Victory Loans**

	Coupon Rate	Issue Date	Call Date	Maturity Date	Convertible?	Issued (billions)
First Liberty Loan	$3\frac{1}{2}$	Jun 1917	Jun 1932	Jun 1947	Yes <sup>1</sup>	\$2.0
Second Liberty Loan	4	Nov 1917	Nov 1927	Nov 1942	Yes <sup>1</sup>	3.8
Third Liberty Loan	$4\frac{1}{4}$	May 1918		Sep 1928	No	4.2
Fourth Liberty Loan	$4\frac{1}{4}$	Oct 1918	Oct 1933	Oct 1938	No	7.0
Victory Liberty Loan <sup>2</sup>	$3\frac{3}{4}$ , $4\frac{3}{4}$	May 1919	Jun 1922	May 1923	No	4.5
						\$21.4

Source: US Treasury *Monthly Statement of the Public Debt*.

<sup>1</sup>If the Treasury issued a new series of bonds at a higher interest rate prior to the end of the war, investors in the First and Second Liberty Loans could exchange their bonds at par for new bonds with the maturity date and call provisions of their original series but with the coupon rate and tax exemptions of the subsequent series. There was no limit to the number of times holders of the First Liberty Loan could exercise this option, but holders of the Second Liberty Loan could exercise this option only once.

<sup>2</sup>The Victory Liberty Loan paid a  $3\frac{3}{4}$  coupon per annum if the coupon payments were exempt from federal income taxes; otherwise, this loan paid a  $4\frac{3}{4}$  coupon per annum.

Liberty Loan bonds.<sup>8</sup> By making them convertible, Congress insured purchasers of First and Second Liberty Loan bonds against risk that interest rates would rise. Purchasers of these bonds could convert them at par into new bonds with the same maturity date and call provisions as their original loan but with the coupon rate and tax provisions of subsequent issues. Higher later coupon rates did indeed induce many owners of First and Second Liberty Loan bonds to exercise those conversion options. Of the nearly \$2 billion First Liberty Bonds sold, about \$560 million were converted into higher coupon-paying bonds. Of the nearly \$4 billion Second Liberty Bonds sold, nearly all were ultimately converted.<sup>9</sup>

<sup>8</sup>The table omits an important feature of Liberty Bonds that underlies the story told by Edwards (2018): Liberty bonds contained a gold clause promising to pay interest and principal in gold coin. Congress abrogated the gold clause in both private and public debt contracts in 1933, provoking a sequence of legal challenges culminating in four cases decided by the Supreme Court mostly but not entirely in the government's favor in February 1935. One of the four cases, *Perry v. United States*, involved Perry's request that the government honor its promise to pay his Fourth Liberty Loan bonds in US gold coin or its equivalent.

<sup>9</sup>The conversion rate was lower for the First Liberty Bonds because conversion to a higher coupon bond also meant a less favorable tax treatment.

**Table 1.2. Interallied Indebtedness at the Armistice (*in millions of dollars*)**

Debtor	To US	To Britain	To France	Total
Belgium	\$172	\$422	\$535	\$1,129
France	1,970	1,683		3,653
Great Britain	3,696			3,696
Greece		90	155	245
Italy	1,031	1,855	75	2,961
Jugoslavia (Serbia)	11	92	297	400
Portugal		61		61
Romania		78	220	298
Russia	187	2,472	955	3,614
Total	\$7,067	\$6,753	\$2,237	\$16,057

Source: War Debt Supplement, *The Economist*, November 12, 1932, page 2.

Between 1917 and 1920, the US War and Navy departments spent \$20 billion and the Treasury extended \$9.5 billion in loans to Britain, France, Italy, and eight other allies of Entente countries.<sup>10</sup> After that, the Treasury extended credits to an even larger group of countries in order to finance US sales of surplus war materials and US relief supplies to Europe.<sup>11</sup> By December 1922, a total of 20 nations owed the Treasury \$11.8 billion (\$10.1 billion in principal and \$1.7 billion in interest in arrears). The face value of those foreign loans represented 52 percent of privately held US federal debt and 16 percent of US GDP in 1922.<sup>12</sup>

Table 1.2 summarizes a network of international debts and credits that had emerged at the end of the war and that framed political questions that would preoccupy statesmen and citizens for the next 15 years. Should debts be paid? By whom? Should price levels and exchange rates of currencies in which loans were denominated be adjusted to redistribute resources between creditors and debtors within and across countries? Should governments discriminate between domestic and foreign creditors?<sup>13</sup>

During the war, both German and French finance ministers had answered the who-should-pay question. The German finance minister assured the Reichstag that the “lead weight of billions” would be carried by Germany’s enemies.<sup>14</sup>

<sup>10</sup>Through the Liberty Loan Acts, credits were granted to Belgium, Cuba, Czechoslovakia, France, Great Britain, Greece, Italy, Liberia, Romania, Russia, and Serbia.

<sup>11</sup>The nine countries granted just postwar credits were Armenia, Austria, Estonia, Finland, Hungary, Latvia, Lithuania, Nicaragua, and Poland.

<sup>12</sup>For us, the terms *face value* and *par value* mean the same thing.

<sup>13</sup>This question and the previous ones underlie the struggles chronicled by Edwards (2018).

<sup>14</sup>See the speech by Karl Helfferich cited by Taylor (2013, ch. 2, Loser Pays All).

Meanwhile, the French finance minister assured the French parliament that *France's* enemies, not Germany's, would service French war bonds.

With more foresight, a wartime French finance minister could have said that the burden of paying French war bonds would fall either on France's enemies or on its foreign *friends* or maybe on its domestic creditors and taxpayers. Deciding would preoccupy Europeans and Americans from the time of Armistice on November 11, 1918, until the trough of the world depression in 1933. Failed improvisations postponed a permanent settlement until 1933. In 1919, John Maynard Keynes had urged immediate agreement to what would ultimately be the disposition of postwar international loans and reparations.<sup>15</sup> Keynes said that the US should write down its loans to the UK, France, and Italy in exchange for their accepting smaller reparations from Germany. Keynes said that would reset national balance sheets in ways that would foster reconstruction of international monetary and trading systems. It is true that in 1922 Congress established the World War Foreign Debt Commission to write down and reschedule outstanding Treasury credits to foreign governments, but not until 1933 would governments accept the comprehensive adjustments that Keynes had recommended in 1919. By then a fragile monetary and trading system assembled in the 1920s had collapsed because it had depended on what turned out to be too optimistic assumptions about both macroeconomic growth and politically sustainable fiscal-monetary policies.

## PURPOSE AND ORGANIZATION

This chapter constructs a quantitative account of Henry Carter Adams's "political complications sure to come with an extension of international credits" by the US during World War I, the absence in 1914 of "a clearly [US] formulated policy, upon which the public may rely," outcomes brought by the absence of such a policy, and their consequences for US federal monetary and fiscal arrangements in the 1920s and 1930s.<sup>16</sup> We apply an accounting framework described in Annex 1.1.<sup>17</sup> We work in the Davis Dewey (1912) tradition of spotlighting objects in government budget constraints and balance sheets. These objects frame financial questions created by Adams's "political complications" and our answers to them: How large were the US government credits extended to foreign governments during the war? How big were the promised and realized federal income streams generated by these credits, and how did those quantities compare with interest payments on federal debts issued during the war? How did defaults, reschedulings, and repudiations of foreign credits and fluctuations in rates of growth of GDP, nominal interest rates, inflation,

<sup>15</sup>See Keynes (1920, 1922), Steiner (2005, ch. 4), Tooze (2014, 295–99), and Clarke (2017, chs. 11–13).

<sup>16</sup>The phrases in quotes are again from Adams (1887, 37–38).

<sup>17</sup>We use some of the data on prices and quantities of all bonds issued by the US government from 1776 to 1960 that have been collected and organized by Hall, Payne, and Sargent (2018).

and primary federal government budget surpluses contribute to the evolution of the federal debt-to-GDP ratio?<sup>18</sup>

Although we focus mainly on the period during and after World War I, we also compare outcomes with those from a period of similar length: during and after the US Civil War. The Civil War experience set precedents that US policymakers naturally consulted during and after World War I.<sup>19,20</sup> Two 1913 reconstructions of US fiscal-monetary infrastructure distinguished the situations confronting Congress during the Civil War and World War I: the Federal Reserve System and the 16th Amendment to the US Constitution and the Revenue Act of 1913 that authorized a federal income tax. The US used both of these new institutions to help finance World War I. By way of contrast, the US entered the Civil War without a federal income tax and without either a central bank or a national banking system. Although Civil War Congresses levied a federal income tax and constructed a new National Monetary System, it took time to get the administrative machinery up and running. The US entered World War I with a Federal Reserve System and a federal income tax ready to go, having only to choose monetary policy actions and set income tax rates within established institutions.<sup>21</sup>

## DEBTS, CREDITS, VALUES, AND RETURNS

### Overview

Figures 1.1, 1.2, and 1.3 set the scene.<sup>22</sup> Figure 1.1 shows the big rise in military expenditures as well the granting of large foreign credits during the war. The war brought a permanent rise in federal expenditures as a fraction of GDP. Figure 1.2

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<sup>18</sup>Our accounting exercises are designed to shed light on just some of the broader web of complications described with authority and wide command of primary sources in books by Eichengreen (1992), Steiner (2005), and Tooze (2014).

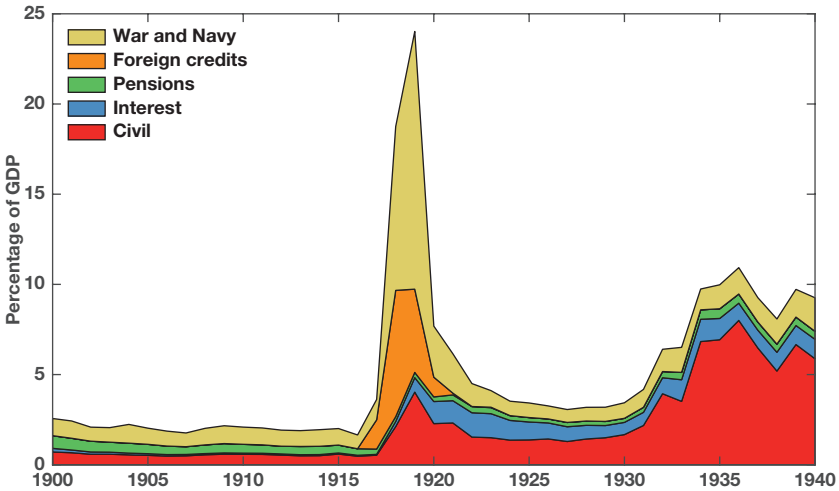
<sup>19</sup>President Wilson's Treasury Secretary and son-in-law William Gibbs McAdoo sought to borrow in a more orderly way than he thought the Union had managed during the Civil War. McAdoo (1931, 373) said that he "did not get much in the way of inspiration or suggestion from a study of the Civil War, except a pretty clear idea of what not to do." For example, rather than improvising 19 separate securities as the Union had during the Civil War, McAdoo convinced Congress to finance the war mostly by sequentially issuing five securities.

<sup>20</sup>Hall and Sargent (2014) compare fiscal aspects of the Civil War with those of the War of 1812 and the War for Independence.

<sup>21</sup>As part of his critical analysis of the way the Union had financed the Civil War, Adams (1887, 134–35) observed that "it is easier to raise the rate of existing taxes than to establish a new system of duties. From this it follows that the germ of a war policy lies back in the treasury policy of ordinary times." He recommended that "the permanent system should be so adjusted as to respond quickly to any change in rates imposed, and this can be easily done by fixing the ordinary rate of taxation below the maximum revenue rate." Adams (1887, 132) performed an interesting counterfactual experiment in which he estimated the consequences for Union finances of having immediate access to revenue sources that the Congress established only during the war.

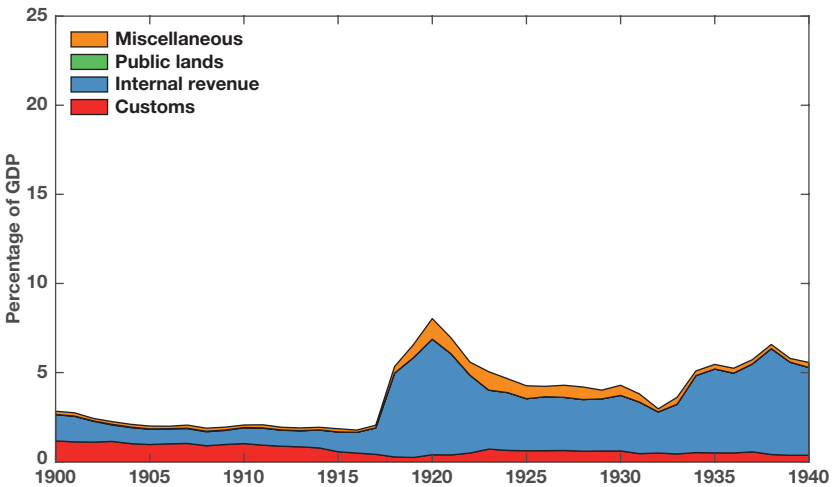
<sup>22</sup>Bassetto and Galli (2017) provide an information theoretic answer to the question "Is Inflation Default?"

**Figure 1.1. US Federal Expenditures by Type (Percentage of GDP)**



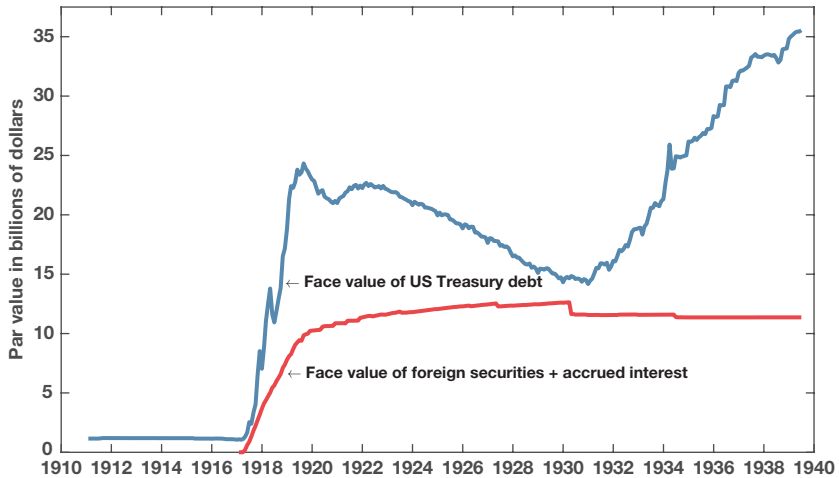
Source: Foreign credits, United States World War Foreign Debt Commission (1927), Exhibit 116, pp. 318–325; other expenditure series, *Annual Report of the Secretary of the Treasury on the State of the Finances*, 1941, pp. 408–416; GDP, <http://www.measuringworth.com>.

**Figure 1.2. US Federal Revenues by Types (Percentage of GDP)**



Source: Revenue series, *Annual Report of the Secretary of the Treasury on the State of the Finances*, 1941, pp. 408–416; GDP, <http://www.measuringworth.com>.

**Figure 1.3 Face Value of US Treasury Debt and Face Value of Foreign Securities Held by the Treasury (Including Accrued Interest)**



Source: US Treasury *Monthly Statement of the Public Debt*, and Board of Governors of the Federal Reserve System (1943), Table 149.

Note: US Treasury debt excludes securities held in US government accounts and by the Federal Reserve.

shows that while federal revenues as a fraction of GDP rose during the war, they rose much less than expenditures. That discrepancy gave rise to the wartime growth of federal government debt depicted in Figure 1.3.<sup>23</sup> The book values in Figure 1.3 show that during the war the US Treasury borrowed large amounts and lent large sums to European combatants.<sup>24</sup> Book values indicate that net US government indebtedness was actually substantially less than the gross amount depicted in Figure 1.3 because large fractions of outstanding US Treasury bonds were “backed” by claims on foreign governments. How much “backing” those credits would in fact put behind US Treasury bonds, and how much relief they would bring the US taxpayers who were ultimately responsible for servicing those bonds, would depend on how faithfully those foreign debtors honored their obligations to the US Treasury. In the end, they would pay only small fractions of what they had promised, but it would take a long time for all parties to accept that.

We want to know how accurately the book values in Figure 1.3 approximate market values.<sup>25</sup> Figure 1.4 shows that book and market values of outstanding

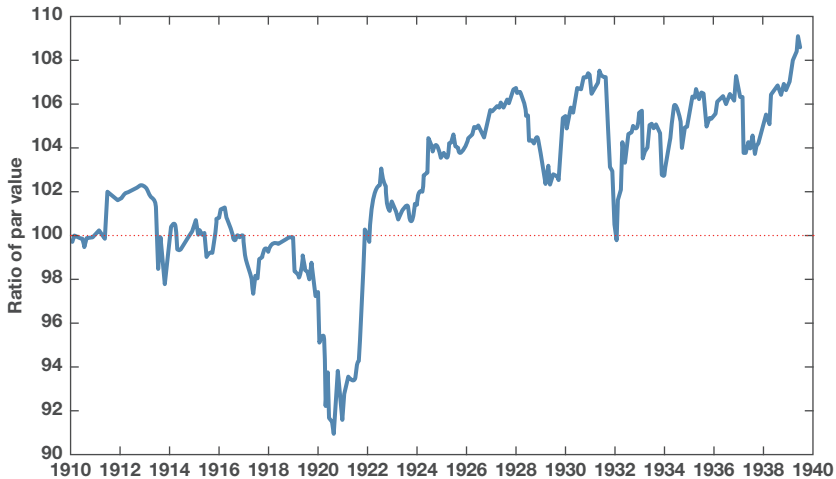
<sup>23</sup>However, during the war, a sizeable fraction of the interest-bearing federal debt was owned by the Federal Reserve System. Please see the third paragraph of later section titled “Financial Repression and Subsidies.”

<sup>24</sup>President Wilson called them associates, not allies.

<sup>25</sup>Distinguishing between book and market values of government debt is a theme of Dias, Richmond, and Wright (2014) and Hall and Sargent (2011).



**Figure 1.4. Ratio of Market Value to Par Value of Privately Held US Treasury Debt**



Source: Hall et al. (2018) and author calculations.

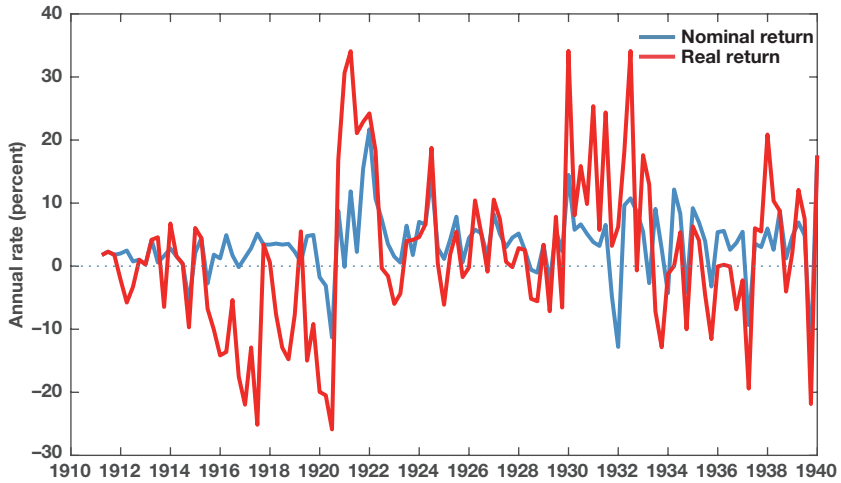
Treasury bonds approximate each other pretty well. This need not have occurred; it is a consequence of the way the Treasury managed its debt in light of market interest rates. In a later section of this chapter, titled “Bond Prices and Quantities,” we describe how we use prices and quantities of individual bonds to measure the total market value of Treasury debt.

## Returns

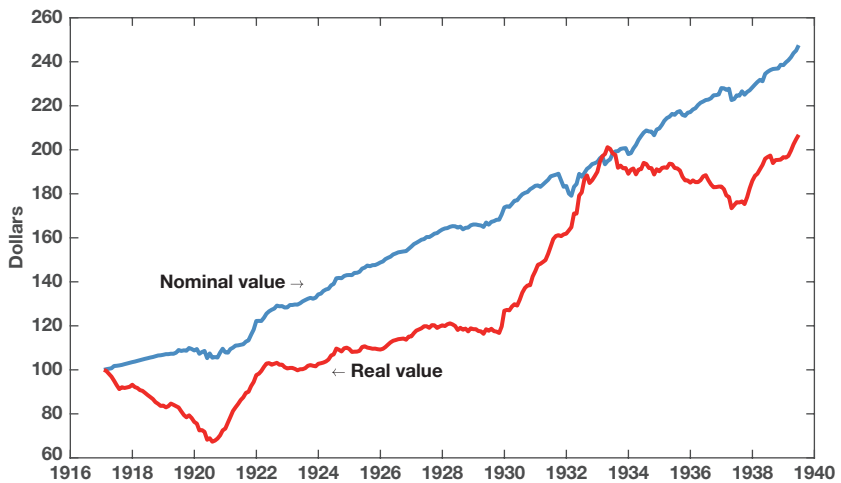
Figures 1.5 and 1.6 show two ways of depicting nominal and real returns on the Treasury bond portfolio. Figure 1.5 shows annual nominal and real net returns, whereas Figure 1.6 shows the real and nominal outcomes of purchasing \$100 of the bond portfolio in January 1917 and continually reinvesting proceeds in a rebalanced portfolio of Treasury securities. Figure 1.6 reveals how US price level movements influenced real returns.

## Price Level Movements

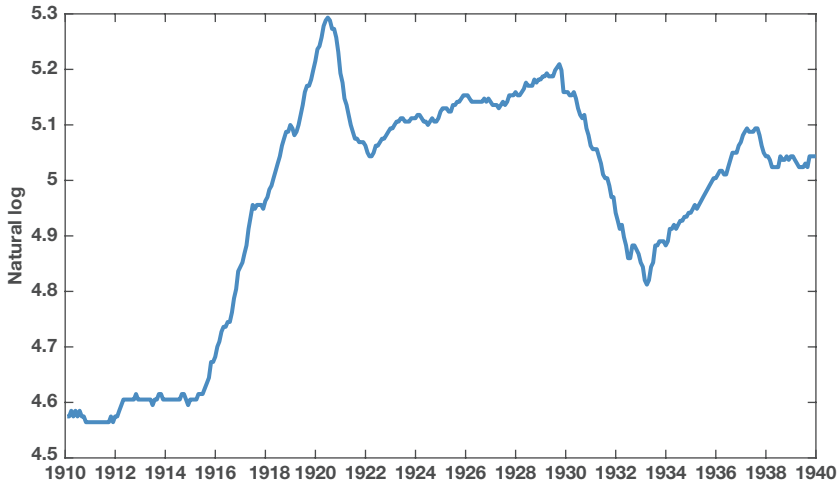
In Figure 1.3, both federal debts and foreign credits are denominated in US dollars, so the US price level shaped the value of those debts and credits in terms of goods and services. Figure 1.7 indicates that the logarithm of the US price level rose especially rapidly after the US entered the war in 1917 and then shows a sharp drop in 1920–21 and a larger and longer one from 1929 to 1933 that nevertheless left the price level in 1933 23 percent above its prewar level. These price level movements coincided with European combatants leaving the gold standard during the

**Figure 1.5. Nominal and Real Returns on the US Treasury's Bond Portfolio**

Source: Hall et al. (2018) and author calculations.

**Figure 1.6. Nominal and Real Values of \$100 Invested in January 1917 in US Treasury's Bond Portfolio**

Source: Hall et al. (2018) and author calculations.

**Figure 1.7. Natural Log of US Price Level**

Source: National Bureau of Economic Research, Indicator m04051.

war, their postwar implementations of monetary experiments that replaced precious metal monies with paper monies,<sup>26</sup> and subsequent modifications and terminations of those experiments carried out during the depression of the 1930s.<sup>27</sup> The US, which imperfectly but nominally remained on the gold standard during the war,<sup>28</sup> shared a 1920–21 price level drop with European countries that were then deciding at what rates to exchange their currencies for gold, politically charged decisions that would redistribute wealth among domestic private creditors and their domestic debtors. UK domestic creditors who owned pound-denominated claims on the UK government earned high real returns when the UK restored convertibility of the pound to gold at the prewar par of 4.80 dollars per pound in April 1925, whereas domestic creditors of the French government who owned franc-denominated claims fared badly when France ultimately resumed convertibility of the franc to gold at 20 percent of its prewar value. The period of slowly rising US prices from 1922 to 1929 in Figure 1.7 coincided with the UK's success in temporarily establishing an international “gold exchange standard” that decreased monetary demands for gold by making IOUs denominated in British pounds a reserve currency for British Empire Dominions and colonies and much of Europe as well.

<sup>26</sup>These experiments were designed to reap the gains in efficiency and price level stability promised by David Ricardo's 1816 proposal for a well-managed paper currency; see Ricardo (1816, 35).

<sup>27</sup>Rothbard (2002) contains an imaginative account of these experiments.

<sup>28</sup>The US embargoed exports of gold for much of 1914, 1918, and 1919.

## Nominal versus Real Returns

While reschedules, defaults, and repudiations shaped dollar values of the US Treasury's *credits*, US inflation shaped real values of those credits and also of the US Treasury's debts. By affecting both the price level movements in Figure 1.7 and the US government debt and credit dynamics in Figure 1.3, US and foreign monetary-fiscal policies influenced the rate of return outcomes summarized in Figures 1.5 and 1.6. Figure 1.5 shows nominal and real one-period returns on a value-weighted rebalanced portfolio of US Treasury bonds, whereas Figure 1.6 shows cumulative nominal and real values coming from continually reinvesting in that portfolio, starting with an initial investment of \$100 on January 1, 1917.<sup>29</sup> Figure 1.6 reveals that the 1920–21 price level drop brought the real value back to its initial value after wartime inflation had reduced it by one-fourth. Creditors of the US government earned high real returns from 1929 to 1933 and low ones from 1933 to 1937.

## COMPARISON WITH CIVIL WAR

During the 1920s and 1930s in both the US and in Europe, the distinction between nominal and real returns on government bonds was on the minds of policymakers and bondholders. For example, Treasury Secretary Andrew Mellon wrote:

The real value of the dollar, that is, its value in terms of goods it will purchase, does not remain constant. The experience with our Civil War debt was that we borrowed a 54-cent dollar and repaid an 85-cent dollar (using the 1860 value as the base) or, in other words, we paid back in value \$3 for every \$2 we borrowed. Using 1913 as a base, our present war debt was borrowed on a 51-cent dollar, and to-day the dollar is worth 66 cents. If the appreciation of the dollar continues—and such has been fiscal history after other great wars—then the longer we postpone payment the more in real value we will have to pay.

Mellon (1926, 7)

Like Secretary McAdoo before him,<sup>30</sup> Secretary Mellon sought lessons from the Union's fiscal and monetary policies implemented during the US Civil War.

Figure 1.8 compares the logarithm of the US price level during and after World War I with a period of the same length during and after the US Civil War. The US price level had returned nearly to its prewar level 20 years after the start of the Civil War in 1861; 20 years after the US had entered World War I in 1917, the price level was still 63 percent above its 1914 level. But in 1933, the same gold

<sup>29</sup>The nominal value at time  $t$  is  $100 \times \prod_{s=1917:1}^t (1 + r_{s,s+1})$ , where  $r_{s,s+1}$  is the nominal net return on the portfolio between month  $s$  and  $s + 1$ . The real value at time  $t$  is  $100 \times \prod_{s=1917:1}^t \frac{1 + r_{s,s+1}}{1 + \pi_{s,s+1}}$ , where  $\pi_{s,s+1}$  is the inflation rate between months  $s$  and  $s + 1$ . Thus, the real value is reported in units of January 1917 dollars.

<sup>30</sup>See footnote 21.

standard discipline that had pushed the price level to its prewar value after the Civil War seemed to be driving it back toward its pre–World War I level.<sup>31</sup> The Roosevelt administration did not want the wealth redistributions that this would have brought, so it pursued a policy designed to restore the price level to its 1928 or 1929 level.<sup>32</sup>

There were important differences in international and domestic monetary arrangements during the two postwar episodes compared in Figure 1.8. During the US Civil War, the UK remained on the gold standard while the United States left it and made a paper currency called the greenback a legal tender and unit of account in which the log price levels in Figure 1.8 are recorded. After 1862 and before the US Treasury returned to gold in 1879 by promising to trade one greenback dollar for one gold dollar, one gold dollar traded for more than one greenback dollar. By way of contrast, during and after World War I, it was the UK and other European countries that had abandoned the gold standard, while the US, until 1933, more nearly remained on gold.<sup>33</sup> Europe’s leaving gold lowered the relative price of gold by decreasing world demand for gold for monetary uses; that changed the price of gold relative to most goods and services, and that in turn exported inflation from Europe to the US.<sup>34</sup> The UK temporarily restored the pound to its prewar exchange rate in 1925, but then left the gold standard permanently in September 1931. By December 1931, one UK pound had fallen from its value of \$4.87 in August 1931 to about \$3.7.

Figure 1.9 compares real rates of return on the US government bond portfolio across the post–Civil War and the post–World War I periods.<sup>35</sup> US Treasury creditors suffered similar cumulative real losses during both wars, and although they enjoyed cumulative gains after both wars, they fared better 20 years after the Civil War than they did 20 years after World War I. Comparing the log price levels in Figure 1.8 with the cumulative real returns in Figure 1.9 indicates how price level movements helped award bondholders bigger cumulative real returns after the Civil War than after World War I. Not wanting to let the price level sink to its pre–World War I level, the Roosevelt administration promoted a monetary policy

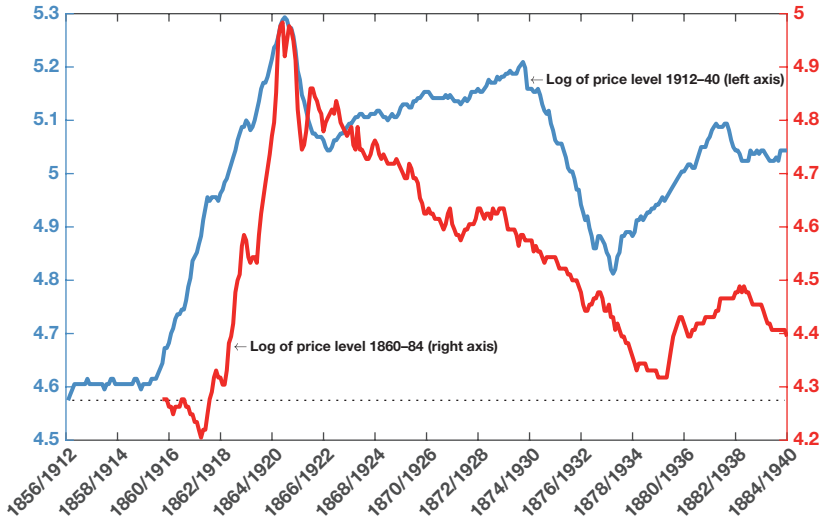
<sup>31</sup>See Wood (2009).

<sup>32</sup>Milton Friedman (1975, 75) argued that “departing from gold was not necessary” for Roosevelt to pursue the price level he sought through monetary policy. Friedman noted that Viner (1933) had argued that the US could engineer inflation without raising the price of gold above \$20.67 an ounce. See Buchanan and Tideman (1975) for alternative views about Roosevelt’s actions about the gold standard. See Edwards (2018, 39) for an account of a proposal authored by James Warburg to reduce the Federal Reserve’s gold coverage ratio in a way that would allow the Federal Reserve to conduct operations that would facilitate monetary expansion and a controlled rise in the US price level while remaining on gold at the pre-1933 price of 20.67 dollars per troy ounce.

<sup>33</sup>Again, the US embargoed exports of gold for much of 1914, 1918, and 1919.

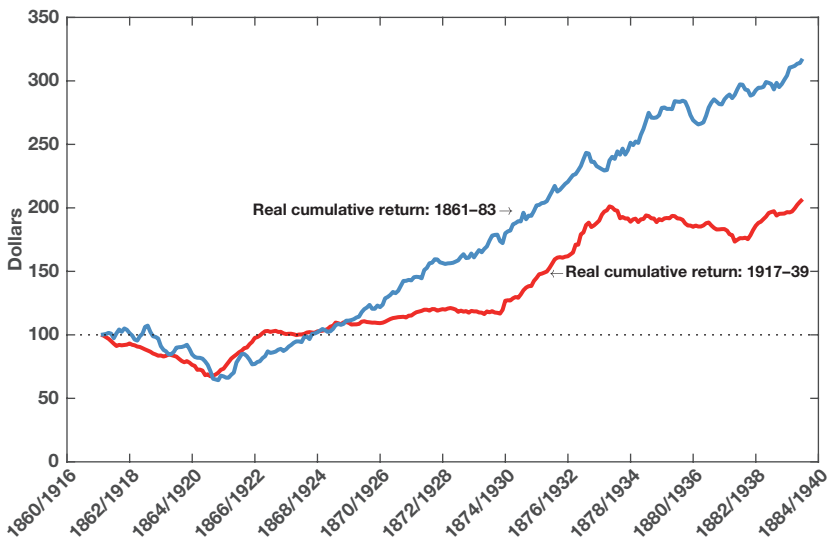
<sup>34</sup>Hawtrey (1919) described the workings of this mechanism during monetary disturbances in France and the UK from 1789 to 1821.

<sup>35</sup>See footnote 31 for an explanation of how we computed the real value of the post–World War I portfolio. The real value of \$100 invested in January 1861 is computed in a like manner and is reported in January 1861 dollars.

**Figure 1.8. Natural Log of US Price Level during and after Two Wars**

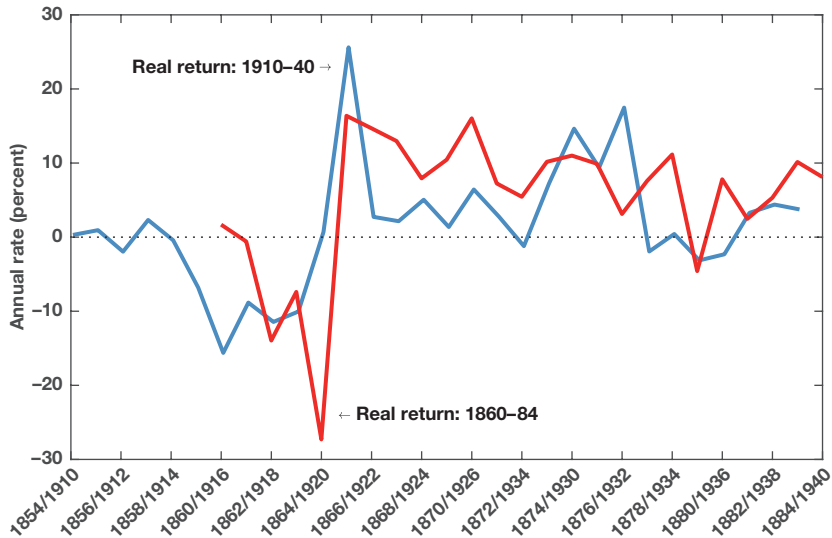
Source: National Bureau of Economic Research, Indicator m04051

Note: The ticks on the x-axis correspond to August for the 1856–84 period and January for the 1912–40 period.

**Figure 1.9. Real Values of \$100 Invested in January 1861 and January 1917 in US Treasury's Bond Portfolio**

Source: Hall et al. (2018) and author calculations.

**Figure 1.10. Real Returns on Treasury Portfolio during and after Two Wars, Annual by Fiscal Year**



Source: Hall et al. (2018) and author calculations.

that aimed to restore the price level to its 1929 level.<sup>36</sup> Because he rejected international restrictions on US monetary policy, in late June 1933, President Roosevelt directed the US delegation to the London Economic Conference not to assist international efforts temporarily to stabilize exchange rates of the US dollar to the currencies of France, the UK, and other countries. Annex 1.4 reproduces Roosevelt’s “bombshell message” to the conference in which he rejected superficial temporary measures in favor of ones designed permanently to restore the economic fundamentals on which a gold standard rests.<sup>37</sup> For President Roosevelt, those fundamentals included balanced national government budgets.

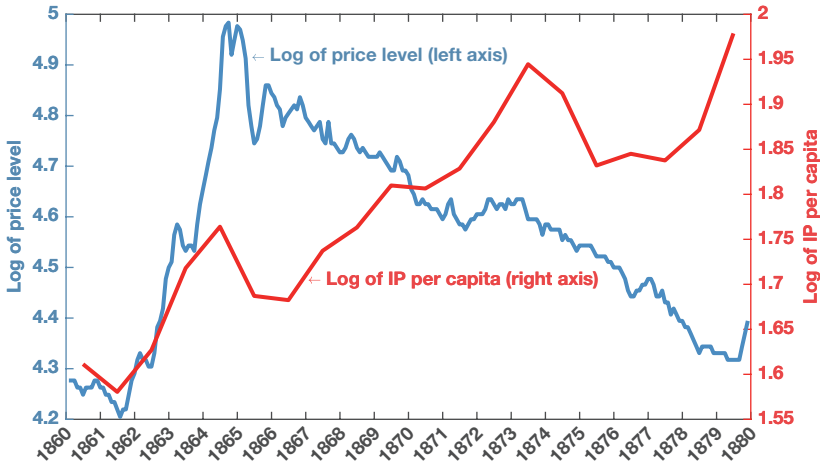
### Different Price-Output Outcomes after Two Wars

Figures 1.11 and 1.12 add measures of real output to the price levels presented in Figure 1.8. There is a strong positive association between the price level and

<sup>36</sup>That was the policy advocated by the Committee for the Nation to Rebuild Prices and Purchasing Power that influential businessmen organized in January 1933. See Rothbard (2002, 297). Rothbard tells how Irving Fisher transferred residual monies to the Committee for the Nation from the defunct Stable Money League that he had formed in 1921 to promote price level targeting.

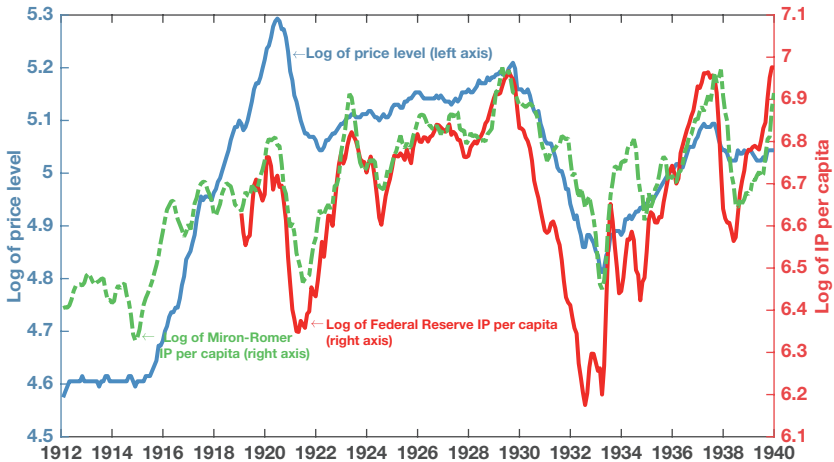
<sup>37</sup>Notice Roosevelt’s “specious fallacy” pun about commodity (specie) standards. Notice also how Roosevelt distinguished temporary from permanent policy actions, a distinction that 45 years later would become an important aspect of rational expectations macroeconomics. Rothbard (2002, 307) and Ferguson (1989, 28–29) detected advisers who helped Roosevelt to formulate his policy and to write the “bombshell message” to the London Conference explaining it.

**Figure 1.11. Natural Log of US Price Level and Per Capita Industrial Production (IP) from 1860 to 1879**



Source: Price level, National Bureau of Economic Research, Indicator m04051; IP, Davis (2004).

**Figure 1.12. Natural Log of US Price Level and Per Capita Industrial Production (IP) from 1910 to 1939**



Source: Price level, National Bureau of Economic Research, Indicator m04051; IP, Miron and Romer (1990) and Federal Reserve.

industrial output in the post–World War I period in Figure 1.12, but not in the post–Civil War period depicted in Figure 1.11. In both periods, contemporary commentators and statesmen complained about adverse deflation-induced redistributions from debtors to creditors that are the heart of Irving Fisher’s (1933)



debt-deflation theory of macroeconomic contractions.<sup>38</sup> What accounts for the different output-price associations during the two periods? One possibility is that the prevalence of gold clauses on railroad and other corporate bonds after the Civil War meant that bond payouts were indexed against deflation of the greenback, making deflation-induced redistributions much smaller after the Civil War.<sup>39</sup> In any event, the pronounced output declines that coincided with aggregate price level declines in the early 1930s convinced President Roosevelt to implement the advice of Irving Fisher and other advocates of price level targeting.<sup>40</sup>

## Returns and Government Debt Levels

Figure 1.10 shows annual real returns on the Treasury bond portfolio during and after the Civil War and World War I. Although it conveys less information than Figure 1.9, approximating as it does the time derivative of that figure, Figure 1.10 helps to identify years after each war in which a declining price level boosted real returns, and years after World War I in which a rising price level depressed real returns.<sup>41</sup>

The immense growth of US government debt during World War I shown in Figure 1.1 is an arithmetic consequence of the discrepancy between the federal government expenditure path shown in Figure 1.1 and the total federal government revenue path shown in Figure 1.2. US World War I finance bears telltale signs of a Barro-Gallatin recommendation to finance net-of-interest deficits during a war with increases in government debt and then, after a war, to run net-of-interest surpluses just sufficient to service the war-enlarged government debt.<sup>42</sup> In this respect, the deficit during the depression in the 1930s exhibits fiscal features of a war.<sup>43</sup> Figure 1.1 shows what appears to be a permanent increase in

<sup>38</sup>Gomes, Jermann, and Schmid (2016) create a quantitative structure that extends and formalizes a debt-deflation theory.

<sup>39</sup>We have not located a source for the fraction of post-Civil War corporate debt that was denominated in gold. We hope to collect that information in the near future.

<sup>40</sup>See Rothbard (2002, 297–98). Also, see Edwards (2018), especially his appendix on George F. Warren versus Irving Fisher, who used distinct theoretical and empirical justifications and implementation strategies for their price level targeting recommendations.

<sup>41</sup>Real returns on US government debt between 1933 and 1935 displayed in Figures 1.6 and 1.9 were key ingredients of the Supreme Court's 5–4 nuanced majority opinion in *Perry v. United States*. The court decided that the US government's defaulting on its promise to pay Liberty Bond holders in gold coin was unconstitutional. But it also decided that the benign real returns on those bonds between 1933 and 1935 meant that bondholders had suffered no damages and therefore were entitled to no compensation. See Edwards (2018, 173–75).

<sup>42</sup>See the 1807 report of the Secretary of Treasury authored by Gallatin (1837) and Barro (1979) for a more formal treatment. For an analysis of the Barro tax smoothing model and its relationship to consumption smoothing models and other tax smoothing models, see <https://lectures.quantecon.org/py/smoothing.html>.

<sup>43</sup>Presidents Hoover and Roosevelt both pronounced rousing analogies between fighting wars and fighting depressions. Both presidents struggled with whether to invoke the 1917 wartime Trading

the level of noninterest government expenditures after the war, even before the onset of the depression in 1930. A permanent increase in federal government expenditures also occurred during the Civil War.

## Financial Repression and Subsidies

During and after the Civil War, the Union forced national banks to buy Union bonds (see Dewey 1912). During World War I, the US used a less direct approach. Although it extended short-term credit to the Treasury, the Federal Reserve Banks did not buy bonds directly from the Treasury. Instead, they lent large sums to banks belonging to the Federal Reserve System by discounting loans secured with Liberty Loans as collateral. In this way, the Federal Reserve engineered substantial increases in the monetary base that helped finance the war. Figures 1.13 and 1.14 show the effects of these and other operations during the war, as well as an unwinding of the Federal Reserve's balance sheet after the war, especially during the 1920–21 recession and the associated worldwide downward movements in price levels that occurred then.<sup>44</sup>

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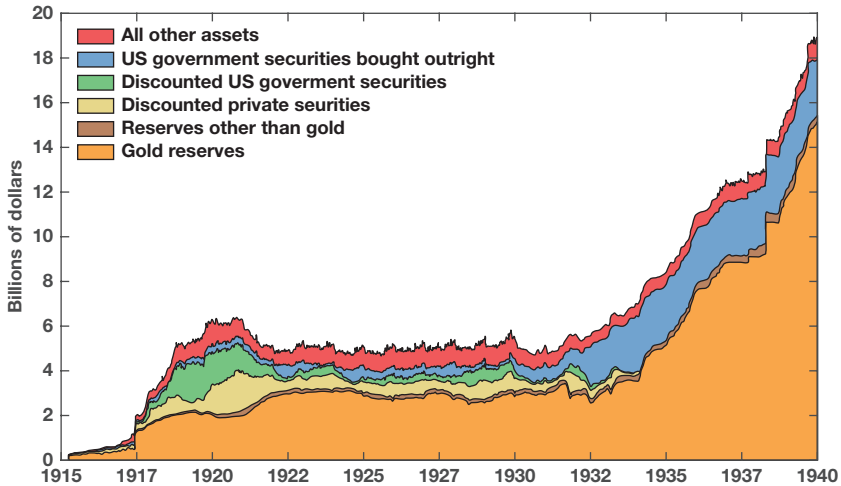
with the Enemy Act for executive authority to take measures to fight the financial crisis and depression. Because during the last days of his administration he did not receive the political cover he sought from President-Elect Roosevelt, President Hoover declined to invoke the act in order to impose a bank holiday. President Roosevelt did invoke the act. See Edwards (2018, 27).

<sup>44</sup> The source of the weekly data displayed in Figures 1.13 and 1.14 is the table *Resources and liabilities of each Federal Reserve Bank at the close of business on Fridays* reported in each issue of the Federal Reserve Bulletin.

The sharp increase in gold reserves on the assets side and Federal Reserve notes in circulation on the liabilities side of the balance sheet that occurred on June 22, 1917, is due to an amendment of the Federal Reserve Act, which permitted Federal Reserve Banks to count gold held by its Federal Reserve Agent as part of its required note reserve. Prior to this amendment, the liability of Federal Reserve Banks on outstanding Federal Reserve notes was reduced by the amount of gold held by the Federal Reserve Agent instead of the gold being considered as a collateral reserve.

For the Federal Reserve's assets, before the passage of the June 1917 amendment, *gold reserves* are the sum of gold coin and certificates in vault, gold settlement fund, and gold redemption fund. After this amendment, gold with Federal Agents and gold with foreign agencies are included in the gold reserves. Gold reserves include gold held against Federal Reserve notes starting in November 1919, and gold and certificates held by banks starting in December 1923. *Reserves other than gold* are legal tender notes, silver, and so on. *Discounted US government securities* are bills discounted: secured by US government obligations, and *discounted private securities* are bills discounted: all other. *US government securities bought outright* include bills bought in open market, US government bonds, US Victory notes, Treasury notes, and US certificates of indebtedness. *All other assets* are the sum of nonreserve cash, all other earning assets/other securities, bank premises, gold in transit or in custody in foreign countries, due from other Federal Reserve Banks (in transit), due from foreign banks, uncollected items, Federal Reserve notes, net assets, 5 percent redemption fund against Federal Reserve Bank notes, all other assets, and Federal Deposit Insurance Corporation stock.

For the Federal Reserve's liabilities, *reserve deposits* are the sum of government deposits/US Treasurer general account, due to members—reserve account/member bank reserve account, due to nonmember banks clearing account, deferred availability items, reserved for government franchise tax, foreign bank, and other deposits. Prior to the June 1917 amendment, *Federal Reserve notes* are all notes and banknotes in circulation, net gold held by Federal Reserve Agents. After June

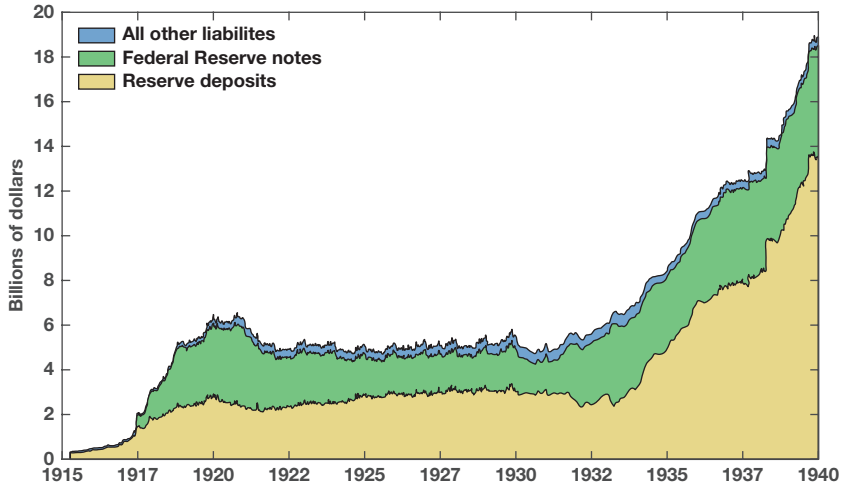
**Figure 1.13. Federal Reserve Assets**

Source: Board of Governors of the Federal Reserve System (1915–40).

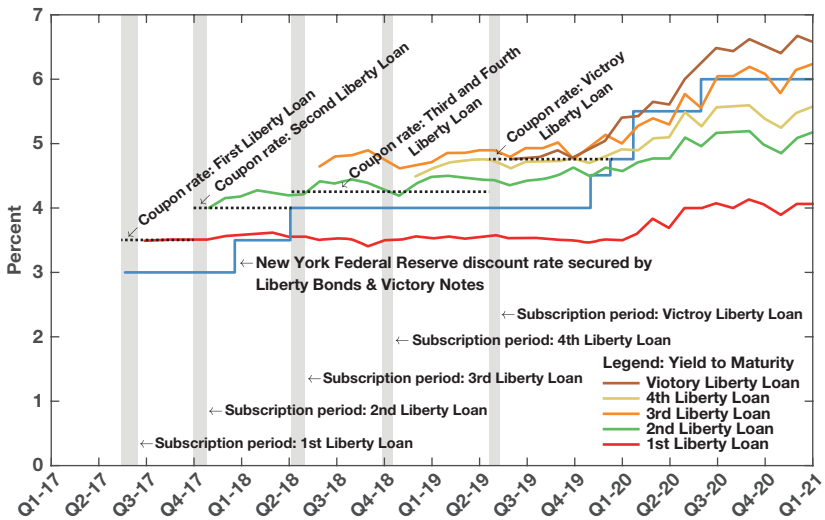
The Federal Reserve supported the Treasury in several ways. It directly purchased certificates of indebtedness from the Treasury. Governors of Reserve Banks organized and led committees in each district to sell Treasury bonds. The Federal Reserve supported a program of “borrow and buy” that encouraged individual investors to finance purchases of Liberty Loans by borrowing from their local banks, which could then discount those loans at the Federal Reserve’s discount window. The Treasury designated the New York Federal Reserve as its agent for bond sales. The Federal Reserve lent at preferred discount rates to banks that purchased Treasury certificates of indebtedness. The Federal Reserve lent to member banks at a preferred discount rate if the proceeds were used to purchase Liberty and Victory bonds that the Federal Reserve accepted as collateral.

The Federal Reserve’s balance sheet summarized in Figures 1.13 and 1.14 shows that, through these operations, the Federal Reserve temporarily monetized over a billion dollars of Treasury securities (note the wartime increase in both bills discounted in Figure 1.13 and the increase in Federal Reserve notes in Figure 1.14). This means that during the war, a substantial amount of the Treasury debt in Figure 1.3 was not held by the public but by the Federal Reserve. Figure 1.15 shows time series of pertinent money market rates that determined spreads on these portfolio operations. During the subscription period for the First Liberty Loan from May 15 to June 15, 1917, member banks could borrow from the New York Federal Reserve at 3 percent to buy bonds at par that paid 3.5 percent

1917, *Federal Reserve notes* records all Federal Reserve notes and banknotes in circulation. *All other liabilities* are the sum of capital paid in/capital accounts, surplus funds, special deposits, reserve for contingencies, and all other liabilities.

**Figure 1.14. Federal Reserve Liabilities**

Source: Board of Governors of the Federal Reserve System (1915–40).

**Figure 1.15. New York Federal Reserve Discount Rates Secured by Liberty and Victory Loans, Yields on Liberty and Victory Loans, and Coupon Rates for Liberty and Victory Loans**

Source: Hall et al. (2018), Board of Governors of the Federal Reserve System (1922, 6–7), and author calculations.

coupons. As the four Liberty Loan bond drives and the Victory Loan bond drive progressed and as coupon rates on Treasury bonds increased, so did the New York Federal Reserve's preferred discount rate, but it always remained below the

coupon rates and market yields of newly issued Treasury securities. Those spreads motivated US citizens to finance purchases of Treasury bonds by borrowing from banks.

Friedman and Schwartz (1963) describe how Treasury officials persuaded the Federal Reserve to keep interest rates low in order to help the Treasury sell Victory Loan bonds and how that led the Federal Reserve belatedly to administer excessive interest rate increases that they say worsened the sharp 1920–21 downturn in real economic activity in the US. Although Figure 1.15 shows how the Federal Reserve increased rates during this period, our attention is also drawn to the substantial unwinding of the Federal Reserve's indirect holdings of Treasury securities reflected in two salient quantities of Figures 1.13 and 1.14, namely, bills discounted and Federal Reserve notes, respectfully. The substantial 1920–21 decrease in the US price level, apparent from Figure 1.7, set the stage for the high real returns on Treasury securities in the 1920s displayed in Figure 1.5.

## FOREIGN CREDITS

We do not know market values of the foreign credits depicted in Figure 1.3 because these intergovernmental obligations were not marketable.<sup>45</sup> But a sequence of defaults, reschedulings, and repudiations eventually drove plausible estimates of the discounted values of prospective payment streams to the US government below the book values of those foreign credits.<sup>46</sup>

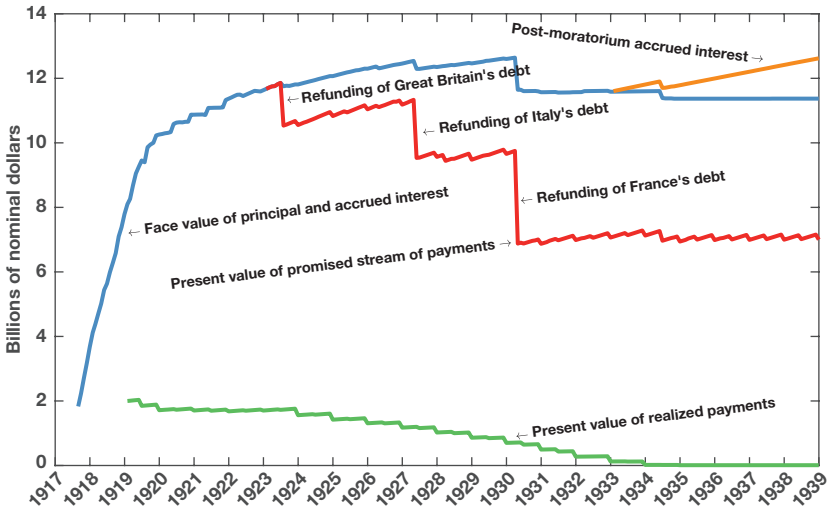
Figure 1.16 reports three time series that summarize original book values (the blue line), renegotiated book values (the red line), and what these payment streams would have been worth if there had been perfect foresight (the green line). Thus, in place of observed market values, the green line shows the present value of what ex post were the continuation flows of actual payments to the Treasury at each date. The blue line shows original book values before a sequence of Treasury write-downs of those book values following a sequence of reschedulings in the early and mid-1920s, recorded as the red line in Figure 1.16. The red line tracks our estimates of what would have been the market values of claims to those promised flows had these flows been risk free and had the claims to them been traded. We formed these estimates by valuing promised flows of payments to the Treasury by the Hicks-Arrow prices of risk-free claims that we inferred from market prices of the Treasury's own securities.<sup>47</sup> Because it uses Hicks-Arrow prices for riskfree claims, the red line undoubtedly overstates what those credits would

<sup>45</sup>This section is intended to complement and supplement the account of Schuker (1988).

<sup>46</sup>The Treasury and the World War Foreign Debt Commission recognized these haircuts implicit in the renegotiated payment schedules. In Annex 1.3, we reproduce a table from the US World War Foreign Debt Commission (1927, 443) reporting the present values of the rescheduled repayments using constant discount rates by country. Depending on the discount rate used, the aggregate haircut, as measured by the Commission's own calculations, ranged from one-fourth to one-half.

<sup>47</sup>We use Hicks-Arrow prices that Hall and others (forthcoming) inferred from market prices and quantities of Treasury bonds.

**Figure 1.16. Face Values and Capitalized Values of Promised and Realized Flows from Foreign Credits**



Source: United States World War Foreign Debt Commission (1927), Hall et al. (2020), and author calculations.

have traded for had they been marketable. The three largest negotiated settlements are readily apparent: Great Britain, signed on June 19, 1923, and recorded on the Treasury's books in July 1923; Italy, signed on November 14, 1925, and recorded on the Treasury's books in May 1927; and France, signed on June 15, 1927, and recorded on the Treasury's books in April 1930.

Figure 1.17 is a counterpart to Figure 1.6. It shows nominal and real values of \$100 invested in the Treasury's portfolio of foreign credits in December 1919 with earnings being continuously reinvested in the portfolio.<sup>48</sup> Figures 1.16 and 1.17 confirm that ultimately the foreign credits extended by the US to combatants during World War I failed to provide much "backing" behind the Treasury bonds issued to finance those credits. Ex post, those credits turned out mostly to be subsidies.

<sup>48</sup> The nominal value at date  $t$  is

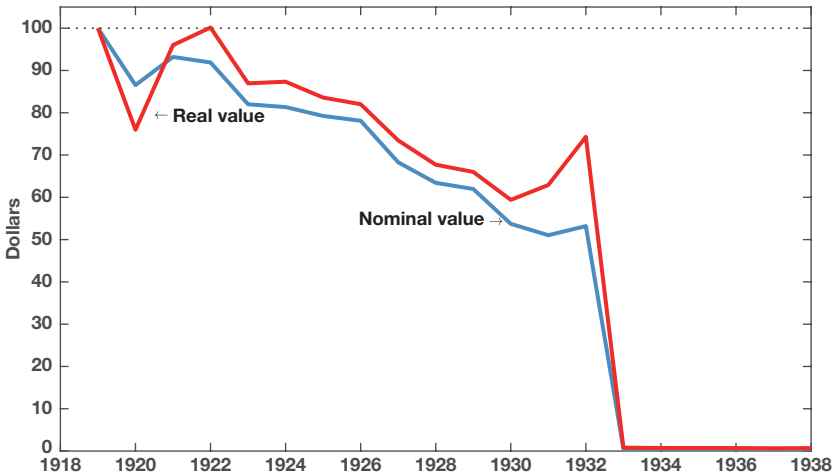
$$100 \times \prod_{s=1919:12}^t (1 + r_{s,s+1}),$$

where  $r_{s,s+1}$  is the nominal return on the portfolio between months  $s$  and  $s + 1$ . The real value at date  $t$  is

$$100 \times \prod_{s=1919:12}^t \frac{1 + r_{s,s+1}}{1 + \pi_{s,s+1}},$$

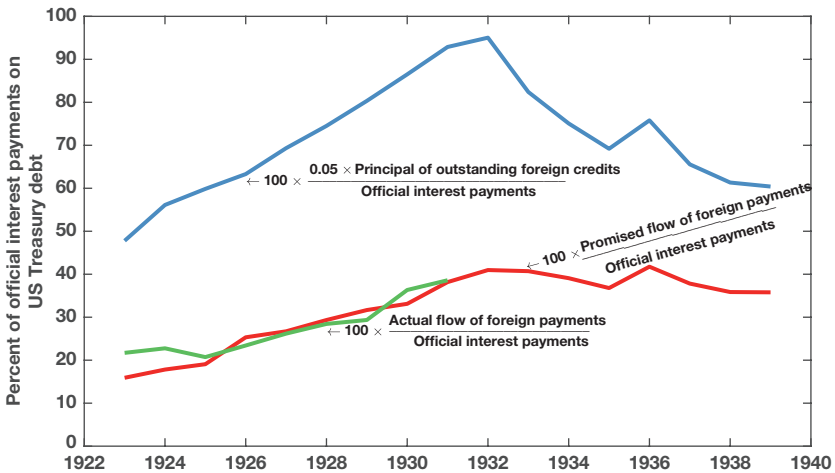
where  $\pi_{s,s+1}$  is the inflation rate between months  $s$  and  $s + 1$ . Thus, the real value is reported in December 1919 dollars. Prior to President Hoover's debt moratorium in 1932, we computed the discounted value of the stream of promised payments; after the moratorium, we computed the perfect foresight discounted value of the stream of actual future payments.

**Figure 1.17. Nominal and Real Values of \$100 Invested in December 1919 in the Foreign Credits Owed to the US Treasury**



Source: United States World War Foreign Debt Commission (1927), Hall et al. (2020), and author calculations.

**Figure 1.18. Promised Flows of Payouts from Foreign Credits as Percentages of Official Interest Payments on US Treasury Debt**



Source: United States World War Foreign Debt Commission (1927), US Treasury *Annual Report of the Secretary of the Treasury on the State of Finances*, and author calculations.

To indicate the burden that the write-downs of these foreign credits imposed on the American taxpayer, we report in Figure 1.18 the annual flows of earnings that would have flowed from the capitalized values in Figure 1.16 as percentages

of annual official Treasury interest payments. The blue line reports the implied annual cash flow from the total principal of foreign credits amortized at 5 percent, the original interest rate on Treasury loans to foreign governments. The red line reports the renegotiated promised repayments. Even after the rescheduling, these promised repayments represented roughly 30 percent of officially reported interest payments. Two back-of-the-envelope calculations put magnitudes of the reschedulings into perspective:

1. In 1930 the Allies were scheduled to make \$218 million in payments to the US; without the reschedulings, the Allies would have had to pay 5 percent of the outstanding principal, \$544 million. This \$326 million reduction in payments amounted to \$2.67 per person in the US at a time when US per capita income was \$748.

To translate this reduction from dollars to tax rates, note that in 1929 the Treasury proposed and Congress passed a temporary tax cut<sup>49</sup> that reduced tax rates on individual incomes by 1 percentage point<sup>50</sup> and reduced the tax rate on corporate income from 12 percent to 11 percent. The Treasury estimated that this tax reduction would “with reasonable accuracy” decrease income tax revenue by \$160 million per year, which equaled half the difference between the pre-haircut and post-haircut payment flows that we have estimated.<sup>51</sup>

2. The difference between the pre- and post-haircut payment flows was about four-tenths of 1 percent of GDP. The Treasury raised about 2 percent of GDP using the personal income tax with total federal revenue being roughly 5 percent of GDP.

From 1925 to 1931, the top marginal tax rate was 25 percent. To increase revenue from 2 percent to 2.4 percent of GDP, the Treasury would have had to raise rates by 20 percent (assuming no reduction in the tax base). Assuming a parallel shift in the tax schedule, the top marginal rate would have had to rise to 30 percent.

## BOND PRICES AND QUANTITIES

This section describes how we have transformed information in US Treasury accounts to match concepts in macroeconomic theory. We describe concepts appearing in Figures 1.3 and 1.4 that report total government debts and in Figures 1.5 and 1.6 that report real and nominal returns on government debt. We link these concepts to decompositions of representations of government budget constraints that appear in government accounts and in macroeconomic theories.

<sup>49</sup>Joint Resolution of Congress, No. 133, approved by President Hoover on December 16, 1929.

<sup>50</sup>That is, the tax rates of 1.5 percent on the first \$4,000 of taxable income, 3 percent on the next \$4,000, and so on were reduced to 0.5 percent on the first \$4,000 of taxable income, 2 percent on the next \$4,000, and so on.

<sup>51</sup>See page 24 of the 1929 *Annual Report of the Secretary of the Treasury on the State of the Finances*.



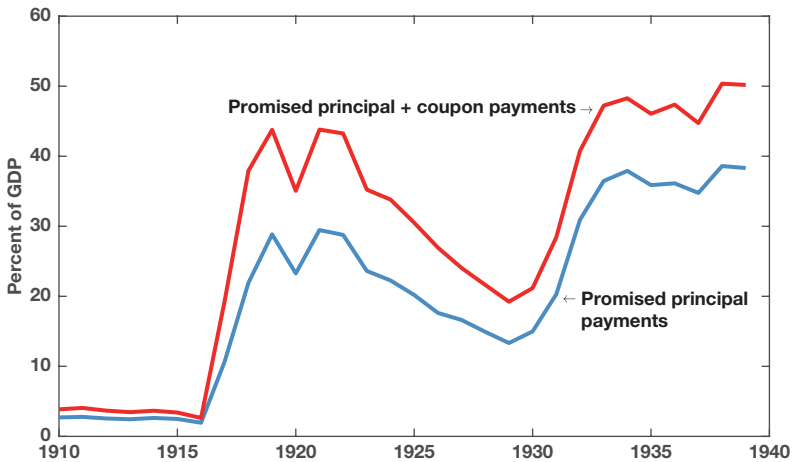
Annex 1.1 describes an accounting framework that reports the relationships among objects in play. Among these objects for each date  $t$  are:

- A list of bonds  $i = 1, \dots, n_t$
- For each bond  $i$ , a price  $p_i^t$ , a list of promised future coupons payments  $c_{i,t+j}^t, j = 1, \dots, J(i)$ , and a book value that takes the form of principal payment  $b_{i,t+J(i)}^t$  that the government promises to pay when the bond matures at  $t + J(i)$
- A list of Hicks-Arrow prices  $\{q_{t+j}^t\}_{j=0}^{J(i)}$  telling the number of dollars that at time  $t$  exchange for a government promise to pay one dollar at time  $t + j$ <sup>52</sup>
- A Hicks-Arrow-Debreu pricing equation  $p_i^t = \sum_j q_{t+j}^t c_{i,t+j}^t + q_{t+J(i)}^t b_{i,t+J(i)}^t$  that links the price of each bond at time  $t$  to the present value of its coupon stream and principal
- Sums over bonds of promised coupons  $c_{t+j}^t = \sum_i c_{i,t+j}^t$  and sums over bonds of promised principals  $b_{t+j}^t = \sum_i b_{i,t+j}^t$  that, when added, form the stream of payments  $s_{t+j}^t = c_{t+j}^t + b_{t+j}^t, j = 1, \dots, J(t)$  that at  $t$  the government has promised (The notation  $s_{t+j}^t$  is intended to connote “strips.”)
- A stream  $\{y_t\}$  of Treasury net earnings from credits to foreign governments, a stream subject to defaults, renegotiations, repudiations, and extensions of more credits
- A sequence of estimates  $\{C_t\}$  of the discounted present value of the continuation of the earnings stream  $\{y_t\}$

Annex 1.1 uses these concepts to explain discrepancies between objects that in the US Treasury accounts and in macroeconomic models bear the same names. For example, the Treasury measures total government debt by face or book value  $\sum_j b_{t+j}^t$ , whereas the object in a typical government budget constraint of macroeconomic theory is the market value  $\sum_j q_{t+j}^t s_{t+j}^t$ . Figure 1.4 plots their ratio, which stays as close to unity as it does as a result of a conjunction of the Treasury’s debt management policy—its choice of a division of  $\{s_{t+j}^t\}$  sequences between  $\{c_{t+j}^t\}$  and  $\{b_{t+j}^t\}$  sequences—and realized values of the bond yields that represent the Hicks-Arrow vector  $\{q_{t+j}^t\}$  at each date in the manner described in Annex 1.1. Figure 1.19 documents that the undiscounted sum of future coupons promised  $\sum_j c_{t+j}^t$  has sometimes been nearly as large as the sums  $\sum_j b_{t+j}^t$  that the Treasury reports as its debt at time  $t$ . The Treasury and Federal Reserve jointly decide the division of Treasury obligations to the public between these two sums when they conduct “debt management” and “open market” operations.

US Treasury and macroeconomic theoretic accounts also differ in the quantities to which they attach the word “interest.” These different quantities answer different questions. The Treasury interest concept measures total coupon payments coming due at time  $t$ . That quantity helps to inform “cash-management”

<sup>52</sup>Ljungqvist and Sargent (2018, ch. 8) provide definitions and analysis of Arrow date-state prices.

**Figure 1.19. Total Principal  $\sum_{j=1}^{n_t} b_{t+j}^t$  and Principal Plus Coupons** **$\sum_{j=1}^{n_t} b_{t+j}^t + \sum_{j=1}^{n_t} c_{t+j}^t$  as Percentages of GDP**

Source: Hall et al. (2018), <http://www.measuringworth.com>, and author calculations.

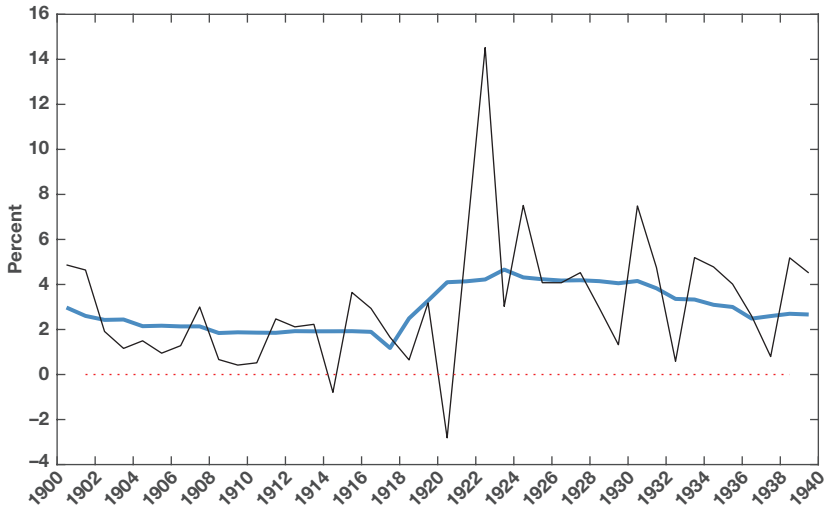
Note: Privately held US Treasury debt. It excludes debt held in US government accounts and by the Federal Reserve.

policy because it estimates a component of the total cash payments that the Treasury is obligated to pay at  $t$ . The macroeconomics interest concept is the net rate of return—nominal or real—that the Treasury pays on a value-weighted portfolio of its outstanding bonds. Figure 1.20 compares time series instances of these two concepts. That the nominal return on the government bond portfolio in Figure 1.20 is more volatile than the Treasury’s measure of interest payments reflects fluctuations in market interest rates and capital gains on the Treasury’s bond portfolio that are intermediated through the Hicks-Arrow prices  $\{q_{t+j}^t\}$ . For details, please see our discussion of equation (1.1.15) in Annex 1.1.

## Post-World War I Tax Policy

Congress repeatedly raised income tax rates during World War I, with rates at the top bracket eventually reaching more than 75 percent. Figure 1.21 graphs marginal income tax rates for the years between 1918 and 1925 and shows tax rate reductions after the war. In his first Annual Report in 1921, Secretary of Treasury Andrew Mellon made what later would be called a “supply-side” case for lowering income tax rates. He argued that the high tax rates at the upper bracket discouraged initiative, diverted savings into tax-exempt state and local bonds, and discouraged investors from realizing capital gains. In several subsequent Annual Reports, Mellon observed that increases in top marginal tax rates coincided with decreases in the number individual returns filed that reported incomes over \$300,000. Table 1.3, reproduced from Mellon’s 1924 report, shows that, as the marginal tax rate at

**Figure 1.20. Nominal Returns (Thin Black Line) and Official Net Interest Payments (Thick Blue Line) as Percentages of the Par Values of Debt, Annual by Fiscal Year**



Source: Hall et al. (2018) and author calculations.

**Table 1.3. Tax Returns of Those with Net Income in Excess of \$100,000 and \$300,000, as Compared with Total of All Net Incomes Returned, for the Calendar Years in Which the Tax Accrues**

Year	Income tax, maximum rate	Total amount, of net income returned	Number of returns, of net income in excess of \$100,000	Net income returned by those returning in excess of \$100,000	Percent (5) is of (3)	Number of returns of net income in excess of \$300,000	Net income returned by those returning in excess of \$300,000	Percent (8) is of (3)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1916	15 percent	\$6,298,577,620	6,633	\$1,856,187,710	29.47	1,296	\$992,972,986	15.77
1917	67	13,652,383,207	6,664	1,606,516,153	11.77	1,015	731,372,153	5.36
1918	77	15,924,639,355	4,499	990,239,425	6.22	627	401,107,868	2.52
1919	73	19,859,491,448	5,526	1,169,553,048	5.89	679	440,011,589	2.22
1920	73	23,735,629,183	3,649	727,004,763	3.06	395	246,354,585	1.04
1921	73	19,577,212,528	2,352	463,003,351	2.37	246	153,534,305	0.78
1922	58	21,336,212,530	4,031	892,747,680	4.18	537	365,729,746	1.71

Source: *Annual Report of the Secretary of the Treasury*, 1924, page 9.

the top bracket climbed from 15 percent in 1916 to more than 70 percent in 1920, the number of tax returns that reported incomes over \$300,000 fell from 1,296 to 395, with a corresponding drop in total income reported at the top bracket from \$992 million to \$246 million. This occurred even while total personal income rose from \$6 billion to \$23 billion over this period. Mellon's supply-side arguments persuaded Congress to cut tax rates. As shown in Figure 1.21, by 1925, Congress

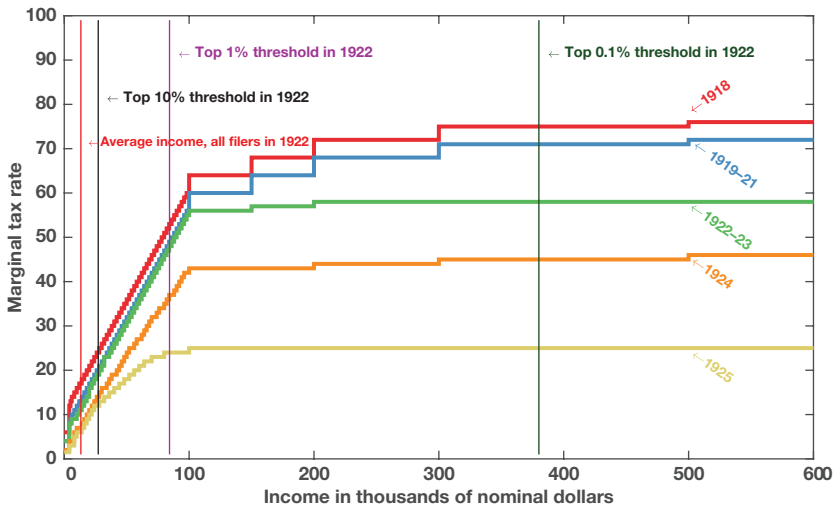
had reduced the top marginal income tax rate to 25 percent. The 1925 income tax rate structure allowed the federal government to collect about 2 percent of GDP from the income tax. See Table 1.4.

**Table 1.4. Revenue from Individual and Corporate Income Taxes**

	Revenue		Percent of GDP	Per Capita
	Nominal	1929 Dollars		
1914	\$71,381,275	\$126,187,950	0.20%	\$1.27
1915	80,201,759	141,052,991	0.21	1.40
1916	124,937,253	201,144,280	0.25	1.97
1917	359,681,228	480,603,700	0.60	4.65
1918	2,838,999,894	3,229,220,995	3.74	30.89
1919	2,600,762,735	2,575,206,107	3.32	24.51
1920	3,956,936,004	3,382,350,985	4.48	31.77
1921	3,228,137,674	3,089,273,651	4.39	28.46
1922	2,086,918,465	2,131,718,146	2.84	19.37
1923	1,678,607,428	1,684,507,630	1.97	15.05
1924	1,842,144,418	1,845,376,251	2.12	16.17
1925	1,760,537,824	1,720,365,825	1.94	14.85
1926	1,982,040,089	1,918,211,679	2.04	16.34
1927	2,224,992,800	2,194,250,240	2.33	18.43
1928	2,173,952,557	2,173,952,557	2.23	18.04

Source: Nominal Revenue (column 2) is from the *Annual Report of the Secretary of the Treasury on the State of the Finance*, 1930, Table 6, pp. 497–494. The numbers in columns 3–5 are calculated by the authors. GDP, population, and the GDP deflator are from <http://www.measuringworth.com>.

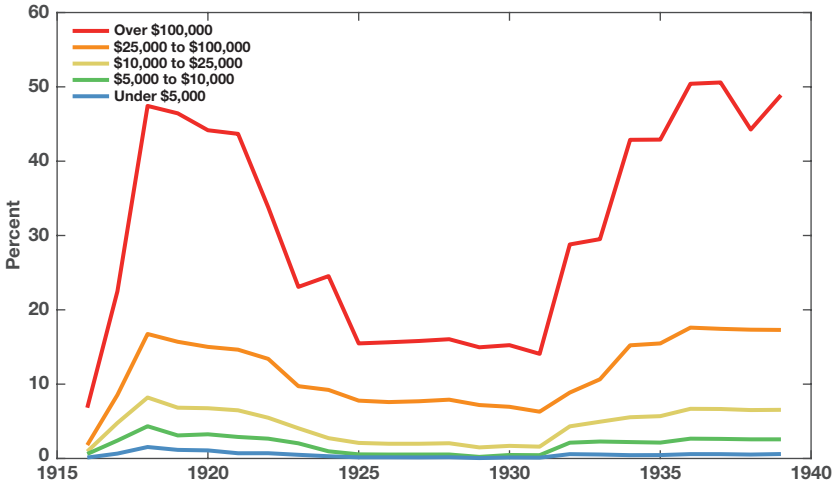
**Figure 1.21. Marginal Income Tax Rates, 1918–25**



Sources: The tax schedules are from Tax Foundation (2013). The income thresholds are from Piketty and Saez (2003).

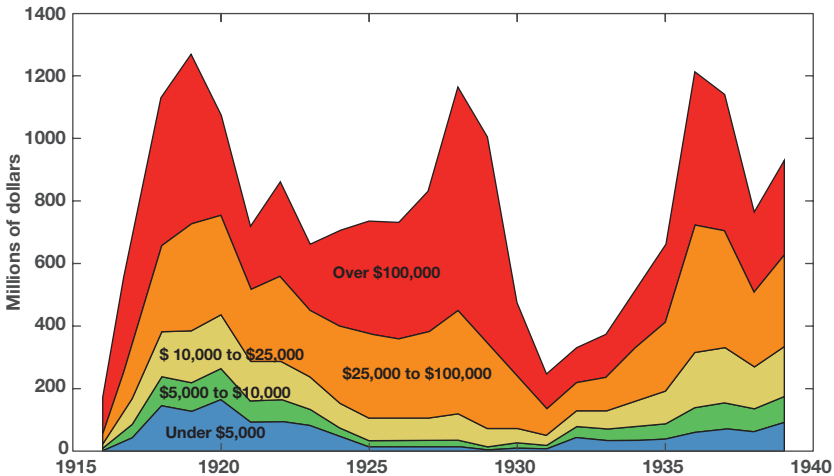
The cuts in tax rates appear to have worked as Mellon had reckoned. Figures 1.22, 1.23, and 1.24 report income tax revenues paid by individuals divided into five income groups as percentages of their personal incomes, as totals, and as shares of total income. Between 1918 and 1922, individuals reporting incomes over \$100,000 paid an average of 43.1 percent of their income in taxes and 35.5 percent of all

**Figure 1.22. Average Tax Rate Paid by Income Groups**

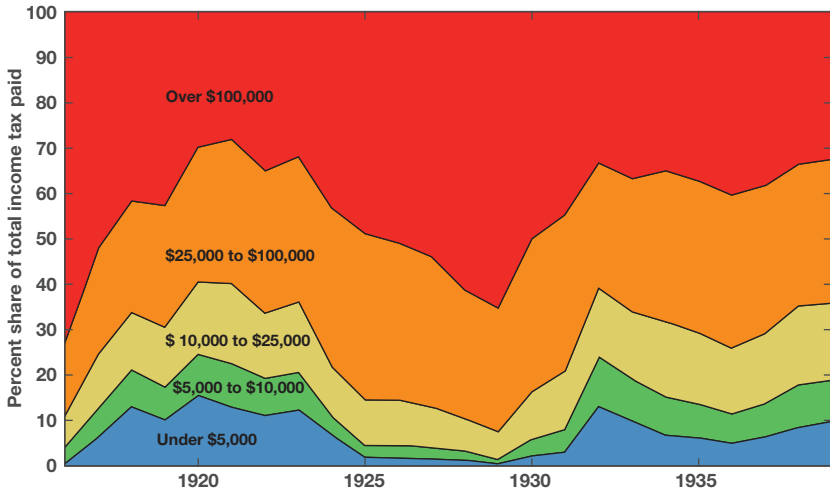


Source: US Internal Revenue Service (1920–40).

**Figure 1.23. Individual Income Tax Revenues Paid by Income Groups**



Source: US Internal Revenue Service (1920–40).

**Figure 1.24. Shares of Income Taxes Paid by Income Groups**

Source: US Internal Revenue Service (1920–40).

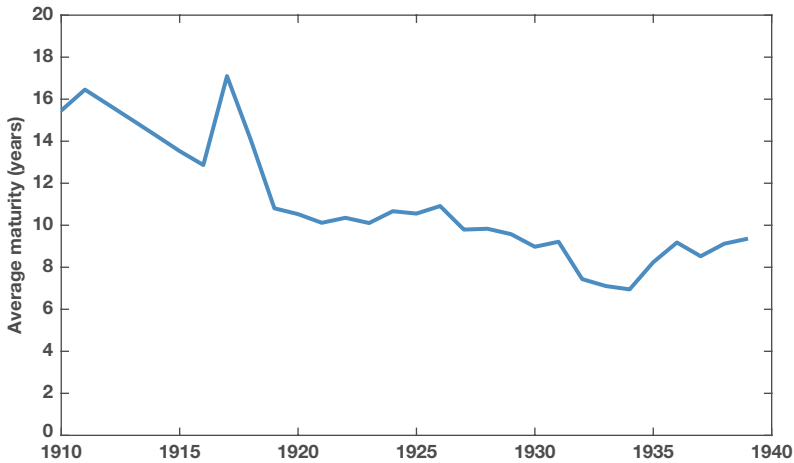
income taxes. During the period of the Mellon tax cuts, from 1923 to 1931, individuals reporting incomes over \$100,000 paid only 17.1 percent of their income in income taxes, but the income tax revenues that they paid rose from \$200 million in 1921 to \$450 million in 1927 and to over \$700 million in 1928. Further, their share of total income taxes paid rose to 50 percent.

### Income Tax Rate Changes Near Start of the Depression

In 1931, Congress raised income tax rates across the board, returning marginal tax rates on upper income taxpayers to pre-1925 levels. Those rate increases helped raise total revenues from the individual income tax by a factor of four from 1931 to 1936. But despite the sharp increase in taxes on the high-income taxpayers, the increased tax burden fell disproportionately on lower income groups; between 1932 and 1939, individuals reporting incomes over \$100,000 paid 42.3 percent of their income in taxes, but their share of income taxes paid fell back to 36.6 percent.

## POST-WORLD WAR I DEBT MANAGEMENT

Figure 1.3 shows that privately held US Treasury debt peaked in August 1919 at \$24.3 billion. By December 1930 it had fallen to \$14.2 billion, a reduction of over 40 percent that took place through a steady reduction of nearly \$1 billion

**Figure 1.25. Average Maturity of Privately Held US Treasury Debt**

Source: Hall et al. (2018) and author calculations.

per year.<sup>53</sup> Figure 1.25 shows that the average maturity of the federal debt rose during the war, but steadily declined afterward.<sup>54</sup>

World War I left Congress a debt management challenge. In October 1919, the US Treasury had \$26.2 billion in debts and a repayment schedule that would require it to pay \$4.5 billion when the Victory Loans came due in May 1923 (roughly 5 percent of GDP), \$4.0 billion in 1928 when the Third Liberty Loan came due, and then relatively little until 1938. Figure 1.26 shows that the four Liberty and Victory Loans composed 80 percent of federal debt in 1920. Thus, financing the war with these medium-term bonds brought “echo effects” when large quantities of debt matured at a small set of dates.<sup>55</sup>

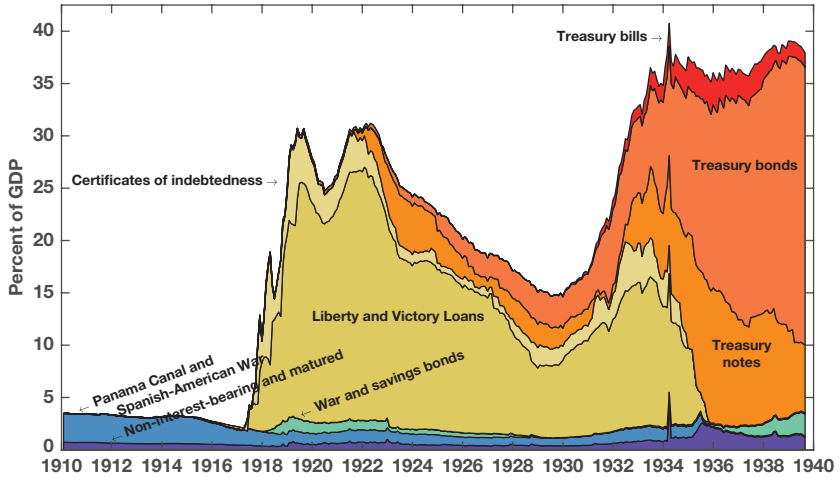
Between 1920 and 1928, Secretary Mellon rescheduled the Victory Liberty Loan and Third Liberty Loan by replacing long-term bonds with issues of a set of standardized new short-term securities: term notes and certificates of indebtedness. Mellon also refinanced the Second Liberty Loan. Figure 1.27, which reports

<sup>53</sup>In the 11 years after the peak level of debt, the reduction had been only 25 percent.

<sup>54</sup>After the Civil War, Congress *lengthened* the average maturity of the debt. As chair of the World War Foreign Debt Commission, Secretary Mellon presided over an increase in the average maturity of the foreign debt owed to the US.

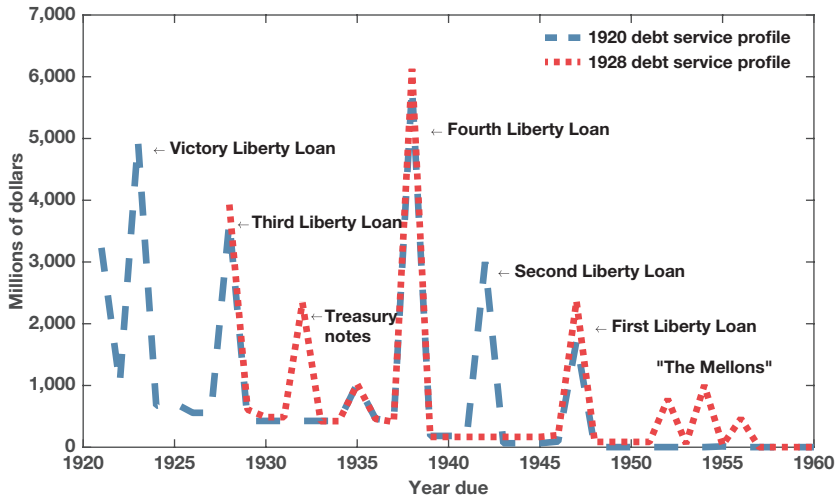
<sup>55</sup>There is an active theoretical literature on optimal maturity structures of government debt. Faraglia and others (2014), Bhandari and others (2017a,b), and Aguiar and others (2016) survey and contribute theories of the optimal maturity structure of government debt in settings that disarm the maturity-structure-is-irrelevant Modigliani-Miller theorems that prevail in complete market models. Faraglia and others (2014) and Bhandari and others (2017a,b) focus on (time-inconsistent) Ramsey plans in incomplete markets settings. Aguiar and others (2016) study Markov perfect plans in which debt dilution opportunities induce governments to issue only short-term debt along an equilibrium path.

Figure 1.26. Privately Held US Treasury Debt



Source: Hall et al. (2018) and <http://www.measuringworth.com>.

Figure 1.27. Debt Service Profiles, 1920 and 1928



Source: Hall et al. (2018) and author calculations.

Note: "The Mellons" were six long-term bonds issued between 1922 and 1928. Four were used to refinance the Victory Loans and the Second and Third Liberty Loans.

our estimates of Treasury strip sequences  $\{s_{t+j}^t\}$  for two dates shows both the echo effects and the effects of Mellon's refinancing operations on continuation sequences of strips.



We credit these refinancing operations to Mellon rather than to Congress because World War I brought a significant change in the assignment of authority over debt management. Before World War I, Congress designed each federal bond and typically specified the purposes for which the proceeds could be spent. That first changed with the Second Liberty Bond Act of 1917, which began a 20-year process during which Congress delegated virtually complete authority for bond design to the Treasury. In addition, starting with the Second Liberty Bond Act of 1917, Congress allowed the Treasury to issue bonds not tied to specific projects or designated expenditures.<sup>56</sup>

## EVOLUTION OF THE TREASURY DEBT-TO-GDP RATIO

We use the government's consolidated budget constraint to decompose the evolution of the interest-bearing debt-to-GDP ratio into contributions made by nominal returns paid on Treasury securities of different maturities, GDP growth, inflation, Federal Reserve purchases and sales of Treasury securities, and net earning on the Treasury's foreign credits.<sup>57</sup> Using notation presented in Annex 1.1, let  $Y_t$  be real GDP and  $v_t$  the real value of a dollar (that is, the inverse of the price level) at time  $t$ . Let  $B_t$  be the market value of privately held Treasury debt<sup>58</sup> and  $C_t$  be our estimate of the market value of foreign credits owed to the Treasury. Dividing each side of equation (1.1.19) by nominal GDP,  $\frac{Y_t}{v_t}$ , and rearranging terms yields:

$$\begin{aligned} \frac{v_t(B_t - C_t)}{Y_t} - \frac{v_{t-1}(B_{t-1} - C_{t-1})}{Y_{t-1}} &= \sum_{j=1}^{n_t} r_{t-1,t}^j \frac{v_{t-1}B_{t-1}^j}{Y_{t-1}} - r_{t-1,t}(\pi_{t-1,t} + g_{t-1,t}) \frac{v_{t-1}B_{t-1}}{Y_{t-1}} \\ &- \sum_{j=1}^{n_t} g_{t-1,t} \frac{v_{t-1}(B_{t-1}^j - C_{t-1})}{Y_{t-1}} - \sum_{j=1}^{n_t} \pi_{t-1,t} \frac{v_{t-1}(B_{t-1}^j - C_{t-1})}{Y_{t-1}} \\ &- \frac{v_t f_t}{Y_t} + \frac{v_t(G_t - T_t)}{Y_t} - \frac{v_t(M_t - M_{t-1})}{Y_t} - \frac{v_t d_{t-1} M_{t-1}}{Y_t} \end{aligned} \quad (1.1)$$

where  $r_{t-1,t}^j$  is the nominal return on a  $j$ -period zero coupon bond between  $t-1$  and  $t$ ;  $r_{t-1,t}$  denotes the value-weighted net nominal return on Treasury bonds;  $g_{t-1,t}$  denotes growth in real GDP, and  $\pi_{t-1,t}$  denotes inflation. The primary deficit,  $G_t - T_t$ , is the difference between total government spending and tax revenues. As described in equation (1.1.17) in Annex 1.1,  $f_t$  is the net one-period payout to the Treasury from  $t-1$  to  $t$  on the Treasury's portfolio of foreign credits,  $C_{t-1}$ . We let  $M_t$  denote the part of high-powered money that is secured by collateral in the form of Treasury securities at time  $t$  (please see earlier section titled "Financial

<sup>56</sup>See Garbade (2012) and Hall and Sargent (2015) for details.

<sup>57</sup>The calculations here are based on equation (1.1.6) of Annex 1.1 and are ex post in contrast to the ex ante calculations of Hilscher, Raviv, and Reis (2017).

<sup>58</sup>This means that we have subtracted from the total market values the values of securities held by Federal Reserve Banks and US government agencies.

Repression and Subsidies” and Figures 1.13 and 1.14 again), and we let  $d_t$  denote the discount rate on loans that the Federal Reserve makes to the public for the purpose of purchasing Treasury securities.

Among the terms in equation (1), we have independent measures of the market value of the Treasury debt,  $B_t$ ; the present value of the promised stream of foreign payments,  $C_t$ ; government spending and tax collections,  $G_t - T_t$ ; the stock of Federal Reserve credit secured by Treasury securities,  $M_t$ ; real GDP,  $Y_t$ ; and the inverse of the price level,  $v_t$ . Annex 1.1 tells how we computed  $f_t$  by taking into account the credits extended to the Allies during and immediately after the war and then tracking annual payments and repayments, and also by imputing capital losses to prospective payouts as a result of reschedulings, defaults, and repudiations.<sup>59</sup>

## Data Sources

We used the formula  $B_t = \sum_j q_{t+j}^t s_{t+j}^t$  described in an earlier section to compute the market value of Treasury debt  $B_t$ . Data for promised payments streams  $\{s_{t+j}^t\}_j$  at times  $t$  are from Hall, Payne, and Sargent (2018). Hall and others (forthcoming) inferred Hicks-Arrow price vectors  $\{q_{t+j}^t\}_j$  at each date  $t$  from prices of individual bonds at each date recorded in Hall, Payne, and Sargent (2018).<sup>60</sup> We obtained data on government spending and revenues comprising the “primary” or net-of-interest deficit  $G_t - T_t$  from issues of the *Annual Report of the Secretary of the Treasury on the State of the Finances*. We constructed estimates of the value of foreign credits  $C_t$  by discounting the continuation streams of scheduled payments  $\{y_{t+j}\}_j$  country by country at each date  $t$  using the same zero-coupon yield curves that we used to price the Treasury debt.<sup>61,62</sup> We took into account changes in the promised flow of payments arising from renegotiations and repudiations. Notably, we assumed that market participants recognized in 1932 that President Hoover’s moratorium on reparations and war debt payments would be permanent for the major debtor countries. Individual country repayment schedules are reported in US World War Foreign Debt Commission (1927). To compute foreign payouts,  $f_t$ , we collected records of the interallied payments from various issues of the *Annual Report of the Secretary of the Treasury*. Our measure of Federal Reserve Credit  $M_t$  is the sum of discounted bills secured by

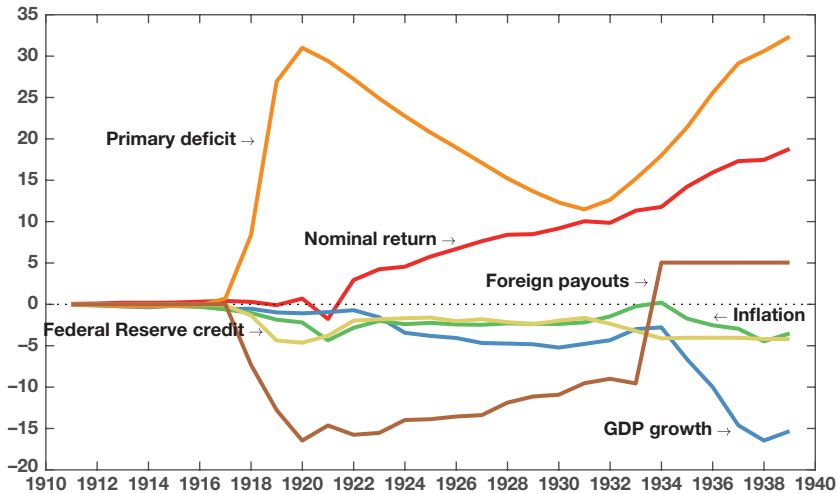
<sup>59</sup>The terms in equation (1.1) leave a residual. This residual will include any mismeasurement of the government’s accounts, approximation errors in our accounting, and changes in the value the government’s other assets (for example, the gold stock, its vast land holdings, the nation’s railroads) that we omit in our analysis.

<sup>60</sup>Also see footnote 82 of Annex 1.1.

<sup>61</sup>By not adding risk premia to these rates to account for what were at various times doubtful prospects that these prospective amounts would be paid, we know that we overstate the value of these foreign claims. This fact affects the timing of the “foreign payouts” line in Figure 1.28 but not its main features and not its beginning and ending values.

<sup>62</sup>See footnote 84 in Annex 1.1 for an explanation of how we discounted promised payments beyond the horizon of our Hicks-Arrow price vectors.

**Figure 1.28. Cumulative Sum of the Components of the Change in the Ratio of the Debt Net of Foreign Credits to GDP**



Source: See section 10.0.1.

government obligations and government securities owned outright by the Federal Reserve.<sup>63</sup> The discount rate  $d_t$  is the New York Federal Reserve discount rate for loans secured by Liberty and Victory Loans on December 31 of year  $t$ .<sup>64</sup>

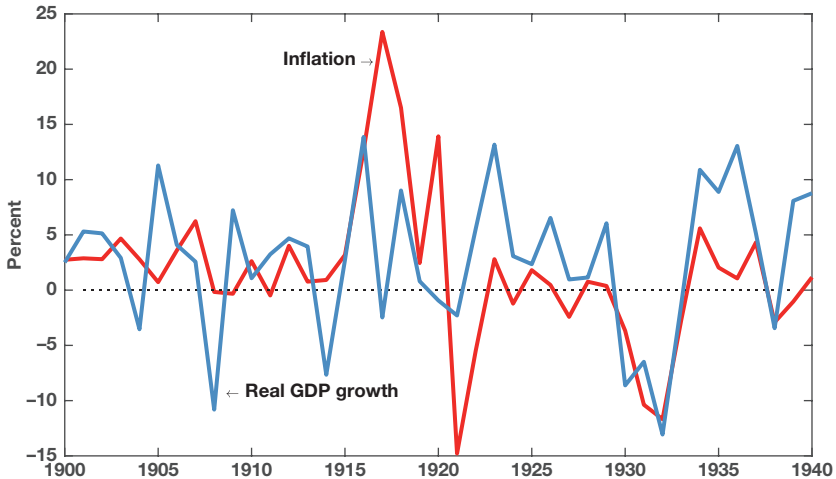
For various values of  $t$  and  $\tau$ , Table 1.5 reports our decompositions of debt-to-GDP increments  $\frac{v_t(B_t - C_t)}{Y_t} - \frac{v_{t-1}(B_{t-1} - C_{t-1})}{Y_{t-1}}$  into components attributable to (1) nominal interest payments, (2) GDP growth, (3) inflation, (4) the primary deficit, (5) net payouts on Treasury-owned foreign credits, (6) Federal Reserve Credit, (7) payments to the Federal Reserve, (8) the cross term, and (9) the residual. Table 1.5 further decomposes contributions of nominal interest payments, GDP growth, and inflation by maturity.

Table 1.5 and Figure 1.28 reveal the following patterns in the ways that the US borrowed, repaid, grew, deflated, inflated, and paid its way toward higher or lower net-debt/GDP ratios:

1. Prior to the US entry into the war, from 1910 to 1916, the net-debt/GDP ratio fell from 3.16 to 2.13. Of this 1.03 percent drop, 0.54 percent was due to real GDP growth and 0.54 percent was due to inflation.

<sup>63</sup>These assets are recorded in the Federal Reserve balance sheets reported each month in Board of Governors of the Federal Reserve System (1915–40).

<sup>64</sup>See pages 6–7 of Board of Governors of the Federal Reserve System (1922).

**Figure 1.29. Real GDP Growth and Inflation Measured by the GDP Deflator**

Source: <http://www.measuringworth.com>.

2. During the war period from 1916 to 1918, the increase in the net-debt/GDP ratio from 2.13 to 12.72 was driven by large primary deficits. The extension of foreign credits offset a little less than half of these deficits. Negative nominal returns to bondholders, robust real GDP growth, a burst of inflation, and support from the Federal Reserve also mitigated the impact of these deficits on the net-debt/GDP ratio. The strong GDP growth and high inflation are apparent in Figure 1.29. The negative nominal returns are evident in Figures 1.5 and 1.6.
3. From 1918 to 1931, primary surpluses more than offset high nominal returns to bondholders. The rescheduling of the foreign credits lowered their value so that the contribution of foreign payoffs adds to the net-debt/GDP ratio during this period. In addition, the decline in the price level during the 1920s helped to push up the net-debt/GDP ratio.
4. From 1931 to 1938, the large increase in the net-debt/GDP ratio was driven by large fiscal deficits and the writing off of the foreign credits following the Hoover debt moratorium in 1931. With a few exceptions, payments on Allied war debt to the US stopped in 1933.<sup>65</sup>

Evidently, most of the impacts of nominal returns, GDP growth, and inflation on the debt-to-GDP ratio came via their effects on bonds with maturities greater

<sup>65</sup>In 1932, representatives from Great Britain, Germany, and France met in Lausanne, Switzerland, to formulate a plan for reducing both the German reparation payments and the Allied war debts to the US. The US Senate rejected that debt reduction plan in December 1932, so the World War I foreign credits and the accumulated interest in arrears remain on the US Treasury's books today.

**Table 1.5. Contributions to Changes in the Ratio of Debt Net Foreign Credits to GDP**

Period	1910–13	1913–16	1916–18	1918–23	1923–31	1931–38	1910–38
<b>Debt-to-GDP<sup>1</sup></b>							
Start	3.16	2.58	2.13	12.72	12.56	10.35	3.16
End	2.58	2.13	12.72	12.56	10.35	37.65	37.65
Change	-0.58	-0.45	10.59	-0.16	-2.21	27.31	34.50
<b>Contributions</b>							
Nominal Return <sup>2</sup>	0.13	0.22	-0.51	4.70	5.38	9.29	19.21
All maturities							
$j \leq 1$	0.01	0.01	0.02	0.63	0.43	0.48	1.60
$2 \leq j \leq 4$	0.02	0.03	-0.01	0.81	1.02	2.14	4.01
$j \geq 5$	0.10	0.18	-0.53	3.26	3.92	6.67	13.61
Real GDP Growth <sup>2</sup>							
All maturities net fc	-0.32	-0.22	-0.40	-2.53	-0.93	-11.40	-15.81
$j \leq 1$	-0.01	-0.01	-0.14	-0.66	-0.23	-1.76	-2.81
$2 \leq j \leq 4$	-0.02	-0.04	-0.20	-1.26	-0.65	-3.11	-5.27
$j \geq 5$	-0.30	-0.18	-0.75	-3.41	-1.06	-5.03	-10.72
Foreign credits	—	—	0.69	2.79	1.01	-1.50	2.98
Inflation <sup>2</sup>							
All maturities net fc	-0.12	-0.42	-1.24	-0.53	0.95	-2.14	-3.49
$j \leq 1$	-0.00	-0.01	-0.27	-0.11	0.32	-0.01	-0.08
$2 \leq j \leq 4$	-0.01	-0.05	-0.42	-0.07	0.36	-0.57	-0.77
$j \geq 5$	-0.11	-0.36	-1.81	-0.54	1.60	0.03	-1.18
Foreign credits	—	—	1.26	0.19	-1.32	-1.58	-1.46
Primary Deficit	-0.19	0.97	26.22	-4.17	-10.13	19.73	32.42
Foreign Payouts	—	—	-12.78	-1.20	4.99	14.04	5.05
Federal Reserve Credit	—	-0.12	-4.25	2.69	-0.66	-1.84	-4.18
Payments to Federal Reserve	—	—	-0.04	-0.68	-0.37	-0.33	-1.43
Cross Term	0.01	-0.03	1.90	0.47	0.10	0.08	2.52
Residual	-0.06	-0.85	1.71	1.09	-1.54	-0.13	0.21

Note: All contributions are shares of GDP.

<sup>1</sup>Treasury debt is its end-of-year market value net of foreign credits, holdings of the Federal Reserve and government accounts, and the balance in the Treasury.

<sup>2</sup>Treasury debt is decomposed into three groups: claims maturing within one year,  $j \leq 1$ ; claims maturing between two and four years,  $2 \leq j \leq 4$ ; and claims maturing in five years or more  $j \geq 5$ .

than 5 years. During most of the period under consideration, the average maturity of the debt generally exceeded 8 years (see Figure 1.25) since most the debt consisted of long-term bonds such as the Liberty Loans. See Figures 1.26 and 1.27. Over the entire period from 1910 to 1938, contributions to changes in the debt-to-GDP ratio coming from nominal returns to bondholders were mostly offset by GDP growth and inflation.

## EPILOGUE: MORE COMPLICATIONS

The earlier section titled “Comparison with Civil War” described how in 1933 President Roosevelt followed Irving Fisher’s advice by adopting policies designed to redistribute wealth from creditors to debtors by increasing the price level. The Roosevelt administration’s efforts in that direction were dwarfed by fiscal-monetary policies that more than a decade earlier had created the German hyperinflation of 1921–23.<sup>66</sup> Germany had financed only a small fraction of World War I by borrowing from foreigners; instead, a substantial fraction was financed by Germans who purchased German government securities. By ultimately increasing the price level in November 1923 to approximately 12 orders of magnitude of the 1913 price level (that is,  $10^{12}$  in scientific notation), the German fiscal-monetary authorities defaulted on virtually all of their domestic debt.<sup>67</sup>

But the Versailles Treaty in June 1919 and the London Schedule of Payments in April 1921 imposed foreign debts on Germany in the form of uncertain and large reparations payments due in gold to the victors of the war, especially France and the UK. As part of these reparations, Germany was required to pay the Allies a fixed annuity of 2,000 million gold marks (\$476 million), roughly the same amount the Allies were scheduled to the United States.<sup>68</sup> Although Germany was not required to make reparation payments directly to the US, Germany was required to reimburse the expenses of the American army of occupation and the pay of a set of private claims of American citizens. The German hyperinflation of 1922–23 was an outcome of efforts by reparations creditors, especially France, to force Germany to tax its citizens and suppress its government expenditures to make enough “fiscal space” for Germany to service its reparations obligations. France threatened to occupy the Ruhr Valley and seize factories and mines unless Germany paid reparations payments due in 1922. Germany did not pay. In January 1923, France carried out its threat by invading the Ruhr and then operating Ruhr factories and mines. The German government responded with a “passive resistance” in which it printed German marks to pay German workers not to work for the French. By the fall of 1923, printing presses were financing over 95 percent of the Weimar Republic’s federal expenditures.

The German hyperinflation ended with a bargain among German government authorities, German reparations creditors, the Reparations Commission, and US bankers and government officials that rescheduled German reparations obligations, rearranged German monetary-fiscal institutions and policies in ways designed to protect central bank independence, and brokered an international

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<sup>66</sup>For descriptions and accounts of the German hyperinflation, see Sargent (1982) and Taylor (2013). See Schuker (1988) for a description of President Roosevelt’s ambivalent attitude about protecting the interests of American creditors in Germany.

<sup>67</sup>A concomitant effect was a huge redistribution from German domestic private creditors to German domestic private debtors.

<sup>68</sup>In April 1921, the Allies owed the US \$9.4 billion in principal, with annual interest payments of \$470 million.

loan to the German federal government. The Dawes Plan organized a substantial 1924 Reparation Loan to the Reich.<sup>69</sup> Under the terms of the Dawes loan, offered by a consortium of banks led by J.P. Morgan & Co., the German Republic borrowed \$200 million from private lenders for 25 years at 7 percent; \$110,000,000, or roughly half of the total, was sold to US investors. Along with this loan, the Dawes Plan rescheduled reparation payments and reduced them in the short term. The plan placed the Reichsbank under international supervision and German fiscal affairs under the supervision of an Agent General for Reparations of the Allied Reparations Commission.

For five or six years, the Dawes Plan succeeded in easing Germany's financial distress and converting Germany into an attractive location for foreign investment, particularly from American savers. From 1924 to 1930, Germany became the largest European recipient of American private lending, and the US became Germany's largest creditor, with the US holding over 40 percent of all German external loans.<sup>70</sup> From 1924 to 1930, American investment banks publicly offered 135 dollar-denominated bonds issued by German government entities and dozens of privately offered loans for an aggregate par value exceeding \$1.2 billion. Figure 1.30 plots as a blue line the implied quantity outstanding for the 148 bonds listed in Kuczynski (1927, 1932). By June 1931, US banks held \$500 million in short-term loans owed by Germans, composing half of all US bank lending to Europe.<sup>71</sup> Additional short-term credits, primarily in the form of commercial credits by American firms, brought the total quantity of German debt to US private creditors to over \$2,000 million by 1931.

US lenders extended loans to German public and private entities. For 135 publicly offered and 13 privately offered loans listed in Kuczynski (1927, 1932), Table 1.6 divides German borrowers into eight sectors and reports the distribution of loans among them. The only loans to the German Republic (that is, the federal government) were the Dawes loan of 1924 and the Young loan of 1930. Most foreign lending to Germany instead went to Germany's states, provinces, cities, and industrial firms. Reparations payments were the responsibility of the German Republic. The German Republic encouraged commercial borrowing: after all, if default loomed, the Weimar government could argue that non-reparations public and commercial debts should be paid before reparations. German fiscal authorities hoped to align US *private* creditors' interests with theirs and thereby drive a wedge between the interests of US private creditors and reparations creditors. It was not polite to say things like this in public, but German Foreign Minister Gustav Stresemann did. In 1925, he remarked: "One must simply have enough debts; one must have so many debts that, if the debtor collapses, the creditor sees his own

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<sup>69</sup>In 1919 and 1920, there had been substantial transfers to Germany by residents of the UK, US, and other countries speculating on a recovery of the German mark. John Maynard Keynes was among them. Some estimates of the funds transferred to Germany by the failures of those investments are as large as \$3.5 billion. See Taylor (2013, ch. 14, Boom).

<sup>70</sup>See Table 2 in Klug (1993, 6).

<sup>71</sup>See Board of Governors of the Federal Reserve System (1943, 585).

**Table 1.6. Distribution by Sector of German Bonds Issued in the United States, 1924–32**

Borrower	Number of Loans	Dollar Amount Offered in US	Percent of Total
German Republic	2	\$208,250,000	16
States	16	144,375,000	11
Provinces, Counties, and Municipalities	19	101,420,000	8
Public Utilities	40	257,548,000	20
Industrial Corporations	35	246,968,500	19
Credit and Saving Institutions	22	263,500,000	20
Other	10	64,515,000	5
Religious and Welfare Organizations	4	13,000,000	1
Total	148	\$1,299,576,500	

Note: This table reports the par value of the loans listed by Kuczynski (1927, 1932) decomposed by sector. Because some of the principal was repaid, this does not represent the total outstanding.

existence jeopardized.<sup>72</sup> Of course, that would pit the interests of American private creditors against those of owners of US Treasury debt who had expected the US Treasury's debt to be backed by its holdings of foreign credits to former World War I allies, which in turn were ultimately backed by German reparations payments.

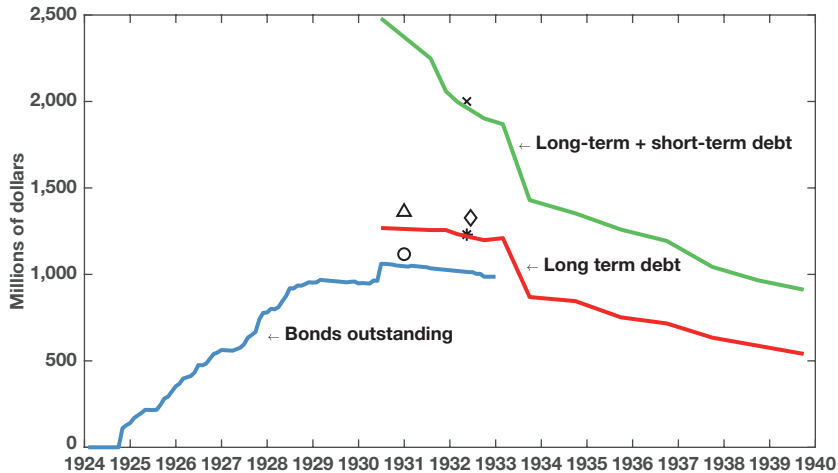
American isolationists and populists asserted that American advocates of “cancellationist” measures wanted to protect the interests of international bankers and European reparations creditors at the expense of American taxpayers. The *New York American* criticized “the campaign of international bankers to squeeze, cajole, wheedle Uncle Sam into cancelling the thousands of millions of dollars owed the United States Treasury by European nations” and warned its readers that “international bankers, to protect their own private investments overseas, want the U.S. to cancel the foreign war debts.”<sup>73</sup>

Were those accusations justified? Not entirely. First, the \$2 billion that German borrowers owed US investors was a small fraction of the \$12 billion the Allies owed to the US Treasury. Second, American creditors to Germany were also US taxpayers. We have incomplete information about the identities of American creditors, but we do know that most German bonds sold to Americans were issued in small denominations. For example, the Dawes Reparation Loan—officially named the German External Loan, 7 percent Bonds of October 1924—consisted of bonds in denominations of \$1,000, \$500, and \$100, indicating that these bonds were sold to small investors. Using records from 24 American bond houses, J.P. Morgan & Co. partner Dwight W. Morrow (1927) estimated that 91 percent of buyers of Dawes loan bonds purchased less than \$5,000 worth and

<sup>72</sup>See Tooze (2014, 465).

<sup>73</sup>September 15, 1932. The *New York American* was a Hearst newspaper with masthead slogans “America First” and “An American paper for the American people.”



**Figure 1.30. Various Estimates of Private US Lending to Germany**

Notes and sources: The blue line, labeled “bonds outstanding,” reports the par value outstanding for 135 publicly placed and 13 privately placed dollar-denominated bonds issued in the US and listed in Kuczynski (1927, 1932). For this set of bonds, the quantity outstanding on December 31, 1930, is \$1,047 million. However, data from other sources suggest that we have an incomplete list of privately placed bonds; further, we are missing secondary market purchases of German bonds placed in foreign countries.

The series “long-term debt” (red line) and “long-term+short-term debt” (green line) are computed from Table 5, *German External Debt, Excluding Reparations*, of Klug (1993). We assume that US shares of German external short-term debt and long-term debt remain fixed at 31.8 percent and 49.3 percent, respectively. We convert Reichsmark (RM) into dollars at the rate 0.2382 \$/RM.

The ○ reports quantity outstanding of long-term portfolio investments (\$1,117 million) in December 1930. The △ reports the sum of long-term portfolio and direct investments outstanding (\$1,361 million) in December 1930. Both figures are from Table 1 of Klug (1993). See also Dickens (1931, Table 4); Dickens reports that for December 1930 the quantity outstanding of long-term portfolio investments is \$1,177 million and the sum of long-term portfolio and direct investments outstanding is \$1,421 million.

The \* reports US long-term credits outstanding (\$1,230 million) in May 1932. The × reports the sum of long-term and short-term credits outstanding (\$2,000 million), in May 1932. Both of these figures are reported in Table 2 of Klug (1993).

The ◇ is the quantity outstanding of German bonds issued in the United States, June 1932 (\$1,327 million), reported in Table 2 of Klug (1993).

that these small buyers purchased 53.6 percent of the total offering. In addition, in the 1950s, the commission that settled claims of American owners of German dollar-denominated bonds processed 40,620 separate claims.<sup>74</sup> This evidence suggests that many retail purchasers of these bonds were individuals rather than banks and other financial firms.

<sup>74</sup>See Hartman and Skaupy (1957, 448).

## Credits Recognized to Be Subsidies

During the late 1920s, the Federal Reserve raised interest rates in attempts to rein in sharp rises in US stock prices. Higher US interest rates increased the attractiveness of investing in US bonds while also making it more costly for heavily indebted countries like Germany to service their debts to the US. So US foreign lending declined sharply soon thereafter, and international capital flows slowed to a trickle. Germany and several South American countries defaulted. A global financial crisis occurred.

On June 20, 1931, President Hoover proposed a temporary debt moratorium that applied to war credits as well as reparations, but it did not go into effect until the winter when Congress approved it. In December 1932, when the temporary moratorium expired, reparations stopped. Germany stopped making payments on the Dawes and Young loans, although these bonds continued to be traded on US markets well into World War II, albeit at deep discounts.<sup>75,76</sup> See Figure 1.31. France repudiated its World War I credits due to the US, but the UK did not, so negotiations with the UK continued, although UK payments to the US had stopped. The US continued to seek compensation for its World War I credits to allies, but only Finland continued to make its full scheduled payments after the moratorium.<sup>77</sup>

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<sup>75</sup>Meanwhile, through a clever German government program designed by Reichsbank President Hjalmar Horace Greeley Schacht, German firms purchased roughly one-third of Germany's dollar-denominated debts at heavily discounted prices between 1932 and 1940. These transactions are recorded in German Registration Office for Foreign Debt (1932–40) and discussed in Klug (1993) and Tooze (2006, ch. 3).

<sup>76</sup>After World War II, Germany resumed payments on these bonds. At the London Debt Conference of 1953, principals of the American tranches of the Dawes and Young loans were refinanced at 5.5 percent and 5.0 percent, respectively, with their maturity dates being extended to 1969 and 1980, respectively. Interest in arrears was refinanced into 20-year bonds paying 3 percent. See United Nations (1959, Annex I, 96). Holders of outstanding German commercial and municipal debts covered by the agreement had their claims written down to 38 percent of their 1931 level. See Klug (1993, 54) and Guinnane (2004).

<sup>77</sup>In the second half of 1933, Czechoslovakia, Great Britain, Greece, Italy, Latvia, and Lithuania made partial payments.

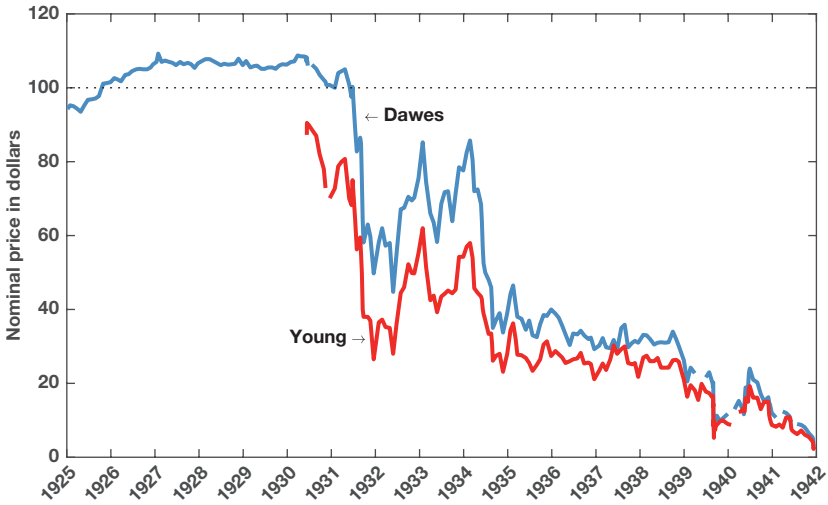
With the exception of a postponement in 1941 and 1942, Finland continued to meet its scheduled obligations, even in 1943 and 1944 when it was allied with Germany. After 1949, the US Treasury dedicated Finland's debt payments to finance educational exchanges between the US and Finland. Finland made its final payment in 1977.

Greece made partial payments on its debt until 1942. Then in 1964 Greece agreed to an 80-year repayment schedule at 2 percent interest. Greece remains current on this loan. Its last installment is due on November 17, 2048.

Hungary also made partial payments during the 1930s and early 1940s. In 1977, it paid the US Treasury over \$4 million to become current on its obligations. Hungary repaid its debt in full in the early 1980s. The final payments were used to finance cultural exchanges between the two countries.

Together the debts of Finland, Greece, and Hungary were less than four-tenths of 1 percent of the total indebtedness of foreign governments to the United States arising from World War I.

**Figure 1.31. US Prices of the Dawes and Young Loans**



Source: *Wall Street Journal*

After all this, between 1918 and 1940, in exchange for the over \$12 billion in loans, credits, and accrued interest on the US Treasury’s books, the Treasury received \$2.86 billion in remittances (\$2.11 billion labeled interest and \$777 million labeled principal) from the Allies. The UK made \$2.19 billion in payments (\$464 million in principal and \$1.72 million in interest) on the \$4.7 billion the UK government owed the US Treasury, whereas France paid only \$486 million (\$226 in principal and \$260 million in interest) on the \$4.2 billion that the government of France owed the US Treasury.

## ANNEX 1.1. ACCOUNTING FRAMEWORK

This annex compares accounting systems used by the US Treasury and macroeconomic theory.

### Government Budget Constraint

We want to represent the government budget constraint as it appears in macroeconomic models. Let  $B_{t-1} = \sum_{j=1}^n B_{t-1}^j$  be the total nominal value of interest bearing government debt at  $t-1$ , where  $B_{t-1}^j$  is the nominal value of zero coupon bonds of maturity  $j$  at  $t-1$ . Let  $r_{t-1,t}^j$  be the net *nominal* return between  $t-1$  and  $t$  on nominal zero coupon bonds of maturity  $j$ . The government budget constraint at time  $t$  is

$$B_t = r_{t-1,t} B_{t-1} + B_{t-1} + (G_t - T_t) - (M_t - M_{t-1}) \quad (1.1.2)$$

or

$$B_t = \sum_{j=1}^n r_{t-1,t}^j B_{t-1}^j + B_{t-1} + (G_t - T_t) - (M_t - M_{t-1}), \quad (1.1.3)$$

where  $G_t$  is the dollar value of government purchases,  $T_t$  is the dollar value of taxes net of transfers,  $M_t$  is the stock of non-interest-bearing government debt called base money, and the equality

$$\sum_{j=1}^n r_{t-1,t}^j B_{t-1}^j = r_{t-1,t} \sum_{j=1}^n B_{t-1}^j \quad (1.1.4)$$

implicitly defines the value-weighted net nominal return  $r_{t-1,t}$  on interest-bearing nominal government bonds from  $t-1$  to  $t$ . In a later section of this annex titled “Foreign Credits and Federal Reserve Lending,” we modify equation (1.1.2) to account for foreign credits.

Let  $Y_t$  be real GDP at  $t$ ,  $p_t$  be the price level,  $v_t = p_t^{-1}$  be the real value of a dollar, and  $v_t B_t$  be the real value of interest-bearing government debt to the public. The government budget constraint equation (1.1.2) or (1.1.3) and simple algebra tell how a net nominal return  $r_{t-1,t}$ , a net inflation rate  $\pi_{t-1,t}$ , a net growth rate in real GDP  $g_{t-1,t}$ , a net rate of increase in base money  $\mu_{t-1,t}$ , and a real primary deficit  $\text{def}_t = v_t(G_t - T_t)$  contribute to the evolution of the government interest-bearing debt-to-GDP ratio:

$$\begin{aligned} \frac{v_t B_t}{Y_t} &= (r_{t-1,t} - \pi_{t-1,t} - g_{t-1,t}) \frac{v_{t-1} B_{t-1}}{Y_{t-1}} + \frac{\text{def}_t}{Y_t} + \frac{v_{t-1} B_{t-1}}{Y_{t-1}} \\ &\quad - (\mu_{t-1,t} - \pi_{t-1,t} - g_{t-1,t}) \frac{M_{t-1}}{Y_{t-1} p_{t-1}} \end{aligned} \quad (1.1.5)$$

To bring out consequences of interest rate risk and the maturity structure of the debt for the evolution of the debt-to-GDP ratio, we refine equation (1.1.5) to recognize that the government pays different nominal one-period returns on the dollar-denominated IOUs of different maturities that comprise  $B_t$ :

$$\frac{v_t B_t}{Y_t} = \sum_{j=1}^n r_{t-1,t} \frac{v_{t-1} B_{t-1}^j}{Y_{t-1}} - (\pi_{t-1,t} - g_{t-1,t}) \frac{v_{t-1} B_{t-1}}{Y_{t-1}} + \frac{v_{t-1} B_{t-1}}{Y_{t-1}} + \frac{\text{def}_t}{Y_t} - (\mu_{t-1,t} - \pi_{t-1,t} - g_{t-1,t}) \frac{M_{t-1}}{Y_{t-1} p_{t-1}} \tag{1.1.6}$$

Equation (1.1.6) distinguishes contributions to the growth of the debt-to-GDP ratio that depend on debt maturity  $j$  from those that do not:  $\pi_{t-1,t}$  and  $g_{t-1,t}$  do not depend on  $j$  and operate on the *total* real value of debt last period, but the nominal returns  $r_{t-1,t}^j$  depend on maturity  $j$  and operate on the real values of the corresponding maturity  $j$  components  $B_{t-1}^j$ .

### US Government Accounts

The Treasury measures government debt and interest payments differently than do macroeconomists. The official accounts measure government debt by the total par value of outstanding promises, while the macroeconomist’s budget constraint is cast in terms of market values.

To understand how the Treasury’s measure of government debt is related to the market value of debt, we bring in information about bonds’ coupons, principals or par values, and prices of (presumably risk-free) promises to future dollars. In the tradition of macro-finance, we use Hicks-Arrow prices of future-dated claims. Let time be discrete so that  $t \in \{0, \pm 1, \pm 2, \dots\}$ . Let the market price  $q_{t+j}^t$  be the number of dollars at time  $t$  that buys a risk-free claim to a dollar at time  $t+j$ . The superscript  $t$  denotes the date at which the price is quoted, whereas the subscript  $t+j$  refers to the date at which a promise to pay is to be fulfilled. At any date  $t$ , let there be a list of market prices  $\{q_{t+j}^t\}_{j=0}^{n_t}$ , where  $n_t$  is the maximum horizon over which the government has promised payments.<sup>78</sup> (Hall and others [forthcoming]) describe how they inferred the Hicks-Arrow prices that we use from a collection of bond prices and associated promised payment streams.<sup>79</sup> We set  $q_t^t = 1$  to express that a dollar today costs one dollar today.<sup>80</sup> For  $j \geq 1$ , the price  $q_{t+j}^t$  is related to the yield to maturity  $\rho_{jt}$  for  $j$ -period risk-free zero coupon bonds by

$$q_{t+j}^t = \frac{1}{(1 + \rho_{jt})^j}.$$

<sup>78</sup>When the government has issued perpetual *consols*,  $n_t = \infty$ .

<sup>79</sup>Hall and others (forthcoming) computed nonlinear least squares coefficients  $\hat{\alpha}_{i,t}$  in the “level-slope-curvature” approximation  $q_{t+j}^t \approx \exp(-(\alpha_{0,t} + \alpha_{1,t}j + \alpha_{2,t}j^2)j)$ , then approximated  $q_{t+j}^t$  by  $\exp(-(\hat{\alpha}_{0,t} + \hat{\alpha}_{1,t}j + \hat{\alpha}_{2,t}j^2)j)$ .

<sup>80</sup>We also assume that  $q_{t-j}^t = 1$  for  $j \geq 1$  to express that a claim to a dollar does not expire at its maturity date.

The gross nominal return on a  $j$ -period zero coupon bond from time  $t$  to  $t+1$  is

$$\frac{q_{t+j-1}^{t+1}}{q_{t+j}^t} = (1 + r_{t,t+1}^j)$$

where  $r_{t,t+1}^j$  is the net nominal return. The net return equals the yield only for  $j = 1$ .

At time  $t$  the government promises to pay  $s_{t+j}^t$  dollars at times  $t+j$ ,  $j = 1, 2, \dots, n_t$ . We interpret  $s_t^t$  as currency or base money.<sup>81</sup> For  $j \geq 1$ , promised payments consist of coupons  $c_{t+j}^t$  and terminal or principal payments (also known as par values)  $b_{t+j}^t$ :

$$s_{t+j}^t \equiv c_{t+j}^t + b_{t+j}^t. \quad (1.1.7)$$

These are sums over all outstanding bonds of coupon and principal components associated with each bond. The market value of interest-bearing government debt at time  $t$  is

$$\sum_{j=1}^{n_t} q_{t+j}^t s_{t+j}^t, \quad (1.1.8)$$

which states that the total value of government debt is the sum of a collection of prices times quantities.<sup>82</sup>

The Treasury defines government debt at time  $t$  as the sum of par values of outstanding debt

$$\sum_{j=1}^{n_t} b_{t+j}^t, \quad (1.1.9)$$

which differs from the market value of government debt

$$\sum_{j=1}^{n_t} q_{t+j}^t s_{t+j}^t = \sum_{j=1}^{n_t} q_{t+j}^t (c_{t+j}^t + b_{t+j}^t)$$

for two reasons:

- It neglects promises to pay coupons

$$\sum_{j=1}^{n_t} c_{t+j}^t;$$

and

- The book value given by equation (1.1.9) fails to multiply future principal payments of  $b_{t+j}^t$  by multiplying them by market prices  $q_{t+j}^t$ .

<sup>81</sup>We assume that  $\left(\frac{q_{t+j-1}^t}{q_{t+j-1}^{t-1}}\right) = 1$  for  $j = 0$  so that  $r_{t-j,t}^0 = 0$ .

<sup>82</sup>In situations in which the payout stream is uncertain, a possible pricing theory is instead

$$\sum_{j=1}^{n_t} q_{t+j}^t \tilde{s}_{t+j}^t \tilde{\pi}_{t+j}^t, \quad (1.1.10)$$

where  $\{\tilde{s}_{t+j}^t\}$  is a promised payout stream and  $\{\tilde{\pi}_{t+j}^t\}$  is a sequence of fractions of promised payouts that a representative risk-neutral investor expects will actually be paid.

The first omission causes the official Treasury concept (1.1.9) to understate the market value of debt, while the second omission makes it overstate it. This means that the official measure of government debt  $\sum_{j=1}^{n_t} b_{t+j}^t$  can either exceed or fall short of the market value  $\sum_{j=1}^{n_t} q_{t+j}^t s_{t+j}^t$ .

We can represent the macroeconomist’s budget constraint (1.1.2) or (1.1.3) as<sup>83</sup>

$$\sum_{j=0}^{n_t} q_{t+j}^t s_{t+j}^t = \sum_{j=0}^{n_{t-1}} q_{t+j-1}^{t-1} s_{t+j-1}^{t-1} + (G_t - T_t), \tag{1.1.11}$$

The left side of equation (1.1.11) is the value of government debt in period  $t$ , whereas the first term on the right side is the value of payments that the government had promised at time  $t - 1$  evaluated at time  $t$  prices  $q_{t+j}^t$ . Equation (1.1.11) states that the value of the government debt changes between times  $t$  and  $t+1$  because

1. Prices of time  $t+j$  promises  $s_{t+j}^{t-1}$  to time  $t+j$  dollars change from  $q_{t+j}^{t-1}$  to  $q_{t+j}^t$ .
2. The government pays off or reschedules some components of its promised payments, contributing to deviations of  $s_{t+j}^t$  from  $s_{t+j}^{t-1}$  for some  $j$ 's.
3. The government runs a net-of-interest nominal deficit or surplus at date  $t$ .

It is enlightening to rewrite equation (1.1.11) as

$$\begin{aligned} \sum_{j=0}^{n_t} q_{t+j}^t s_{t+j}^t &= \sum_{j=0}^{n_{t-1}} \left( \frac{q_{t+j-1}^t}{q_{t+j-1}^{t-1}} \right) q_{t+j-1}^{t-1} s_{t+j-1}^{t-1} + (G_t - T_t) \\ &= \sum_{j=0}^{n_{t-1}} q_{t+j-1}^{t-1} s_{t+j-1}^{t-1} + \sum_{j=1}^{n_{t-1}} r_{t-1,t}^j q_{t+j-1}^{t-1} s_{t+j-1}^{t-1} + (G_t - T_t). \end{aligned} \tag{1.1.12}$$

The second term on the right side of the second line of equation (1.1.12) measures time  $t$  nominal net returns on the time  $t - 1$  nominal government debt:

$$\sum_{j=1}^{n_{t-1}} r_{t-1,t}^j q_{t+j-1}^{t-1} s_{t+j-1}^{t-1} \tag{1.1.13}$$

So equation (1.1.12) expresses the nominal value of government debt in period  $t$  as the sum of the value of government debt yesterday, net nominal returns on last period’s debt, and the government deficit  $G_t - T_t$ .

### Interest Reported by the Treasury

The net nominal interest payments defined in equation (1.1.13) are not what the US Treasury reports. Instead, it reports a different notion of interest, namely:

1. Before 1929:  $c_t^{t-1}$

<sup>83</sup>To recognize that budget constraint (1.1.12) is equivalent with (1.1.6), use the definitions and approximation  $q_{t+j-1}^{t-1} s_{t+j-1}^{t-1} = B_{t-1}^j B_{t-1} = \sum_{j=1}^n B_{t-1}^j M_t = s_t^j \left( \frac{v_t q_{t+j-1}^t Y_{t-1}}{v_{t-1} q_{t+j-1}^{t-1} Y_t} - 1 \right) \approx r_{t-1,t}^j - \pi_{t-1,t} - g_{t-1,t}$ .

2. After 1929:

$$c_t^{t-1}, r_{t-1,t}^1 b_{1,t}^{t-1} \quad (1.1.14)$$

where  $b_{1,t}^{t-1}$  is the par value of pure discount one-period treasury bills issued at  $t - 1$ . So what the Treasury reports as interest consists of coupons on longer maturity bonds plus the net yield on one-period zero coupon Treasury bills (these have existed only since 1929).

To relate the government's post-1929 definition of nominal interest payments to the theoretical concepts in a standard macroeconomic formulation such as equation (1.1.11), we first introduce the decomposition  $b_t^{t-1} = b_{1,t}^{t-1} + b_{-1,t}^{t-1}$  where  $b_{-1,t}^{t-1}$  is the par (or principal) value of bonds with initial maturities exceeding one period that fall due at time  $t$ . (Here we follow game theorists in using the subscript  $-1$  to mean "not 1," which in the present context means "not a treasury bill.") We use this decomposition to accommodate how the US Treasury accounts for interest on Treasury bills. Then note that  $q_t^t = 1$  and rewrite the standard macroeconomic government budget constraint (1.1.12) as

$$\begin{aligned} \sum_{j=1}^{n_t} q_{t+j}^t s_{t+j}^t &= c_t^{t-1} + b_t^{t-1} + \sum_{j=2}^{n_t-1} \left( \frac{q_{t+j-1}^t}{q_{t+j-1}^{t-1}} \right) q_{t+j-1}^{t-1} s_{t+j-1}^{t-1} + (G_t - T_t) \\ &= c_t^{t-1} + b_{1,t}^{t-1} + b_{-1,t}^{t-1} + \sum_{j=2}^{n_t-1} (1 + r_{t-1,t}^j) q_{t+j-1}^{t-1} s_{t+j-1}^{t-1} + (G_t - T_t). \end{aligned} \quad (1.1.15)$$

The second and third terms on the second line of the right side of equation (1.1.15) decompose principal payments into those attributable to maturing one-period pure discount bonds  $b_{1,t}^{t-1}$  and to maturing longer term bonds  $b_{-1,t}^{t-1}$ . Rewrite the right side of equation (1.1.15) as  $\sum_{j=2}^{n_t-1} q_{t+j-1}^{t-1} s_{t+j-1}^{t-1} + (G_t - T_t)$  plus

$$\underbrace{c_t^{t-1} + r_{t-1,t}^1 b_{1,t}^{t-1}}_{\text{official interest}} + \underbrace{(1 - r_{t-1,t}^1) b_{1,t}^{t-1} + b_{-1,t}^{t-1}}_{\text{cash to pay principal due}} + \underbrace{\sum_{j=2}^{n_t-1} r_{t-1,t}^j q_{t+j-1}^{t-1} s_{t+j-1}^{t-1}}_{\text{capital gains}}$$

The first term is what the Treasury records as interest payments. The second term constitutes repayments of principal at time  $t$ . We can interpret the sum of the first and second terms of the above sum as expressing cash that the Treasury must have at time  $t$  in order to "service" its debt, meaning to pay coupons plus principal due at time  $t$ .<sup>84</sup> The third term measures capital gains or losses on longer term government debt held from  $t - 1$  to  $t$ . These capital gains are included in the macroeconomic concept of interest on the government debt but are neglected in the official concept.

<sup>84</sup>Tables 1.5 and 1.7 of IMF (2014) report what the IMF calls gross financing needs of all member countries for the coming years. This is the sum of our first and third terms.



## FOREIGN CREDITS AND FEDERAL RESERVE LENDING

The value of the promised stream of payments from foreign governments to the US Treasury,  $\{y_{t+j}^t\}$ , at time  $t$  is

$$C_t = \sum_{j=0}^{m_t} q_{t+j}^t y_{t+j}^t, \quad (1.1.16)$$

where  $q_{t+j}^t$  is the time  $t$  Hicks-Arrow price of a risk-free claim to one dollar at time  $t+j$ , and  $m_t$  is the maximum horizon over which the Treasury is promised payments at time  $t$ .<sup>85</sup> The promised payment stream,  $\{y_{t+j}^t\}$ , depends on the history of foreign credits extended at times  $t$  and earlier in a way that we now describe.

For convenience and without loss of generality, set  $m_t = +\infty$  for all  $t$ . Let  $f_t$  be the one-period net payout from the portfolio of credits  $C_{t-1}$  from  $t-1$  to  $t$ , including the time  $t$  coupon or repayment and capital gains or losses from revaluations and reschedulings:

$$f_t = y_t^t + \sum_{j=1}^{\infty} q_{t+j}^t y_{t+j}^t - \sum_{j=1}^{\infty} q_{t+j}^{t-1} y_{t+j}^{t-1}.$$

Adding and subtracting  $\sum_{j=1}^{\infty} q_{t+j}^t y_{t+j}^{t-1}$  to the right side of the above equation gives

$$f_t = y_t^t + \sum_{j=1}^{\infty} q_{t+j}^t (y_{t+j}^t - y_{t+j}^{t-1}) + \sum_{j=1}^{\infty} (q_{t+j}^t - q_{t+j}^{t-1}) y_{t+j}^{t-1}. \quad (1.1.17)$$

The first term in equation (1.1.17) for  $f_t$  is the time  $t$  payoff. The second term is the gain from restructuring the payment schedule between  $t-1$  and  $t$ . The third term is the capital gain on the time  $t-1$  promised payment stream due to the change in Hicks-Arrow prices between  $t-1$  and  $t$ . The initial condition for foreign credits is

$$f_0 = -\sum_{j=1}^{\infty} q_j^0 y_j^0, \quad (1.1.18)$$

which states that at time  $t=0$  the US government lends  $-f_0$  to foreign governments in exchange for a promised repayment stream  $\{y_j^0\}_{j=1}^{\infty}$  from foreign governments to the US.

To account for the interest payments on the Federal Reserve's loans to the public for the purpose of purchasing Treasury securities, we let  $d_t$  denote the end-of-period discount rate on these loans and let  $M_t$  denote the high-powered money secured by collateral in the form of Treasury securities at end of period  $t$ .

<sup>85</sup>When the horizon of the promised stream of foreign payments exceeds the horizon of our Hicks-Arrow prices (that is, when  $m_t > n_t$ ), we extrapolate our Hicks-Arrow prices by setting

$$q_{t+j}^t = \frac{1}{(1 + \rho_{n,t})^j} \text{ for } n_t < j \leq m_t,$$

where  $\rho_{n,t}$  is the yield to maturity of a  $n_t$ -period risk-free zero coupon bond.

Thus, when the Treasury owns foreign credits and the Federal Reserve extends credit to the public, we modify equation (1.1.2) to be

$$(B_t - C_t) = r_{t-1,t} B_{t-1} - f_t + (B_{t-1} - C_{t-1}) + (G_t - T_t) - (M_t - M_{t-1}) - d_{t-1} M_{t-1}. \quad (1.1.19)$$

Equation (1.1.19) indicates how lower income from government foreign credits increases the amount that the Treasury must finance.

In the government accounts, the extension of foreign credits is included in government spending. Thus, if in period  $t$ , the government borrows \$1 and lends it to a foreign government,  $G_t$ ,  $f_t$ ,  $B_t$ , and  $C_t$  each increase by \$1.

## **ANNEX 1.2. SECRETARY BRYAN'S LETTER TO PRESIDENT WILSON**

I beg to communicate to you an important matter which has come before the Department. Morgan Company of New York have asked whether there would be any objection to their making a loan to the French Government and also the Rothschilds – I suppose that is intended for the French Government. I have conferred with Mr. Lansing and he knows of no legal objection to financing this loan, but I have suggested to him the advisability of presenting to you an aspect of the case which is not legal but I believe to be consistent with our attitude in international matters. It is whether it would be advisable for this Government to take the position that it will not approve of any loan to a belligerent nation. The reasons that I would give in support of this proposition are:

First: Money is the worst of all contrabands because it commands everything else. The question of making loans contraband by international agreement has been discussed, but no action has been taken. I know of nothing that would do more to prevent war than an international agreement that neutral nations would not loan to belligerents. While such an agreement would be of great advantage, could we not by our example hasten the reaching of such an agreement? We are the one great nation which is not involved, and our refusal to loan to any belligerent would naturally tend to hasten a conclusion of the war. We are responsible for the use of our influence through example, and as we cannot tell what we can do until we try, the only way of testing our influence is to set the example and observe its effect. This is the fundamental reason in support of the suggestion submitted.

Second: There is a special and local reason, it seems to me, why this course would be advisable. Mr. Lansing observed in the discussion of the subject that a loan would be taken by those in sympathy with the country in whose behalf the loan was negotiated. If we approved of a loan to France we could not, of course, object to a loan to Great Britain, Germany, Russia, or to any other country, and if loans were made to these countries, our citizens would be divided into groups, each group loaning money to the country which it favors and this money could not be furnished without expressions of sympathy. These expressions of sympathy are disturbing enough when they do not rest upon pecuniary interests – they would be still more disturbing if each group was pecuniarily interested in the success of the nation to whom its members had loaned money.

Third: The powerful financial interests which would be connected with these loans would be tempted to use their influence through the newspapers to support the interests of the Government to which they had loaned because the value of the security would be directly affected by the result of the war. We would thus find our newspapers violently arrayed on one side or the other, each paper supporting a financial group and pecuniary interest. All of this influence would make it all the more difficult for us to maintain neutrality as our action on various questions that would arise would affect one side or the other and powerful financial interests would be thrown into the balance.... As we cannot prevent American citizens going abroad at their own risk, so we cannot prevent dollars going abroad at the risk of

the owners, but the influence of the Government is used to prevent American citizens from doing this. Would the Government not be justified in using its influence against the enlistment of the nation's dollars in a foreign war?

*Secretary of State William Jennings Bryan to President Woodrow Wilson,  
August 10, 1914*

### Annex 1.3. US Treasury Credits: Original Principal and Present Value of Refinanced Promised Payments

Country	Original Principal	Funded Interest	Funded Debt	Debt prior to Funding Including Accrued Interest	Present Value of Refinanced Promised Payments and Present Value as a Percent of Principal prior to Refunding					
					3 Percent		4 $\frac{1}{4}$ Percent		5 Percent	
Belgium	\$377,029,570	\$40,750,430	\$417,780,000	\$483,426,000	\$302,239,000	62.5%	\$225,000,000	46.5%	\$191,726,000	39.7%
Czechoslovakia	91,879,671	23,120,329	115,000,000	123,854,000	124,995,000	100.9	91,964,000	74.3	77,985,000	63.0
Estonia	12,066,222	1,763,778	13,830,000	14,143,000	14,798,000	104.6	11,392,000	80.5	9,915,000	70.1
Finland	8,281,926	718,074	9,000,000	9,190,000	9,630,000	104.8	7,413,000	80.7	6,452,000	70.2
France	3,340,516,044	684,483,956	4,025,000,000	4,230,777,000	2,734,250,000	64.6	1,996,509,000	47.2	1,681,369,000	39.7
Great Britain	4,074,818,358	525,181,642	4,175,310,000	4,715,310,000	4,922,702,000	104.4	3,788,470,000	80.3	3,296,948,000	69.9
Hungary	1,685,836	253,164	1,984,000	1,984,000	2,076,000	104.6	1,596,000	80.4	1,388,000	70.0
Italy	1,647,869,198	394,130,802	2,150,150,000	2,150,150,000	782,321,000	36.4	528,192,600	24.6	426,287,000	19.8
Latvia	5,132,287	642,713	5,893,000	5,893,000	6,181,000	104.9	4,755,000	80.7	4,137,000	70.2
Lithuania	4,981,628	1,048,372	6,216,000	6,216,000	6,452,000	103.8	4,967,000	79.9	4,322,000	69.5
Poland	159,666,972	18,893,028	182,324,000	182,324,000	191,283,000	104.9	146,825,000	80.5	127,643,000	70.0
Romania	36,128,495	8,461,505	46,945,000	46,945,000	48,442,000	103.2	35,172,000	74.9	29,507,000	62.9
Yugoslavia	51,037,886	11,812,114	66,164,000	66,164,000	30,286,000	45.8	20,030,000	30.3	15,919,000	24.1
Total	\$9,811,094,094	\$1,711,259,906	\$11,522,354,000	\$12,036,376,000	\$9,175,655,000	76.2 percent	\$6,862,285,000	57.0 percent	\$5,873,638,000	48.8%

Source: Page 443 of US World War Foreign Debt Commission (1927).

## ANNEX 1.4. FRANKLIN D. ROOSEVELT'S "BOMBSHELL MESSAGE"

I would regard it as a catastrophe amounting to a world tragedy if the great Conference of Nations, called to bring about a more real and permanent financial stability and a greater prosperity to the masses of all Nations, should, in advance of any serious effort to consider these broader problems, allow itself to be diverted by the proposal of a purely artificial and temporary experiment affecting the monetary exchange of a few Nations only. Such action, such diversion, shows a singular lack of proportion and a failure to remember the larger purposes for which the Economic Conference originally was called together.

I do not relish the thought that insistence on such action should be made an excuse for the continuance of the basic economic errors that underlie so much of the present world-wide depression.

The world will not long be lulled by the specious fallacy of achieving a temporary and probably an artificial stability in foreign exchange on the part of a few large countries only.

The sound internal economic system of a Nation is a greater factor in its well-being than the price of its currency in changing terms of the currencies of other Nations.

It is for this reason that reduced cost of Government, adequate Government income, and ability to service Government debts are all so important to ultimate stability. So too, old fetishes of so-called international bankers are being replaced by efforts to plan national currencies with the objective of giving to those currencies a continuing purchasing power which does not greatly vary in terms of the commodities and need of modern civilization. Let me be frank in saying that the United States seeks the kind of dollar which a generation hence will have the same purchasing and debt-paying power as the dollar value we hope to attain in the near future. That objective means more to the good of other Nations than a fixed ratio for a month or two in terms of the pound or franc.

Our broad purpose is the permanent stabilization of every Nation's currency. Gold or gold and silver can well continue to be a metallic reserve behind currencies, but this is not the time to dissipate gold reserves. When the world works out concerted policies in the majority of Nations to produce balanced budgets and living within their means, then we can properly discuss a better distribution of the world's gold and silver supply to act as a reserve base of national currencies. Restoration of world trade is an important factor, both in the means and in the result. Here also temporary exchange fixing is not the true answer. We must rather mitigate existing embargoes to make easier the exchange of products which one Nation has and the other Nation has not.

The Conference was called to better and perhaps to cure fundamental economic ills. It must not be diverted from that effort.

*Franklin D. Roosevelt, Wireless to the London Conference, July 3, 1933*

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## CHAPTER 2

# Funding the Great War and the Beginning of the End for British Hegemony<sup>1</sup>

MARTIN ELLISON, THOMAS J. SARGENT, AND ANDREW SCOTT

*The compass has been damaged. The charts are out of date.*

Winston Churchill (June 1930, Oxford University)<sup>2</sup>

The United Kingdom (UK) was the world's economic superpower at the beginning of the 20th century, able to call on the significant resources and wealth of an industrialised economy and the expansive British Empire. However, it was singularly unprepared for the events that unfolded in the summer of 1914. Militarily, the UK had been falling behind in the arms race with Germany from 1900 to 1913, primarily as defence spending failed to keep pace with global trends.<sup>3</sup> Financially, London had great difficulty coping with the international scrimmage for liquidity when the Austria-Hungary ultimatum to Serbia caused market perceptions of the risk of war to shoot up on Thursday, July 23, 1914. Foreign exchange and money markets broke down early the following week and, even though the Bank of England raised the bank rate from 3 percent to 8 percent, on Friday, July 31, the London Stock Exchange closed for the first time in its 117-year history. It was not to open again for five months. Thus, the UK government found itself in dramatic need of increasing its military expenditure at the same time that its financial infrastructure became impaired.

The extent of the problem facing the UK government is shown in Figure 2.1. In the fiscal year 1912–13, defence spending was £72.5 million (3.1 percent of GDP), a proportion of GDP that had remained largely unchanged since the end of the Second Boer War in 1902. By fiscal year 1914–15, defence spending had increased

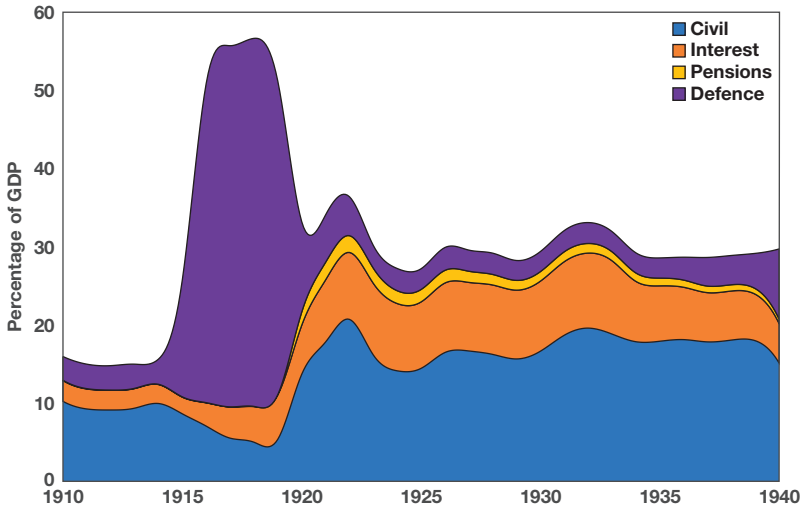
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<sup>1</sup>We thank Steve Broadberry, Norma Cohen, Era Dabla-Norris, George Hall, Ed Nelson, and Sang Seok Lee for helpful comments and suggestions. Ali Uppal was a highly proficient research assistant.

<sup>2</sup>Cited in Clark (2017).

<sup>3</sup>The Correlates of War Project (Singer, Bremer, and Stuckey 1972) estimates that the UK and Germany had almost identical national material capabilities in 1905. By 1913 the UK capability was only 78 percent that of Germany, driven by increases in German military spending, iron and steel production, and primary energy consumption. Moreover, in its 1912 budget, Germany had already committed to further increases in military spending out to 1917.

**Figure 2.1. UK Government Expenditures by Type, 1910–40  
(Percentage of GDP)**



Source: Feinstein (1972); Mallet and George (1929); Mitchell (1988); and <https://www.ukpublicspending.co.uk/>.

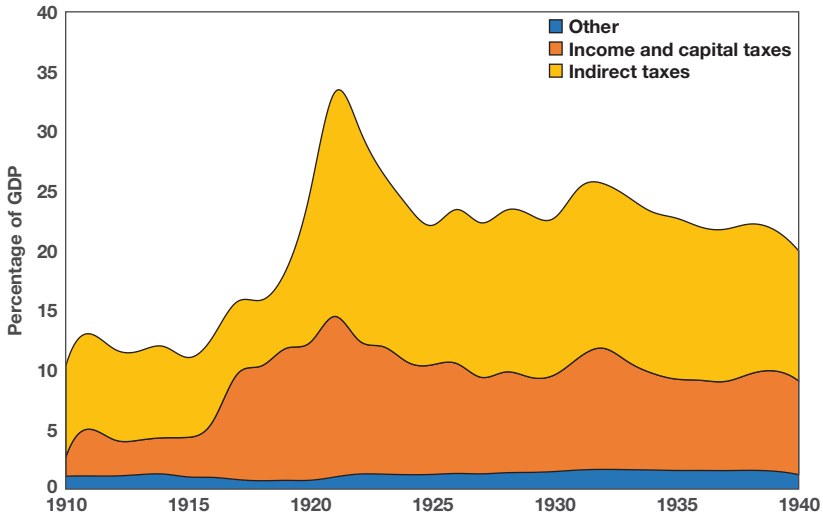
to £437.5 million (14.9 percent of GDP, £365.2 million at 1913 prices) and by 1915–16 to £1.4 billion (40.8 percent of GDP, £1.04 billion at 1913 prices), a level where it remained until 1918–19.<sup>4</sup> Only after the end of demobilisation in 1923 did defence spending return to pre-war levels as a proportion of GDP. The exigencies of war meant that almost all defence spending from 1914–19 was through Votes of Credit that granted lump sum funds to the Treasury to be spent on the Navy, Army, and Ministry of Munitions as the government best decided, without the prior approval of Parliament. The increase in defence spending during 1914–18 was partially offset by other line items in the government budget not keeping pace with the GDP of the wartime economy. Most notably, spending on education fell from 2.4 percent to 1.3 percent of GDP, and spending on transport fell from 2.0 percent to 0.9 percent of GDP. Overall, civil spending decreased from 10 percent to 5 percent of GDP during the war, although it rebounded quickly afterward.

Taxes were raised to provide ongoing financing for the war, as reflected in the development of government revenue in Figure 2.2.<sup>5</sup> First to rise were income and

<sup>4</sup>Estimates in real terms are obtained by deflating the nominal value of defence spending by the price of public authorities' current expenditure on goods and services.

<sup>5</sup>Nason and Vahey (2007) argue that the UK adopted the McKenna Rule when financing World War I. Named after Reginald McKenna, Chancellor of the Exchequer 1915–16, it required the government to raise taxes to cover normal peacetime spending plus interest on war debt but not wartime defence spending.

**Figure 2.2. UK Government Revenues by Types, 1910–40  
(Percentage of GDP)**

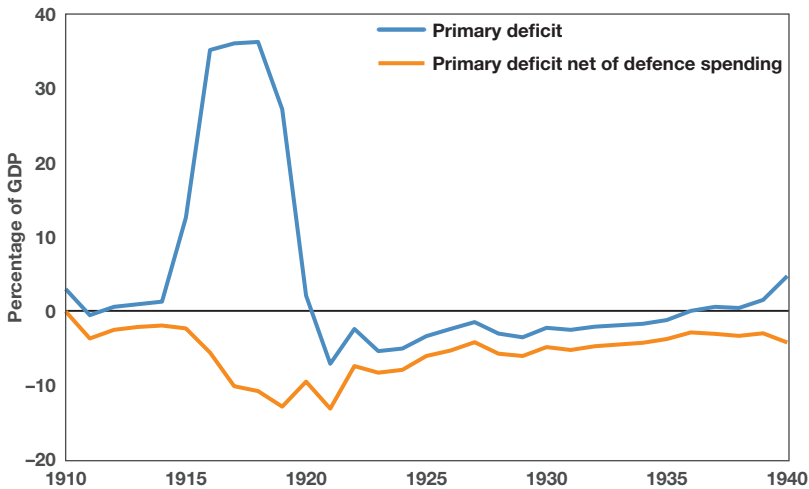


Source: Feinstein (1972); Mallet and George (1929); Mitchell (1988); and <https://www.ukpublicspending.co.uk/>.

property taxes, which went from producing £44.8 million in fiscal year 1912–13 to bringing in £239.5 million in 1917–18 (£134.8 million at 1913 prices) and £398.8 million by 1921–22 (£213.3 million at 1913 prices). This was partly due to an increase in the standard rate of income tax from one shilling, two pennies in the pound (5.8 percent) to six shillings in the pound (30 percent), but also because expansion in coverage meant an extra 2.4 million people became eligible to pay income tax. In fiscal year 1914–15, the government introduced a new Excess Profits Duty to tax what it deemed “excessive” business profits at 50 percent; by 1917–18 the duty had risen to 80 percent, and receipts amounted to almost one-third of government revenue. Over the period 1914–18, the total take from income and property taxes more than trebled, from 3.0 percent to 9.6 percent of GDP. Later to rise were indirect taxes, mostly through increases in customs and excise duties on basic commodities and luxury goods. In fiscal year 1912–13, these duties generated £71.5 million, rising to £110.1 million in 1917–18 (although falling to £62.0 million at 1913 prices) and £324.4 million in 1921–22 (£173.5 million at 1913 prices). As a proportion of GDP, total revenue from indirect taxes fell from 7.7 percent in 1913–14 to 5.5 percent in 1917–18 before the large increase to 17.8 percent in 1921–22.

However, the increase in defence spending during the Great War massively dominated the impact of this reduction in civil expenditures and higher taxes. The result, as shown in Figure 2.3, was the government’s gross primary deficit being propelled to unprecedented levels as a proportion of GDP. The gross

**Figure 2.3. UK Government Primary Deficit, 1910–40  
(Percentage of GDP)**



Source: Feinstein (1972); Mallet and George (1929); Mitchell (1988); and <https://www.ukpublicspending.co.uk/>.

primary deficit was at its maximum in 1917 and 1918, cumulating to 148 percent of GDP over the period 1914–19. Although deficits of this size were short lived, the strain they put on the UK economy and London financial markets was extraordinary. The modern concept of “fiscal space” favoured by the IMF (2018) and the Organisation for Economic Co-operation and Development (OECD)<sup>6</sup> stresses the capacity for governments to raise spending or cut taxes while assuring financial market access and debt sustainability. Calculations by Moody’s Analytics estimated the fiscal space of 30 OECD countries in 2014, at which time 11 countries (including the UK) had insufficient fiscal space to raise 148 percent of GDP. For 7 countries (including the United States), there would be grave risk in doing so, and for the remaining 12 countries, there would still be a significant risk or reason for caution.<sup>7</sup> The fiscal space available to the government at the outbreak of the Great War would likely have been even more restricted.

With its fiscal space limited in 1914, the UK government had little alternative but to increase either borrowing or the money supply. Britain came off the gold standard with the Currency and Bank Notes Act of 1914, and the monetary base

<sup>6</sup>See Botev, Fournier, and Mourougane (2016).

<sup>7</sup>The methodology used by Moody’s Analytics is described in Zandi, Cheng, and Packard (2011). The most recent estimates of fiscal space are available at <https://www.economy.com/dismal/tools/global-fiscal-space-tracker>.

did indeed almost double from £288 million in 1914 to £531 million in 1918. However, the subsequent upsurge in inflation and depreciation of the pound tempered any desires the government may have had to print more money to further increase the money supply. Instead, the primary deficits of 1914–18 were largely funded by borrowing in domestic financial markets and through intergovernmental loans. The difficulties in doing so contributed to the beginning of the end for British hegemony and are the subject of this chapter.

## FUNDING THE GREAT WAR

The borrowing of the UK government is presented in Figure 2.4, which distinguishes among different types of debt.<sup>8</sup> Securities quoted on the London Stock Exchange are divided into those not expressly issued to fund wartime expenditure (exchequer bonds, consolidated stock, annuities, funding loans, Treasury bonds, and conversion loans) and those specific to the Great War (war loans, national war bonds, and Victory Bonds).<sup>9</sup> Securities not quoted on the London Stock Exchange are split between floating debt (short-term liabilities in the form of ways and means advances, Treasury bills, and Treasury deposits by banks), other internal debt (longer term liabilities, most notably war savings certificates, war expenditure certificates, and national savings certificates), and external debt payable to foreign governments.

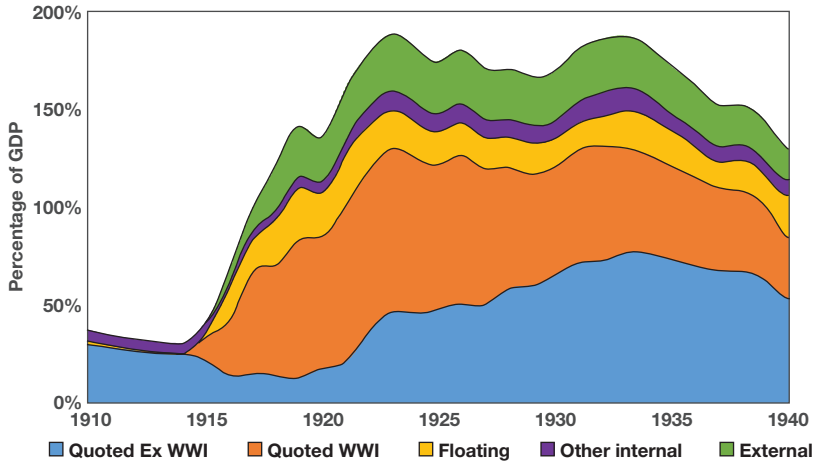
In 1914 the face value of the UK national debt stood at £706 million, having fallen steadily relative to GDP since the 1820s. The early years of the conflict led to the face value of debt rising to £2,190 million by 1916, mostly due to the government issuing war loans on the London Stock Exchange (+£963 million) and extensive use of floating debt (+£573 million, the majority in Treasury Bills) to pay for military expenditure. Subsequent years saw additional war loans issued, further expansions in the use of floating debt, and the arrival of external financing from foreign governments. By 1919 the total debt was £7,481 million, the increase since 1916 driven by issuance of securities specific to the war (+£2,818 million), floating debt (+£826 million), and external funding (+£1,292 million). The nominal face value of the national debt remained relatively stable after 1919, albeit with increased emphasis on issuing short-dated Treasury bonds with a maturity of one to two years, rather than longer-dated securities explicitly tied to the war. Although there was stability in the nominal value of debt in the

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<sup>8</sup>Slater (2018) provides a very readable and accessible summary of the historical ups and downs of the UK national debt in this period.

<sup>9</sup>The distinction between securities specific to the Great War and those not expressly issued to fund wartime expenditure is useful but somewhat arbitrary. Several Exchequer Bonds were intimately linked to funding the war; for example, the 5 percent Exchequer Bonds of 1919 were specifically issued in connection with the purchase of US-denominated securities following the formation of the American Dollar Securities Committee. A large number of Exchequer Bonds were also offered up for conversion to war loans when the opportunity arose.

**Figure 2.4. Face Value of UK Government Debt by Type, 1910–40 (Percentage of GDP)**



Source: Pember and Boyle (1950).

Note: WWI = World War I.

1920s, the value of debt as a percentage of GDP continued to rise due to falling prices and recurrent recessions that combined to depress nominal GDP. Other internal debt not quoted on the London Stock Exchange gained greater prominence with the successful retail launch of National Savings Certificates in 1921.

## THE DOMESTIC EFFORT

The prospectus for the first Great War Loan was published on November 17, 1914, accompanied by a widespread advertising campaign encouraging the general public to buy war bonds to help the war effort. Some examples of advertising posters from the time are shown in Figure 2.5.<sup>10</sup> The price of issue was £95, with interest at 3½ percent payable half-yearly on March 1 and September 1. Redemption was scheduled at par on March 1, 1928, although the government reserved the right to redeem the loan at par any time on, or after, March 1, 1925, subject to giving at least three months' notice. The amount issued was £350 million, of which £100 million was placed prior to publication of the

<sup>10</sup>The aggressive marketing campaign during the war is evidence that these war bonds were designed to deliver low returns. If the bonds had paid market-clearing rates of returns, then there would have been no need for the government to print posters and recruit movie stars to tempt people to buy. Today, we do not have Benedict Cumberbatch or Emma Watson marketing UK debt.

**Figure 2.5. British Posters Encouraging Investment in War Bonds, 1914–18**



Source: UK government.

prospectus. The first Great War Loan was not a success as it attracted only £91 million of funding from a very narrow group of investors.<sup>11</sup>

The second Great War Loan was issued on June 21, 1915, at a price of £100, paying a coupon of 4½ percent and redeemable at the earliest on December 1,

<sup>11</sup>To cover up the failure, the chief cashier of the Bank of England and his deputy were specially indemnified to purchase the remaining securities in their own names rather than on the Bank's account, a move described by Keynes as a "masterful manipulation" of the Bank's balance sheet. Anson and others (2017) and Cohen (2019) uncover the historical details from the Bank of England archives.



1925, and at the latest on December 1, 1945. The higher coupon payment reflected the increasing quantity of funding required and the need to compensate financiers for wartime inflation. Unlike when the first war loan was issued, subscribers also benefitted from being offered an additional option to convert some of their existing holdings of government securities into the second war loan. For example, it was possible to exchange £100 of the first loan into £100 of the second loan for a one-off payment of £5. Given the superior interest rate paid on the second loan, it was not surprising that the option to convert proved wildly popular. Of the £901 million total face value of the loan, only £611 million was new money since £137 million came from conversion of the first war loan and £176 million came from the conversion of existing 2.5 percent and 2.75 percent Consolidated Stocks. The option to convert was extremely valuable to financiers, especially since the prospectus also contained a pledge of future convertibility should the government need to issue debt at a still higher interest rate:

In the event of future issues (other than issues made abroad or issues of Exchequer Bonds, Treasury Bills, or similar short-dated securities) being made by His Majesty's Government, for the purpose of carrying on the War, Stock and Bonds of this issue will be accepted at par, plus accrued interest, as the equivalent of cash for the purpose of subscriptions to such issues.<sup>12</sup>

On June 11, 1917, the government published the prospectus of the third Great War Loan, issued at £95, paying a coupon of 5 percent, and redeemable at par anytime between June 1, 1929, and June 1, 1947. The initial yield of nearly 5.4 percent attracted a flood of conversions.<sup>13</sup> Almost all of the second Great War Loan was converted, alongside £281 million from Exchequer Bonds and £130 million from Treasury bills, meaning that only £845 million of the £2.08 billion raised was new funding.

A damning commentary on domestic efforts to fund the war is provided by Johnston (1934), citing the argument of wartime Prime Minister David Lloyd George that increasing the interest on the second and third Great War Loans was unnecessary. He believed that the threat of conscription of capital for war purposes would have capped interest rates at  $3\frac{2}{3}$  percent, which if it had succeeded would have reduced interest payments to money lenders at the end of the war by more than £30 million a year. The view of David Lloyd George (1933, 110–111) on raising the interest rate is clear in his wartime memoirs:

It cost the country a dozen years of remorseless deflation and concomitant depression to bring interest rates down again to a level that would enable this vast sum to

<sup>12</sup>*Bankers', Insurance Managers' and Agents Magazine*, February 1917, 184.

<sup>13</sup>The decision to issue the third Great War Loan at £95 was further advantageous to investors because only income from coupon payments was liable for taxes. Tax revenue could have been higher if the government had priced the loan at £100 and raised the coupon payment appropriately. Lessons from this experience were drawn by the Colwyn Committee of 1923, which recommended that no new debt be issued at a discount and that any refinancing of the war loan should not include tax privileges.

be reconverted to 3½ per cent. Throughout the interval, not only was the country taxing itself to pay a sum ranging at one time as high as £100,000,000 a year more than it would otherwise have done, but the high yield of a gilt-edged Government security kept up rates all round, and made money dearer for all enterprises, industrial, commercial, and national.

Johnston (1934, 52) goes even further in his criticism of domestic funding arrangements, concluding that “[n]o foreign conqueror could have devised a more complete robbery and enslavement of the British Nation.” He is particularly scathing of financial institutions, describing how banks unscrupulously encouraged their customers to take out uncollateralised loans at 3 percent and invest the proceeds in war loans paying 4½ percent. The Bank of England comes under fire in 1916 for complicity when exhorting people to invest in 5 percent Exchequer Bonds by claiming, “Unlike the soldier, the investor runs no risk” (ibid., 51).

The appetite with which financiers converted the previously issued war loans meant that by 1931 almost all the war securities in circulation were from the third Great War Loan. Interest rates were very volatile in 1931 and at the end of the year there was a run on the pound.<sup>14</sup> The following year, interest rates fell from 5 percent in February to 2.5 percent in May and 2 percent in June. As interest rates fell, bond prices soared, and Chancellor Neville Chamberlain took the opportunity to announce a conversion of the entire stock of war loans into a new issue of 3½ percent consols.

Whatever the view on how funding was raised, the extent to which it was a burden on the UK economy depends on the dynamics of the market value of debt relative to GDP. For the part of the debt quoted on the London Stock Exchange, Hall and Sargent (2011) show that changes in the debt-to-GDP ratio can usefully be decomposed into four distinct components. Defining  $B_t$  as the total market value of debt in period  $t$  and  $Y_t$  as GDP, the ratio of debt to GDP evolves according to:

$$\frac{B_t}{Y_t} = (1 + r_{t-1,t} - \pi_{t-1,t} - g_{t-1,t}) \frac{B_{t-1}}{Y_{t-1}} + \frac{NI_t}{Y_t}$$

where  $r_{t-1,t}$  is the average nominal holding period return on government securities between periods  $t-1$  and  $t$  and  $B_{t-1}$  is the market value of debt in period  $t-1$ . Inflation  $\pi_{t-1,t}$  is measured by the growth in the GDP deflator between  $t-1$  and  $t$ , and  $g_{t-1,t}$  denotes the growth in real GDP between  $t-1$  and  $t$ . The term  $NI_t$  is the net issuance of government securities quoted on the London Stock Exchange. The four components of the decomposition are then the nominal return (coupon payments and any capital gains or losses that accrue with movements in the market prices of securities), inflation (which reduces the real value of nominal debt), real GDP growth (which increases the denominator in the debt-to-GDP ratio),

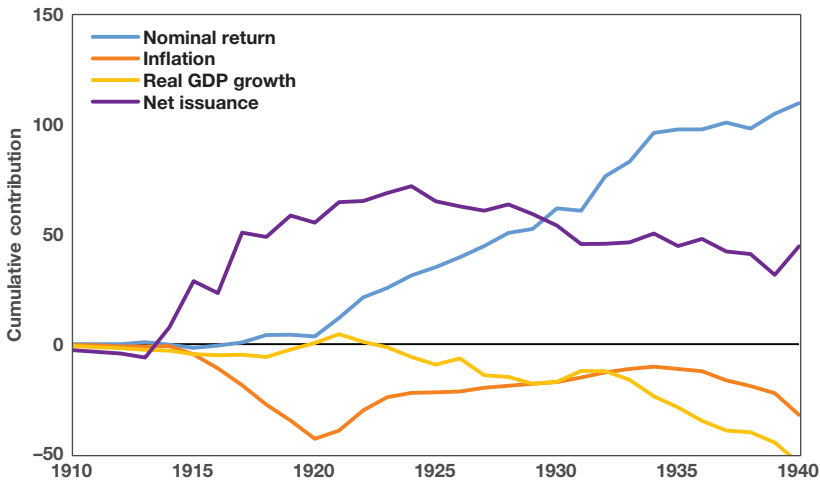
<sup>14</sup>The events of 1931 and 1932 are further discussed in the context of the later section on the foreign funding effort.

and net issuance relative to GDP (which increases the numerator in the debt-to-GDP ratio).

The cumulative contribution of each component to changes in the debt-to-GDP ratio is presented in Figure 2.6, which was constructed using the market price data collated and reported in Ellison and Scott (forthcoming). Nominal returns make almost no contribution until 1920 when coupon payments begin to have an effect and investors start to make capital gains in a bullish bond market. Inflation from 1915 to 1920 brought down the debt-to-GDP ratio, only for it to rise again with the deflation that followed. The impact of real GDP growth is muted as the UK economy struggled to recover from the Great Depression. Net issuance makes a large contribution at the beginning of the sample with the three Great War Loans of 1914, 1915, and 1917, after which it has little impact.

The drivers of the debt-to-GDP ratio are further examined in Table 2.1. Consistent with Figure 2.6, the debt-to-GDP ratio was stable 1910–13, rose 1913–16 because of new issuance, and continued to rise 1916–18 with additional new issuance that was only partially offset by inflation. Coupon payments played a major role in raising the debt-to-GDP ratio in 1918–23 and beyond, as did deflation, which inflated the real value of nominal debt in 1923–31. Real GDP growth only really started to have an effect from 1923–31 when the stock of nominal debt was sufficiently large.

**Figure 2.6. Cumulative Sum of Components of the Change in the Ratio of UK Debt to GDP, 1910–40**



Source: Ellison and Scott (forthcoming); authors.

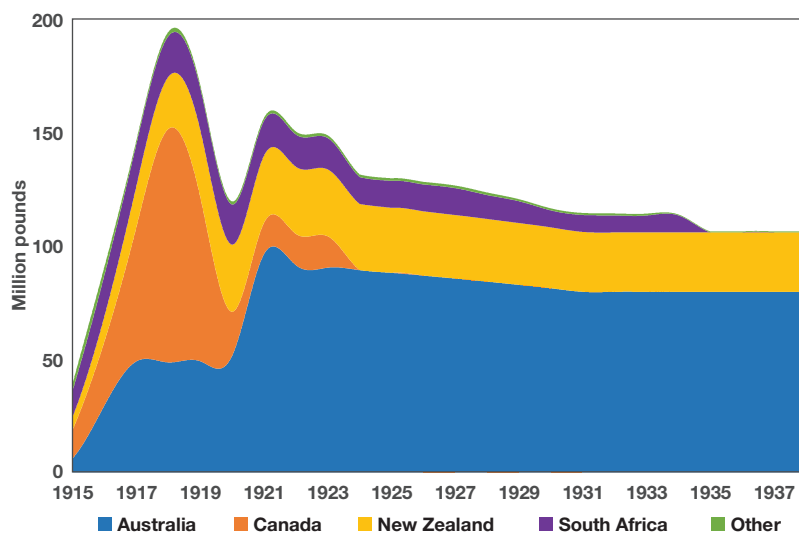
**Table 2.1. Contributions to Changes in the UK Debt-to-GDP Ratio, 1910–40**

Period	1910–13	1913–16	1916–18	1918–23	1923–31	1931–40	1910–40
<b>Debt/GDP</b>							
Start	24.41	18.06	42.70	52.91	82.38	106.30	24.41
End	18.06	42.70	52.91	82.38	106.30	94.46	94.46
Change	-6.35	24.65	10.21	29.47	23.91	-11.84	70.05
<b>Contributions</b>							
Nominal return	0.08	-1.76	2.49	20.56	40.34	43.14	104.84
of which coupons	1.93	2.02	2.85	13.76	35.90	35.81	92.26
of which revaluations	-1.85	-3.78	-0.36	6.80	4.44	7.33	12.58
Inflation	-0.95	-3.74	-13.98	-11.40	12.90	-5.04	-22.21
Real GDP growth	-1.78	-2.72	-0.32	5.86	-18.16	-27.56	-44.69
New issuance	-3.70	32.87	22.02	14.45	-11.16	-22.38	32.11

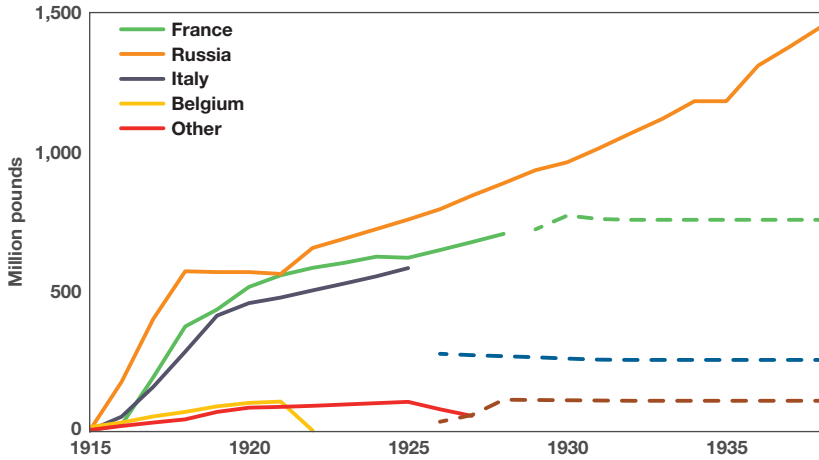
Sources: Ellison and Scott (forthcoming); authors.

## THE FOREIGN EFFORT

The UK held a special position within the Alliance at the outbreak of the war. As the country with the deepest financial markets and strongest credit rating, it not only borrowed to finance its own defence spending, but also made loans to its dominions and colonies to help them fund their war efforts.

**Figure 2.7. UK War Loans to Dominions and Colonies, 1915–40**

Source: *Statistical Abstract for the United Kingdom*, Volumes 69 and 81.

**Figure 2.8. UK War Loans to Allied Governments, 1915–40**

Source: *Statistical Abstract for the United Kingdom*, Volumes 69 and 81.

Figure 2.7 shows the face value of UK war loans to its dominions and colonies.<sup>15</sup> At its peak in 1918, the total lending was £194 million (45 percent of the UK's GDP), a significant sum in relation to the UK national debt of £405 million outstanding at the time. With the government acting as an intermediary between financial markets and the dominions and colonies, the lion's share of loans went to Australia, Canada, New Zealand and South Africa, with smaller sums to Newfoundland, British Guiana, Fiji, Jamaica, Trinidad, the East Africa Protectorate, Nyasaland, Uganda, and the Federated Malay States. The loans to Australia and New Zealand remained substantial well beyond 1940.

The UK government extended even larger war loans to its Allied partners, most notably France, Italy, Russia, and Belgium. The pressing needs of war meant that the loans were initially “unfunded”; that is, they were short-term floating debt that had no separate repayment schedule. An agreement to convert Italy's war loan into funded debt was reached between the Chancellor of the Exchequer Winston Churchill and Finance Minister Giuseppe Volpi di Misurata on January 27, 1926, while a similar arrangement was made for war loans to France with the Churchill-Caillaux settlement on July 12, 1926.<sup>16</sup> No agreement was ever reached to convert the war loan to Russia. It remained as floating debt throughout, although the likelihood of the loan being paid back quickly diminished after the February and

<sup>15</sup>Data are from the *Statistical Abstract for the United Kingdom*, Volumes 69 and 81.

<sup>16</sup>The funding agreement with Italy stipulated payments of £4.5 million a year until 1988, at which time the whole of the £570 million debt would be considered paid off. For France, the total debt of £705 million was discharged in return for 62 annual payments of £12.5 million or equivalent.

**Table 2.2. UK Government Transactions in the US, 1916–20 (£ million)**

	Receipts (loans)	Expenditure (repayment of loans)	Expenditure (interest)
1916	90	30	
1917	285	21	6
1918	593	111	20
1919	393	98	41
1920	184	155	38
Total	1,545	415	105

Source: Wormell (2000).

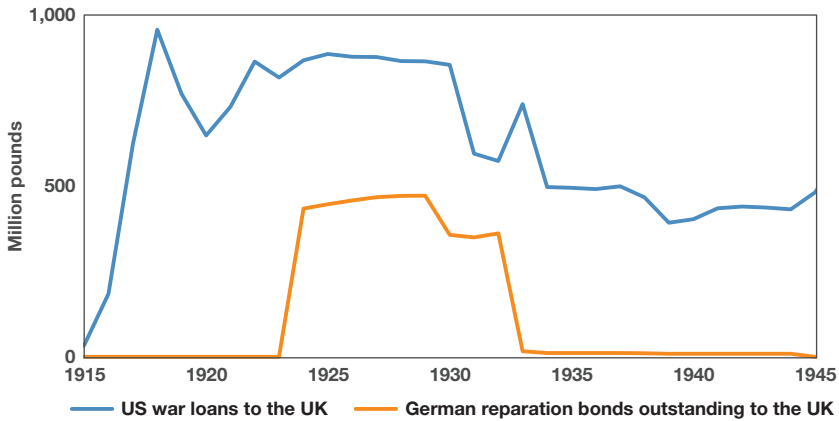
Bolshevik revolutions of 1917. The face value of UK loans to Allied governments is displayed in Figure 2.8, where the solid lines describe the evolution of unfunded debt and the dashed lines represent the aggregate payments due and outstanding under the respective funding agreements. The favourable treatment of Italy is immediately apparent; the fall from an unfunded debt of £582 million in 1925 to a funded debt of £275 million in 1926 represents a haircut of 53 percent. There was no noticeable haircut when the war loans of France and others became funded debt.<sup>17</sup>

The US lent money to the UK even before it formally entered the war on April 7, 1917. However, the bulk of the advances followed the approval of the Liberty Bond Act on April 24, 1917, which authorised the Treasury secretary to issue bonds for up to \$5 billion and to use a maximum of \$3 billion to establish credits for other governments by buying their obligations. Table 2.2 from Wormell (2000) shows the flow of funding from the US to the UK up to 1920. Of the receipts received in 1917, almost three-quarters were advanced between April 25 and August 30.

The issuance of war loans by the US had a profound effect on the global financial landscape. What previously had been a loose network of private and public borrowing between the Allies was transformed into a more formal network of bilateral indebtedness between governments. The US took a central role as the ultimate supplier of global credit, a position that caused consternation in the UK. In the Blackett-Rathbone talks on war debt in September 1919, the UK stressed the importance of inter-Allied indebtedness and argued that the repayment of the UK debt to the US should come “largely if not entirely” from repayments of British lending to the Allies. The US refused to recognise any connection between the debts and expected the UK to honour its commitments to the US irrespective of whether the Allies honoured theirs. The morass surrounding war loans continued to consume political capital and led, on February 2, 1922, to the creation of the World War Foreign Debts Commission, under the direction of US Secretary

<sup>17</sup>The other countries in Figure 2.8 are the Serb-Croat-Slovene Kingdom, including Montenegro (later Jugo-Slavia), Poland, Rumania, Portugal, and Greece.

**Figure 2.9. US War Loans to the UK and German Reparation Bonds Outstanding to the UK**



Source: Interwar Debt Database.

of the Treasury Andrew Mellon. Charged with negotiating repayment agreements with the UK and France, the settlement eventually reduced the UK's debt to the US by 20 percent and cut the interest rate on the debt from 5 percent to 3 percent for the next 10 years and 3½ percent thereafter.

Adding to the uncertain status of inter-Allied indebtedness were the reparations that Germany agreed to pay at the Treaty of Versailles on June 28, 1919. Fixed at a level that John Maynard Keynes<sup>18</sup> considered excessive and counterproductive, it was unclear whether Germany would be able to meet its commitments and what possible non-payment would mean for the UK's war debt to the US. Difficulties surfaced almost immediately, with German coal deliveries to the Allied powers falling below agreed quotas from the outset.<sup>19</sup> A minor easement of terms was agreed at the Spa Conference in July 1920, but on January 9, 1923, the Reparations Commission voted that Germany was formally in default, and two days later, the French and Belgian occupation of the Ruhr began. Tensions were eventually reduced with the Dawes Plan in 1924, under which troops withdrew from the Ruhr, reparations were restructured, and Germany received a loan from the US of about £39 million to aid economic stabilisation.<sup>20</sup> A second restructuring came with the Young Plan of 1929, which was designed to ease the terms of

<sup>18</sup>Keynes was a British delegate to the Paris Peace Conference that negotiated the Treaty of Versailles. He famously predicted that the treaty represented a "Carthaginian peace" (Keynes 1920).

<sup>19</sup>See Marks (1978).

<sup>20</sup>For more details, see Reinhart and Trebesch (2014). The funding for the loan was raised by bond issues on Wall Street. Churchill (1948) describes how the Dominions did not receive Britain's actions with enthusiasm in 1925. The Canadians were lukewarm, and only New Zealand was unconditionally prepared to accept the view of the British government.

the reparation payments and made a substantial share of the repayment state contingent. Figure 2.9 presents the total amount of German reparation bonds outstanding to the UK under the Dawes and Young Plans, alongside Britain's war loans from the US.

The Young Plan came under increasing pressure during the Great Depression and the financial meltdown in central Europe. On June 20, 1931, US President Herbert Hoover issued a one-year moratorium on payments on war debts and postponed both capital and interest payments. The Hoover Moratorium failed to restore confidence and, at Germany's request, an expert committee was called by the Bank for International Settlements to review the reparations schedule in the Young Plan. Following extensive discussions, an agreement was reached at the Lausanne Conference of July 9, 1932, that payments on war debts among the UK, France, Belgium and Italy would be suspended, subject to a revision of their debts to the US. Reparations were effectively, if not legally, cancelled by the Lausanne Agreement.<sup>21</sup>

The UK was by far the most important creditor in Europe and had liabilities only to the US. After German reparation payments under the Young Plan were cancelled in August 1932, the UK came under increasing pressure to restructure its own debt to the US. In November 1932 the UK asked to postpone the war loan repayments due on December 15. The US refused and the UK did make the scheduled payment; France, Belgium, Poland, Estonia, and Hungary did not. The stress on the UK increased still further when the Nazi Party in Germany decided to default on its debts and introduced widespread capital controls. A complete moratorium on all of Germany's medium- and long-term debts was announced on June 14, 1934, including on transfers due under the Dawes and Young Plans. The UK responded by notifying the US of its own decision to defer payment on the war debt instalment due the day after, on June 15. The US war loan remained as a liability on the balance sheet of the UK government, although no repayments were made until it was eventually cleared in full in 2015.

## MESSAGES FROM DOMESTIC BOND MARKETS IN THE UK AND US

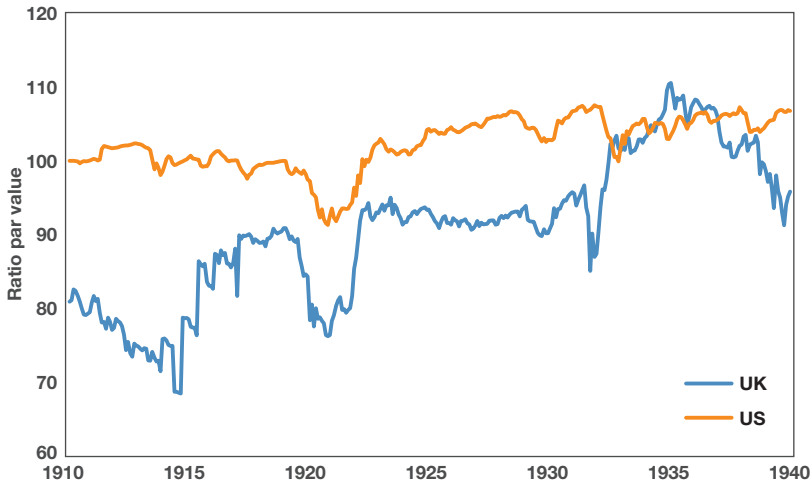
It is impossible to value intergovernmental war loans with a high degree of precision because they are not traded in financial markets. The various haircuts and restructurings on debt suggest that, had they been traded, war loans would have been priced significantly below par and their market prices would have fluctuated with the perceived probability of default. In Chapter 1, Hall and Sargent use the original and renegotiated book values of foreign credits to estimate how the market value of US war loans would have evolved were they

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<sup>21</sup>Clement (2004).



**Figure 2.10. Ratio of Market Value to Par Value of UK and US Government Debt, 1919–40**



Sources: Ellison and Scott (forthcoming); Hall and Sargent (see Chapter 1); authors.

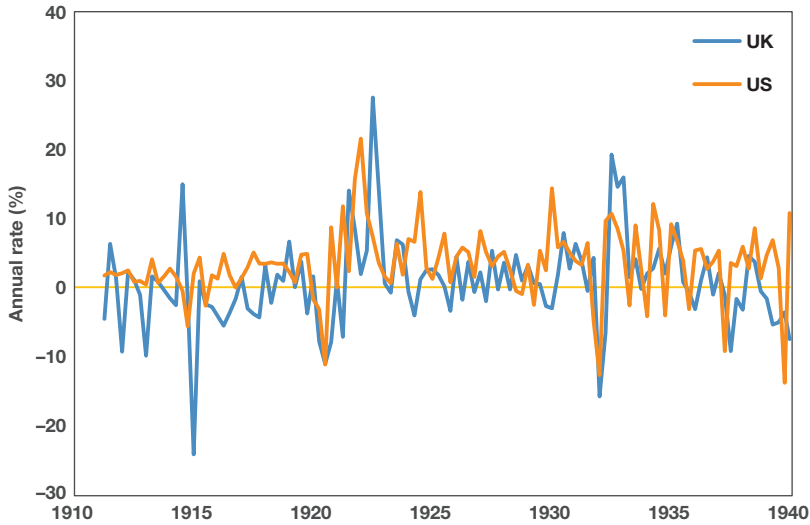
traded.<sup>22</sup> This section takes a complementary approach by looking for messages in movements in the market prices of domestic government securities in the UK and US. A rise in the price of UK securities relative to those in the US signals increasing confidence in the UK economy and the UK government's ability to honour its debts.<sup>23</sup>

The analysis starts from Figure 2.10, which uses the Ellison and Scott (forthcoming) data to plot the ratio of market to par value of domestic UK government debt alongside the corresponding statistic from the US from Hall and Sargent (see Chapter 1). The large initial discrepancy between the UK and the US is a legacy of fixed coupon payments on consols and rising interest rates at the beginning of the 20th century. In 1900 the yield on UK 2½ percent Consolidated Stock was 2.51 percent, so they traded at close to par value; by 1910 the yield had increased to 3.09 percent, and the ratio of market to par value had fallen close to 0.8. The subsequent general upward trend in the UK ratio of market to par value primarily

<sup>22</sup>In their Figure 1.16, the capitalised value of promised flows diverges increasingly from the face value of debt each time US war loans are renegotiated. If ex post realised payments are used to value debt, then the gap is an order of magnitude larger; payments on US war loans ceased after 1934, so US war loans were essentially worthless to an investor who had perfect foresight.

<sup>23</sup>The implications for the value of intergovernmental war loans are potentially ambiguous. A restructuring of UK debt to the US may increase confidence that the UK will respect its domestic debt, in which case the rise in domestic bond prices acts as a signal for a fall in the value of its debt to the US. But if confidence in the UK rises more generally, then both domestic securities and debts to the US would rise in value.

**Figure 2.11. Nominal Holding Period Returns on the UK and US Government Debt Portfolios, 1910–40**



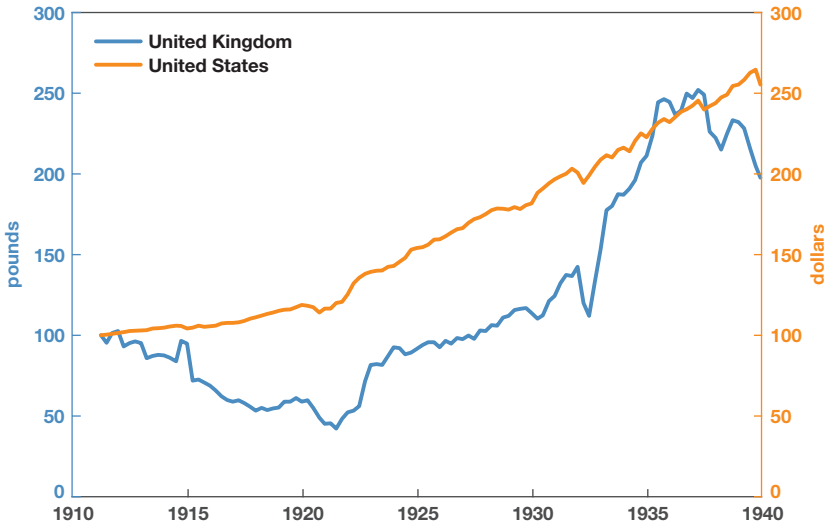
Sources: Ellison and Scott (forthcoming); Hall and Sargent (see Chapter 1); authors.

reflects issuance of new domestic war bonds, which were offered with a coupon rate designed to ensure that they traded at close to par in financial markets. Abstracting from this trend, there is a strong co-movement between UK and US domestic bond prices. Both fell in 1919 at the time of the Treaty of Versailles, and both recovered in early 1924 in anticipation of the successful negotiation of the Dawes Plan. There is a marked dip in the market prices of both UK and US bonds around the time of the Hoover Moratorium in June 1931, although the fall is more pronounced in the UK. Where the prices of UK and US domestic bonds do diverge is 1910–15 (as financial markets began to price in the possibility that the UK but not the US would go to war), 1915–20 (when UK domestic bond issuance exceeded that in the US), and 1938 onward (run-up to World War II).

A more compelling comparison is between the nominal holding period returns on UK and US domestic government debt portfolios. The holding period returns include coupon payments and capital gains or losses arising from changes in the market price of government securities, and thus avoids the problem of the ratio of market to par value being distorted whenever the government issues new debt.<sup>24</sup> They are presented in Figure 2.11. As expected, nominal holding period

<sup>24</sup>The nominal holding period return here is the same as in the Hall-Sargent decompositions in the section on the domestic effort.

**Figure 2.12. Nominal Values of £100 Invested in 1911 in the UK Debt Portfolio (Left Scale) and \$100 Invested in 1911 in the US Debt Portfolio (Right Scale)**



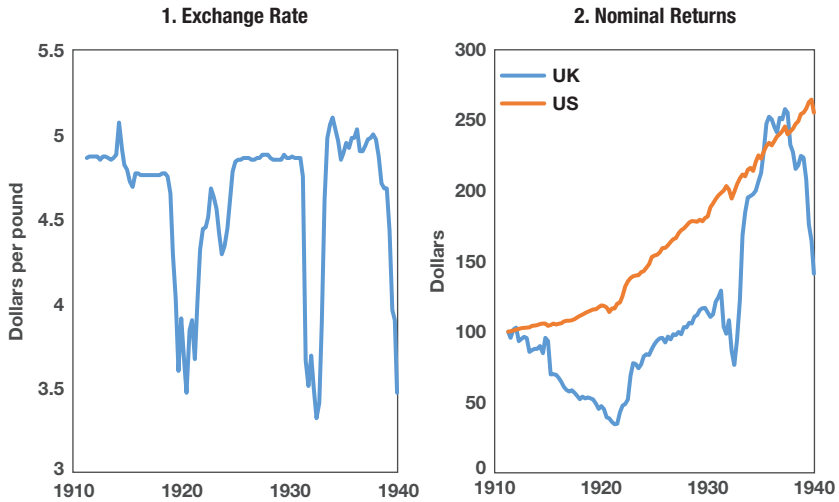
Sources: Ellison and Scott (forthcoming); Hall and Sargent (see Chapter 1); authors.

returns in both countries are negative around 1921, positive in 1923–24, and volatile in 1931–32. There is greater instability in holding period returns on the UK than the US debt portfolio, reflecting the longer maturity of UK debt and the greater sensitivity of long bond prices to macroeconomic developments.

Knowing the nominal holding period returns, it is possible to ask the hypothetical question of what would have happened had an investor placed £100 in the UK government's domestic debt portfolio and \$100 in the US government's domestic debt portfolio in June 1911. Figure 2.12 gives the answer, assuming that the investor rebalances his or her portfolio each quarter to take account of any new issues. The cumulative return on such a UK debt portfolio in pounds is in blue on the left-hand scale; the US equivalent in dollars is in orange on the right-hand scale. It is only after the Lausanne Conference that the cumulative return in pounds on the UK portfolio starts recovering compared to the return in dollars on the US portfolio.

It only makes sense to compare a nominal return in pounds to a nominal return in dollars if the UK/US exchange rate is stable. The left panel of Figure 2.13 suggests this is broadly true for the sample period as a whole, save for the well-known episodes 1919–25 when the US returned to the gold standard ahead of Britain and 1931–33 when Britain abandoned the gold standard before the

**Figure 2.13. UK/US Foreign Exchange Rate and the Nominal Value of \$100 Invested in 1911 in the UK and US Debt Portfolio**



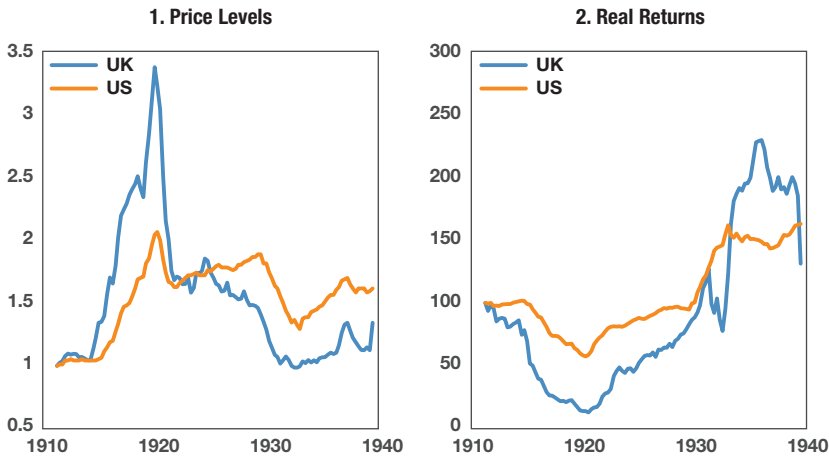
Sources: Ellison and Scott (forthcoming); Hall and Sargent (see Chapter 1); authors.

US.<sup>25</sup> If the investor is freely able to exchange dollars for pounds, then the correct comparison is between placing \$100 dollars in US securities in June 1911 and converting \$100 into pounds at the exchange rate prevailing in June 1911 and investing the proceeds in UK securities. The result is shown in the right panel of Figure 2.13. Temporary deviations of the pound exacerbate the knock-backs to UK nominal returns in 1921 and 1932 and make the speed at which the cumulative UK return recovers after the Lausanne Conference even more noticeable. This is not surprising, given that the dollar value of the UK debt portfolio is heavily dependent on the exchange rate.

Another concern with the comparison could be related to changes in the purchasing power of pounds in the UK and dollars in the US. The rise and fall in the price level in the left panel of Figure 2.14 is indeed much more pronounced in the UK than in the US, which depresses the real return in the UK in the right panel of Figure 2.14 until 1921. However, the lower UK price level at the end of the

<sup>25</sup>It is known that Keynes speculated in currencies during both of these periods. Acominotti and Chambers (2016) exploit detailed trading records to show that Keynes's profits were very volatile. He almost went bankrupt in May 1920 shorting continental European currencies and going long in the US dollar. In the 1930s he accumulated large losses betting against the French franc and the Dutch guilder, although the losses were reversed when both currencies were devalued in September 1937.

**Figure 2.14. Natural Log of UK and US Price Levels and the Real Value of \$100 Invested in 1911 in the UK and US Debt Portfolio**



Sources: Ellison and Scott (forthcoming); Hall and Sargent (see Chapter 1); authors.

sample period only serves to accentuate the superior cumulative return in the UK. On the basis of Figures 2.12, 2.13, and 2.14 it is difficult to argue that bondholders in the UK did badly over the period 1911–38, especially from 1921 onward.

## CONCLUSION

The implications of the Great War for the UK economy and the British Empire are manifold. Two events stand out in the narrative history presented. First, there is the generosity of the conversion provisions extracted by financial markets that left the UK government more heavily indebted than it needed to be at the end of the war. The view that Britain was subordinate to financial markets in London is borne out by the calculations of in the previous section, where it was shown that holders of UK government securities enjoyed both nominal and real returns that matched those on corresponding US government debt. This is true, irrespective of whether returns are adjusted for the pound/dollar exchange rate or domestic price levels. Second, there is the repeated refusal by the US to recognize any connection between UK payments to the US and Allied payments to the UK. Britain was subordinate to the hard-nosed US as the loose network of borrowing between the Allies was transformed into a formal network of bilateral indebtedness between governments, with the US at its centre. The US usurped on the dominion of the British Empire when it became the ultimate supplier of global credit in 1917, contributing to the beginning of the end for British hegemony.

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## CHAPTER 3

# Whom Do You Rescue? Honored Debts and Selective Defaults in Four British Dominions

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*The Pax Britannica held its sway by the ominous poise of a heavy ship's cannon, but more frequently it prevailed by the timely pull of a thread in the international monetary framework.*

Karl Polyani (1944)

*After 1929, what bound the Dominions to London most effectively was the crushing weight of accumulated debt.*

Cain and Hopkins (2016)

At the height of the worldwide depression in 1931, independent and democratic Newfoundland was on the verge of defaulting on its massive external debt. The British Dominion had amassed large debts during the booming 1920s, borrowing significant amounts of money from Canadian banks denominated in foreign currency.<sup>1</sup> In 1934, Newfoundland voluntarily ceded self-government and fiscal authority to the UK in return for debt relief. The yoke of conditionality of rule from the UK was only overthrown in 1949, when Canada agreed to assume 90 percent of Newfoundland's debt in exchange for a 10th province. The other Dominion countries faced far less drastic choices between sovereignty and debt default during the interwar period.

As relatively small economies reliant on foreign trade, the four Dominions discussed in this chapter—Australia, Canada, New Zealand, and Newfoundland—can be considered as the “emerging markets” of the interwar period. Their economies were influenced by fluctuations in commodity prices and had a long history of reliance on foreign borrowing to finance resource development and infrastructure. Bound to the UK by colonial ties, the Dominions benefited from

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<sup>1</sup>The term *Dominion* was first used in the Imperial Conference of 1907, referring to Australia, Canada, Newfoundland, New Zealand, and South Africa. In the same year, Edward VII gave the Colony of Newfoundland, which had a responsible government since 1854, the status of an independent Dominion within the British Empire. India had an active independence movement that rejected the Dominion status. Dominions were previously colonies of the UK.



legislation enabling them to issue debt in London without difficulty. Australia and New Zealand were on the sterling exchange standard, with most of their reserves consisting of sterling assets held in London. This was an agreement that was convenient for the UK, since the Bank of England did not maintain large gold stocks and did not wish to share gold with the Dominion banks.<sup>2</sup> When the UK suspended the gold standard during World War I (WWI) as a war emergency, all Dominions followed suit (convertibility was temporarily restored after UK's return to gold in 1925). Most Dominions issued a series of large domestic loans to finance war efforts, sparking the development of local bond markets but also increasing their domestic indebtedness.

The economic resilience of the Dominions was tested during the worldwide economic depression. Once overseas lending dried up, the large stock of accumulated debt was the main link between the Dominions and the UK. The expected exit from the interwar gold standard implied that domestic currency tax revenues could no longer easily service debt borrowed in sterling (or US dollars in Canada's case).<sup>3</sup> The sizeable debt burden amid a generalized collapse in prices and severe economic contraction raised important questions about paying off debt. Should a central government pay the debt incurred by subordinate governments? Should a government discriminate between its different creditors? When can a government default outright on its domestic debt, that is, by means other than inflating away its debt?

This chapter draws upon the historical experience of the four Dominions of Australia, Canada, Newfoundland, and New Zealand to shed light on these questions. A government's ability to issue debt that differs in its maturity, denomination, and unit of account introduces the possibility of discrimination among its creditors.<sup>4</sup> All four Dominion governments faced difficult choices between honoring debts and selectively defaulting on their domestic or external debt obligations and on contracts denominated in different currencies. This chapter documents the trade-offs they faced and highlights the role reputational and political economy considerations play in ensuring that some debts get paid.

In Australia, the substantial interest-bearing domestic debts that had been issued by the central government (the Commonwealth) to finance war efforts, in conjunction with heavy borrowing from London by the states to fund capital works, set the stage for a debt crisis well before the depression. The ability of state

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<sup>2</sup>Singleton and Schenk (2015).

<sup>3</sup>Following the pioneering work by Calvo (1998), there is a large theoretical and empirical literature on why the composition and sources of financing matter, especially during crisis when external financing is vulnerable to sudden stops. Bordo, Meissner, and Redish (2003) document how "original sin"—the inability to borrow abroad in domestic currency and to borrow domestically long term—was overcome in the Dominions, also covering the interwar period.

<sup>4</sup>Hall and Sargent (2014) document how the US government discriminated greatly in the returns it paid to different classes of creditors in the aftermath of the Revolutionary War. Tomz and Wright (2013) discuss the heterogeneity in sovereign bond contracts and their implications for debtor-creditor relations.

governments to independently borrow from overseas fueled the fiscal profligacy. Throughout the 1920s, the Commonwealth and the states struggled with the question of how the powers to tax and the obligation to service debts should be appropriately distributed. This question was clearly of interest to Australia's UK creditors as well.

With the collapse in Australia's economic fortunes, overseas observers claimed that default remained a distinct possibility.<sup>5</sup> However, Australia managed to defy these predictions and maintain confidence in its credit, credibly overhauling its fiscal institutions in the process. The Commonwealth increased its powers to tax and assumed the debts ("bailed out") of the states; the sole authority of the Commonwealth to borrow, repay, and restructure external debts was enshrined in the Constitution. Australia simultaneously pursued policies that slashed spending, raised taxes, and prioritized the repayment of the Commonwealth's debt to the UK. These policies helped to maintain the flow of London lending while establishing a strong reputation of the central government vis-à-vis the states.<sup>6</sup>

To reduce their massive debt burdens, governments in Australia and New Zealand passed legislation that compelled domestic holders of existing government debt to accept a lower coupon rate on that debt.<sup>7</sup> In Canada, debt restructuring involved not honoring gold clauses for domestic bondholders on previously issued war bonds. However, all three Dominion countries continued to honor their external debt obligations. Because defaulting on foreign debt generates a transfer from foreign creditors to domestic debtors and taxpayers, an external default would have reduced the debt service burden on domestic citizens. This was a road taken by many other countries in Latin America and southern and eastern Europe in the 1930s, but the Dominion governments rejected external debt repudiation, choosing instead to partially write off their domestic debts.<sup>8</sup>

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<sup>5</sup>See, for example, *The Economist*, November 21, 1931, 965–66.

<sup>6</sup>Sargent (2012, 2017), drawing upon US historical experience, describes how vesting the power to tax and the obligation to service debts in a government ensures the political support of government creditors who want the tax revenues that service their bonds.

<sup>7</sup>Reinhart and Rogoff (2009, 2011) note that debt issued in domestic currency generally provides opportunities for a wider range of outright default options than repudiation of external debt. These options include forcible conversions, lower coupon rates, suspensions of payments, and abrogation of gold clauses described in this chapter.

<sup>8</sup>The general assumption in the literature is that although governments may inflate debt away, outright domestic default is extremely rare. Recent papers explore the role of the political process in ensuring that debts are honored (see, for example, Persson and Tabellini 2002; Guembel and Sussman 2009). In an early contribution, Drazen (1997) analyzed the choice of foreign versus domestic debt in a political economy context. He assumes that a country can segment the market by issuing different instruments to domestic and foreign residents and thus charge different effective interest rates on its debt as well as default selectively. In his framework, the ex ante choice between domestic and foreign debt is determined by domestic preferences over the rate of return on savings and taxes/government spending.

Economic theory contends that the choice of whether to default on external debt depends on reputational concerns or the nature of international sanctions.<sup>9</sup> The narrative record suggests that Dominion governments valued the ability to sustain overseas borrowing at low cost to meet their investment needs and to roll over existing debt. By discriminating against their domestic creditors, governments demonstrated their belief that the economic and political costs of defaulting on their domestic obligations were lower than the cost of repudiating foreign obligations.

In all three countries, governments had no difficulty rolling over their domestic debt or issuing new securities following the restructuring. Financial market reaction did not show any loss of confidence in the sovereign's promise to pay. These historical anecdotes are congruent with the Grossman and Van Huyck (1988) model of "excusable default" in bad times. Market participants in the Dominions did not penalize their governments because they understood that the exceptional circumstances posed by the depression warranted some form of debt restructuring.<sup>10</sup>

But distributional considerations also played a role. The choice to repay domestic debt or to default depends on the identity of domestic bondholders and taxpayers.<sup>11</sup> Political forces, therefore, determine whether governments favor a transfer from creditors to debtors and taxpayers. Governments in Australia and New Zealand saw inflation as a more egregious way of abrogating contracts. They favored debt restructuring on the grounds that the burden of economic adjustment should be shared equally among bondholders and rentiers (who benefited from price deflation) and debtors and farmers (who experienced a significant contraction in nominal incomes). Since the entire economy suffered from the debt overhang in the wake of the depression, governments in Australia and New Zealand found it easier to intervene and pass legislation calling for collective

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<sup>9</sup>The classic framework of Eaton and Gersovitz (1981) suggests that countries repay external debt to retain their ability to borrow in the future. Having a reputation for paying completely and on time can also lower default premia and, therefore, future interest costs (Aguar and Gopinath 2006; Arellano 2008). In the case of the Dominions, the fear of trade sanctions, in the spirit of Bulow and Rogoff (1989), at a time when the volume of world trade was shrinking could have also played a role. For example, "Imperial Preference," introduced by the UK in 1919, giving exports from the Dominions privileged status in the UK market, was expanded after the Great Depression in 1929.

<sup>10</sup>Edwards (2018) reaches a similar conclusion in his compelling account of the abrogation of gold clauses in the US.

<sup>11</sup>The identity of taxpayers and bondholders matters because better-off individuals may be invested in their own country's sovereign bonds as compared to poorer segments of the populations. Although the former benefit from debt repayment that preserves the value of their investments, the latter may only internalize the fiscal cost of debt repayment (Guembel and Sussman 2009). Distributional considerations are also highlighted in the analysis of D'Erasmus, Mendoza, and Zhang (2016).

domestic debt relief, as in Bolton and Rosenthal (2002), without alienating their overseas creditors.<sup>12</sup>

The next sections of this chapter describe the interimperial landscape of debt on the eve of the worldwide depression; how Australia overhauled its fiscal institutions in response to the crisis, discriminating among its external and domestic creditors in the process; the New Zealand haircut that followed in the wake of Australia's domestic debt conversion; the abrogation of gold clauses in Canada; and Newfoundland's decision to abandon self-government in exchange for external debt relief.

## SETTING THE STAGE: THE INTERIMPERIAL LANDSCAPE OF DEBT

The relationship between the UK and the Dominions has often been described as “special,” but economic and political ties evolved considerably during the interwar period (see Annex 3.1). The Dominions already had self-governance and control over domestic economic matters at the turn of the 20th century, but the UK government retained authority over foreign policy. When the UK declared war on Germany in 1914, the declaration legally committed the entire empire.

In the aftermath of the war, the UK was in the process of economic adjustment. It fought to maintain the gold standard and effectively lost its role as the primary global financial center (see Chapter 2), while dealing with domestic issues such as slow growth and high unemployment. In tandem, the notion of “imperial unity” with the Dominions was abandoned. In a report by the Committee of the 1926 Imperial Conference, each Dominion was considered as “the master of its own destiny,” paving the way for full independence. The 1931 Statute of Westminster, enacted the year the UK abandoned the gold standard, formally recognized the independent status of the Dominions. This statute was the last of the Imperial Acts of the UK Parliament applicable to the Dominions.

### External Borrowing from the UK: The “Empire Effect”

Prior to WWI, the Dominions borrowed almost exclusively from London, given the small supply of domestic saving (see Chapter 2 on the UK). The Dominions were given access to the London capital market at lower interest rates and longer maturities than would have been the case if they were independent, a phenomenon termed the “empire effect.”<sup>13</sup>

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<sup>12</sup>Bolton and Rosenthal (2002) develop a model of ex post political intervention in private debt contracts in a democracy. They argue that because debt contracts are incomplete and usually not state contingent, ex post political interventions to reduce debt obligations under exceptionally adverse circumstances can serve to complete contracts and improve efficiency. This is particularly the case when majority rule can certify whether economic conditions warrant debt relief and debt moratoria are not perceived as a way of renegeing on future contracts.

<sup>13</sup>Ferguson and Schularick (2006).

Colonial stock acts played a large role in the dependence of the Dominions on the UK. An important proviso was that the imperial government had the power to veto any Dominion or colonial legislations that appeared to be disadvantageous to British bondholders. British bondholders were also allowed to secure investment through a court order in the event of default on loan repayments. The first colonial act (Colonial Stock Act of 1877) made provisions for colonial stocks to be inscribed in a register kept in the UK. Since the transfers could only be carried out through the register, this provided greater security to investors and traders of colonial stocks against loss, destruction, or theft.<sup>14</sup>

The third Colonial Stock Act (1900) went further to create a bias for investment in the Dominions by empowering trustees in the UK to invest in colonial stocks even when they were not otherwise permitted to do so according to their trust deeds.<sup>15</sup> This policy widened the pool of funds that Dominions could tap. Until 1900, holders of funds in trust could only invest in colonial stocks if specified by their deeds or trusts; otherwise, they were restricted to a limited list of stocks. In 1900, the trustee list was extended to include colonial stocks.

As a result, although they were emerging markets at the time, the Dominions could access the UK market on very favorable terms. As Figure 3.1 shows, the weighted maturity of Dominion debt to the UK varied between 20 and 50 years, whereas the weighted coupon rate never exceeded 5 percent. The pricing of bonds also operated differently for the Dominions, compared to sovereign countries. The Dominions were borrowing in sterling at the same cost as the UK plus some spread that captured country-specific factors. The pricing of bonds in other sovereign countries was more dependent on fundamentals.<sup>16</sup> This meant that the Dominions' borrowing conditions were much less responsive to economic fundamentals.<sup>17</sup> As Table 3.1 shows, Moody's ratings for the inscribed stock issued in London were high, particularly in the first half of the interwar period. In 1925, average sovereign ratings for Australia, Canada, and New Zealand was Aaa. This meant "first-grade issues, with assurance of prompt payment of principal and interest."<sup>18</sup> In comparison, ratings for Belgium, France, and Italy varied between Aa and Baa, implying speculative, lower-quality issues.

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<sup>14</sup>The Second Colonial Act of 1892 allowed the transfer of colonial stock through deeds.

<sup>15</sup>See Jessop (1976) and Wormell (2000) for a discussion of the Colonial Stock Acts.

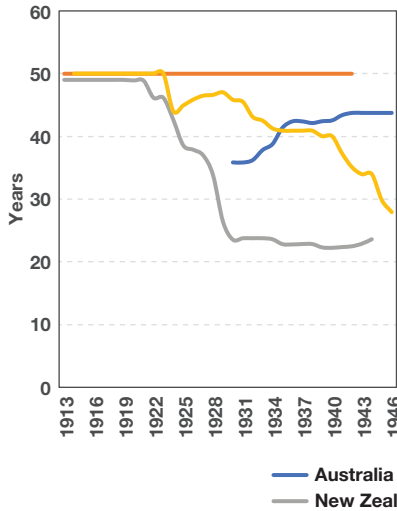
<sup>16</sup>See also Accominotti, Flandreau, and Rezzik (2011).

<sup>17</sup>Borrowing by the Dominions was aided by the British Colonial Office, which helped with issuance of bonds and stocks on the London market (Sunderland 1999). Proceeds of debt issues were often spent on capital goods to be imported from Britain; loans were (indirectly) repaid with primary exports sold in Britain.

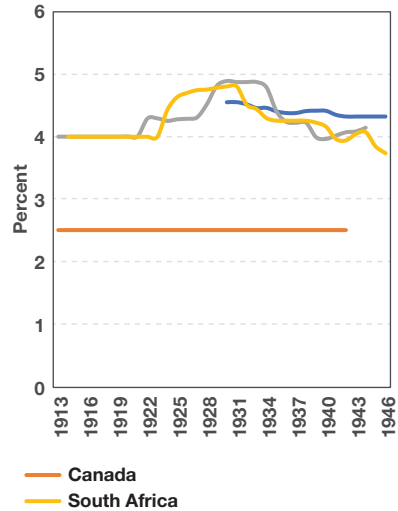
<sup>18</sup>The following Moody's ratings applied during the interwar period (see various Moody's publications): Aaa: first grade issues, with assurance of prompt payment of principal and interest; Aa: strong investments that are generally fundamentally secure but subject to some qualification in security or stability; A: good investments (rating generally awarded to municipal issues); Baa: issues carrying some speculative quality; Ba: issues that possess some investment quality but carry uncertainty; B: issues that are still paying their interest but are in imminent danger of defaulting; Caa: investments that have either defaulted or appear certain to default soon; Ca: rating awarded

**Figure 3.1. Average Maturities and Coupon Rates of the Dominions' Debt to the UK**

**1. Weighted Maturities of Dominions' Debt to the UK**



**2. Weighted Coupon Rates of Dominions' Debt to the UK**



Source: Interwar Debt Database and authors' calculations.

**Table 3.1. Average Moody's Ratings on Inscribed Stock Issued in London**

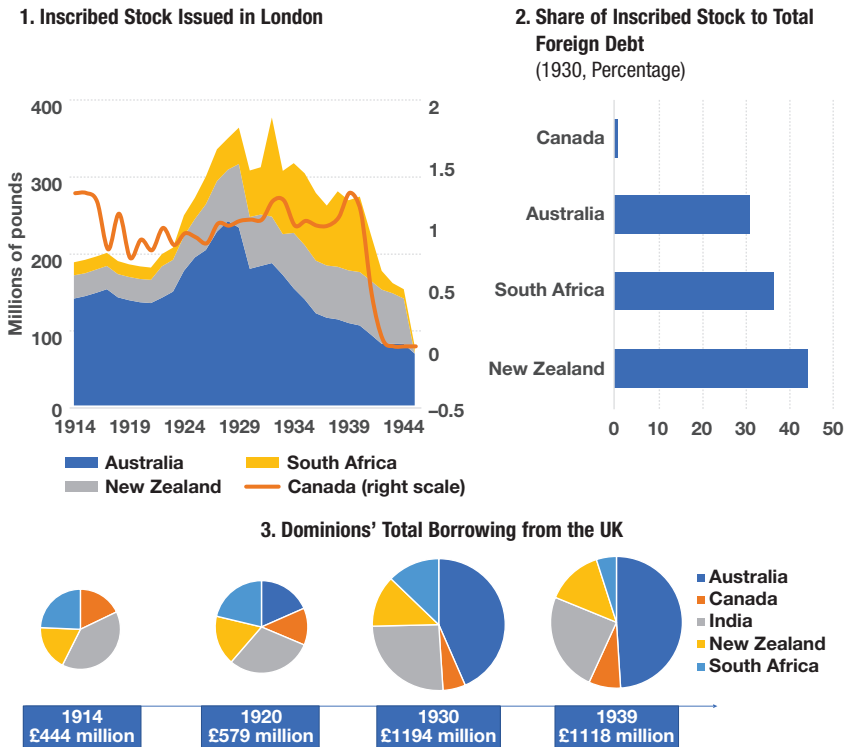
	1918	1925	1930	1935	1938
<b>Dominions' inscribed stock</b>					
Australia	Aaa	Aaa/Aa	Aaa/Aa	A/Baa	A/Baa
Canada	Aaa	Aaa	Aaa	Aa	Aa
New Zealand	Aaa	Aaa	Aaa	...	...
South Africa	Aa/A	Aa	Aa	A	A
<b>Other countries' sovereign debt</b>					
Belgium	...	Aa/Baa	Aa/Baa	A	A/Baa
France	Aaa	A/Ba/Baa	Aa/A	Aa	A/Baa
Italy	...	A/Baa	A/Ba	A/Baa	Baa/Ba
The Netherlands	A	Aaa	Aaa	A	A

Source: Mergent Archives Online.

The Dominions continued to issue inscribed stock on the London Stock Exchange in pound sterling well into the early 1930s (Figure 3.2), taking advantage of long maturities and a larger supply of funds. The stock of this debt grew in the second half of the 1920s and constituted a substantial portion of foreign debt in some Dominions, particularly for New Zealand.<sup>19</sup> This development was

to obligations of countries whose currencies have heavily depreciated, leaving little value to the security; C: rank speculation or "gamble."

<sup>19</sup>Ross (1972) argues that this is because New Zealand's relationship with the UK was almost purely economic and that its foreign policy reflected this. It exported almost exclusively to the UK during the interwar period, and exports to the UK per capita were consistently higher those of the other Dominions.

**Figure 3.2. Dominions' Borrowing from the UK during the Interwar Period**

Source: Interwar Debt Database and authors' calculations.

not without controversy. Keynes (as cited in Kemp 1962, 61) saw UK's foreign lending as excessive and promoted by the Trustee Acts, which restricted trustee investments to consols and colonial stock:

It is not true that these great sums flow abroad as the result of a free and enlightened calculation of self-interest. They flow as the result of a particular social organization which—for the most part unintentionally—gives a bias in this direction.

The capacity to raise foreign exchange is one of the key constraints on the sovereign's decision to repay external debt. In this sense, privileges in the London market were essential to allow the most indebted Dominions to pay the interest on their borrowings and build up the sterling balances in London.<sup>20</sup> This was relevant since the Dominions did not have a central bank at the time. Credit conditions in Australia and New Zealand, for instance, were managed by their trading banks, influenced by their export receipts and the "London funds." The exchange rate was set collectively by the banks but typically kept at around parity to sterling; credit policies were adjusted to keep the reserve balances consistent with a relatively stable exchange rate.

<sup>20</sup>Cain (1996).

## Rising Trajectory of Domestic Debt

British loans to the Dominions were the veritable glue that held the empire together, but the onset of WWI essentially closed the London capital market to foreign borrowing (see Chapter 2 on UK). Countries that still wanted to borrow abroad found a “welcome New York,” which also offered lower interest rates.<sup>21</sup> Australia and Canada, for example, raised funds in New York in US dollars after the war. All Dominions suspended the gold standard during WWI following the UK’s lead; convertibility was not resumed until 1925, the year of the UK’s return to gold. Most countries issued a series of long-term, domestic currency–denominated loans during the war, targeting small domestic savers.<sup>22</sup> The scale of issuance to support war efforts played a key role in the development of local bond markets in the interwar period.

Figure 3.3 shows that domestic currency–denominated debt as a share of GDP rose sharply between 1914 and 1920 in all Dominions. In Canada, for instance, domestically issued debt increased 10-fold between 1914 and 1920. Canada did not have a central bank until 1935. In the absence of one, the government worked closely with the Canadian Bankers’ Association.<sup>23</sup> The 1914 Finances Act allowed Canadian banks to meet their depositors’ demands with their own bank notes rather than with Dominion notes—the legal tender—or gold. The amounts of notes that banks were legally allowed to issue were raised to help finance war efforts. Large quantities of Treasury bills (in Canadian dollars) were sold directly to chartered banks to provide financing to the government. The banks bought Treasury bills, subscribed to war loans, purchased bonds on the open market, and extended loans to individuals to help them purchase war bonds.<sup>24</sup>

The demand by governments for funds during WWI affected the scale and character of domestic capital markets.<sup>25</sup> The large volume of war-related government debt in WWI meant that a substantial portion of local market activity was related to the issuance and trading of government fixed-interest securities. There was also growing reliance on unfunded securities—debt for which the governments had the liability to repay on a definite date (or the right to repay between two definite dates, on the last of which repayment was mandatory). The terms of

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<sup>21</sup>This situation was further aggravated by the UK government itself discouraging issuances of international loans on the London market during the war, introducing stamp duties on foreign loans, and taxing UK companies with international operations (Atkin 1970).

<sup>22</sup>This point is also made in Bordo, Meissner, and Redish (2003).

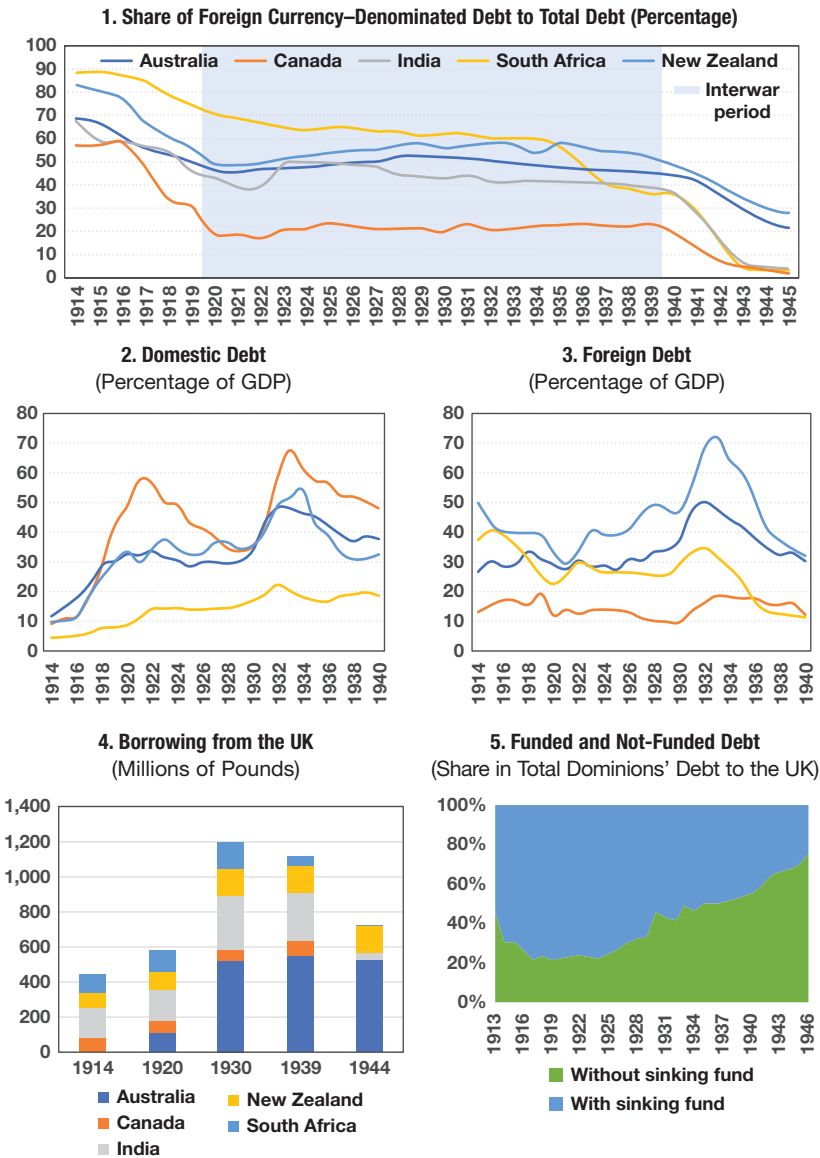
<sup>23</sup>Prior to WWI, each chartered bank in Canada had issued its own paper currency, while the federal government issued Dominion notes in exchange for gold, or vice versa. Chartered bank notes were convertible into gold or Dominion notes. With the onset of the war in August 1914 and official suspension of gold convertibility, there were heavy withdrawals of gold from banks. To quell financial panic and meet its financing requirements, the government worked closely with the Canadian Bankers’ Association to make notes issued by banks legal tender and to increase the lending power of banks (Powell 2005).

<sup>24</sup>Higgins (1944).

<sup>25</sup>Greenwood and Smith (1997) show that in the presence of fixed costs to market formation, a particular financial market may not become active until the economy has developed to the point where the market can sustain enough activity to make it cost effective.



**Figure 3.3. Public Debt Trends in Selected Dominions**



Source: Interwar Debt Database and authors' calculations.

the bonds and incentives provided were similar across the Dominions and tailored to achieve maximum subscriptions.

Maturities of domestic bonds issued to support war financing ranged between 5 and 20 years (Table 3.2). Tax incentives and exemptions were offered to make debt issues more attractive to the public. In Canada, most war loans, although issued in domestic currency, had explicit gold clauses. Most of the war issues by

**Table 3.2. Details of Debt Issued by the Dominions in Local Markets during World War I**

Country/Stock	Date Issued	Interest (%)	Maturity (years)	Taxation	Moody's Rating in 1920	Outstanding in 1920 <sup>1</sup>	Foreign Debt Outstanding in 1920 <sup>1</sup>
<b>Australia</b>						<b>789.3</b>	<b>1,158.9</b>
1st War Loan	1915	4.5	10		Aaa	49.6	
2nd War Loan	1915	4.5	10	Interest free from state and Commonwealth income taxes	Aaa	80.4	
3rd War Loan	1916	4.5	10		Aaa	87.4	
4th War Loan	1917	4.5	10		Aaa	80.0	
5th War Loan	1917	4.5	10		Aaa	78.5	
6th War Loan	1918	4.5–5	10	5 percent loan: interest subject to Commonwealth taxation, but exempt from state taxes	Aaa	158.9	
7th War Loan	1918	5	10		Aaa	160.7	
Loan	1919	5	8	Subject to Commonwealth income tax	Aaa	93.7	
<b>Canada</b>						<b>1,893.1</b>	<b>577.7</b>
1st War Loan	1915	5	10		Aaa	42.0	
2nd War Loan	1916	5	15		Aaa	52.9	
3rd War Loan	1917	5	20	Exempt from all taxes, including income tax	Aaa	90.2	
4th War Loan	1917	5.5	5–20		Aaa	482.6	
5th War Loan	1918	5.5	5–15		Aaa	619.1	
6th War Loan	1919	5.5	5–15	Principal and interest not exempt from taxes	Aaa	606.3	
<b>New Zealand</b>						<b>134.4</b>	<b>258.4</b>
Loan	1915	4.5	5–25	Interest free of income tax	Aaa	7.4	
1st War Loan	1916	4.5	15–25		Aaa	29.6	
2nd War Loan	1917	4.5–5	20	Principal and interest exempt from taxation	Aaa	44.4	
3rd War Loan	1918	4.5–5	20	4.5 percent loan exempt from taxation;	Aaa	35.2	
Victory Loan	1919	4.5–5	10–20	5 percent loan subject to taxation	Aaa	17.8	
<b>South Africa</b>						<b>102.2</b>	<b>456.2</b>
Local Stock	1916–17	5	5–20	Exempt from income tax and super tax	Aa	55.2	
Local Stock	1918–20	4.5	10–20	Exempt from all taxes (including income tax, super tax, and excess profit duty)	A	6.3	
Local Stock	1918–20	5	10–20		A	40.7	

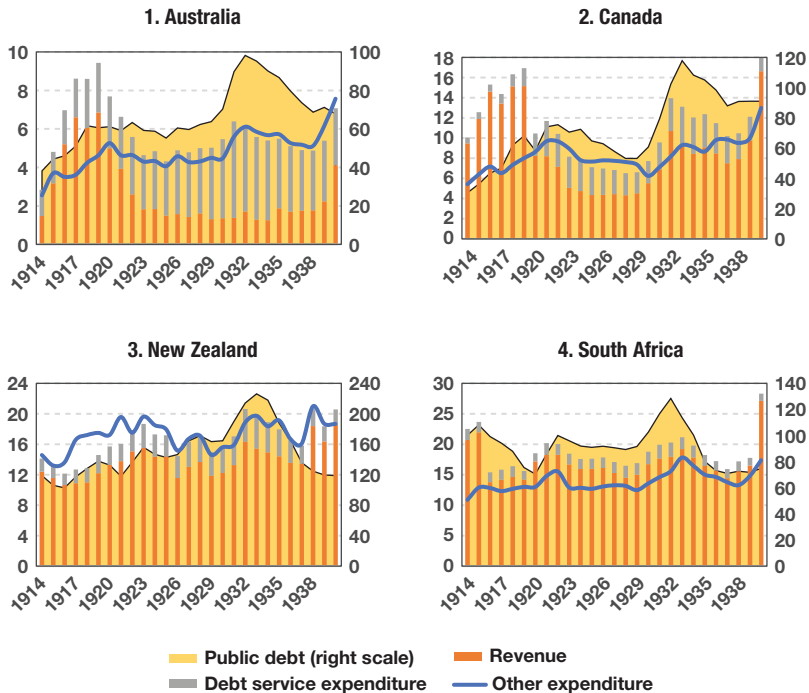
Source: Interwar Debt Database.

<sup>1</sup>Million US dollars (authors' calculations).

the Dominion governments were taken up by individuals, who were motivated by the appeals to their patriotism and the promotion of war loans prevalent during this period.<sup>26</sup> Apart from India and South Africa, the issues were exclusively Aaa rated, an indication of their stability and security.

By the mid-1920s, both domestic and external debt was sizeable in many of the Dominions (Figure 3.4). Australia and New Zealand borrowed heavily from

<sup>26</sup>Gollan (1968) notes that different methods of organization, incentives, and publicity were used to place war loans in Australia. These included inscription registries, special loan branches, war savings certificates (used to attract smaller investors), newspaper advertisements, and bank notices, as well as active canvassing for subscriptions.

**Figure 3.4. Public Finances in Selected Dominions, 1914–40 (Percentage of GDP)**

Sources: Interwar Debt Database; Mauro and others (2013).

Note: The data for Australia refer to the Commonwealth government.

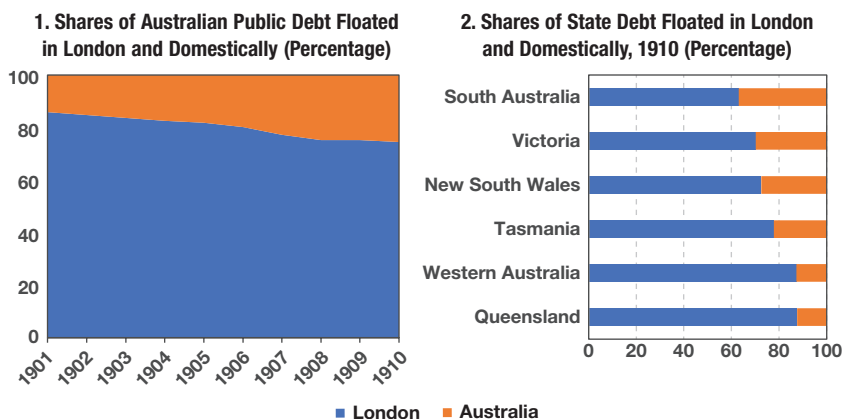
the UK market in the 1920s and continued to do so in the 1930s. This resulted in much larger debt service expenditure compared to the other Dominions. For much of the interwar period, debt service exceeded revenues and required additional borrowing. The Dominions' ability to repay debt, however, was sharply tested with the onset of the worldwide depression. The following sections describe the choices the Dominions made to lower their mountain of debt.

## RESTRUCTURING FISCAL INSTITUTIONS: THE CASE OF AUSTRALIA

### Consolidation of State and Federal Debts

The first Australian loan was placed by the state of New South Wales in 1855.<sup>27</sup> Between 1861 and 1889, Australian public debt grew at a rate of about 10 percent per year, faster than the population growth. Most states floated the bulk of their loans in the London market in the prewar period (Figure 3.5) and continued to turn to London in the 1920s, where they could still borrow on more favorable terms than domestically.

<sup>27</sup>See Coghlan (1902, 396).

**Figure 3.5. Australian Debt, 1901–10**

Source: *Official Year Book of the Commonwealth of Australia*, 1911.

The framers of the US Constitution were particularly interested in the question of whether a central government should pay debts incurred by subordinate governments.<sup>28</sup> In Australia, this question played out during the interwar period. The federal Constitution of the Commonwealth of Australia (which became effective January 1901) brought together the six former British colonies of New South Wales, Queensland, South Australia, Tasmania, Victoria, and Western Australia as the states of Australia. After considering the precedents of Canada and the US, the Constitution established the federal structure of the government and specified the powers of the Commonwealth and the responsibilities of the states. It contained specific clauses designed to protect the financial position of the states, including the reimbursement of most customs and excise duties to the states (clause 87) and the extent to which the Commonwealth would take over state debts.<sup>29</sup> The nexus between the ability to pay government debt and the power to tax was thus explicitly recognized.

At the turn of the 20th century, most state revenues came from customs and excise, with the intention to pass these over to the new Commonwealth government. It was decided early that the Commonwealth would have unlimited taxation powers and that states could maintain their own tax policies. The question of whether the Australian government should take over the states' debts was contentious and much deliberated during the federation debates.<sup>30</sup> On the one hand, the consolidation of state and federal debts was expected to contribute to more stable Commonwealth finances and to reduce repayment risks and interest on loans from investors. Centralized borrowing would also give the Commonwealth greater control over customs and excise revenues, the reimbursement of which funded the states' interest bills, and development spending (as states were mostly borrowing to finance infrastructure spending).

<sup>28</sup>See Ferguson (1961); Sargent (2012).

<sup>29</sup>Prest and Mathews (1980).

<sup>30</sup>Gilbert (1973).

On the other hand, practical considerations regarding revenue sharing needed to be resolved, as the Constitution only fixed the distribution of customs and excise revenues until 1910. The public debt of the states was quite high, and despite the low interest rate environment at the time, debt service could absorb a sizeable part of the surplus cash flow available to the states. Starting in 1901, the Commonwealth, which had exclusive power of customs and excise taxation, was reimbursing these revenues to the states. After 1910, however, this process was replaced by a regularized scheme of Commonwealth per capita grants to the states.

Unresolved issues in fiscal federal relations came to the fore in the wake of WWI. Although the Constitution included a provision for taking over the public debt of the states at the establishment of the Commonwealth, it made no mention of new or joint borrowing.<sup>31</sup> The Constitution was also silent on the coordination of public borrowing. Another point of contention was the division of taxing powers between the center and the states. With the onset of WWI, excise and customs revenues dried up just as pressures on the center to finance war expenditures increased. One outcome was that the Commonwealth was forced to rely on direct taxation, sharing concurrent powers with the states in the areas of land, inheritance, and income taxes—fields in which it would remain after the war.<sup>32</sup> Both levels of government were under pressure for their heavy borrowing during the 1920s: the Commonwealth for repaying its war debt and the states for financing their capital programs, unemployment benefits (a state responsibility at that time), and revenue deficits.

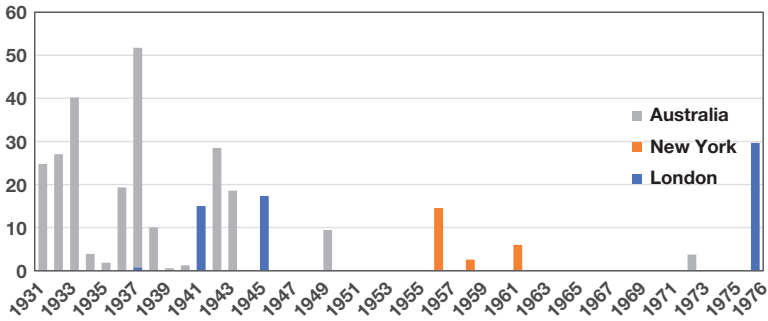
### Bailing Out States: Avoiding a Sudden Stop

By the mid-1920s, the states accounted for the lion's share of Australia's debt, half of which was issued domestically, with a relatively short average period to maturity (Figure 3.6). Throughout the 1920s, the federal government and particularly the state governments maintained a heavy level of borrowing from the London market, often relying on large overdrafts from overseas banks. The country was the single largest international borrower from the UK. As long as the prosperity of the postwar period continued, and the prices of Australia's commodity exports remained high, UK investors accepted this indebtedness. By the late 1920s, however, poor investment returns, combined with Australia's rapidly rising public debt levels and a growing balance of payments crisis, stoked UK investor

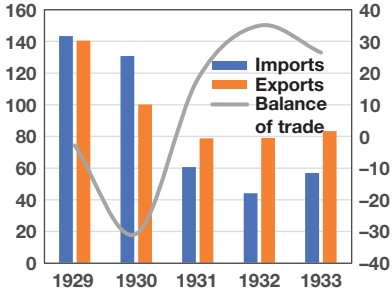
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<sup>31</sup>Clause 105 of the Constitution provided that: "The Parliament may take over from the States their public debts as existing at the establishment of the Commonwealth, or a proportion thereof according to the respective numbers of their people as shown by the latest statistics of the Commonwealth." A constitutional amendment was made in 1910, deleting the words "existing at the establishment of the Commonwealth," making it possible to take over the whole of the debts at any time by the agreement with the states (Gilbert 1973).

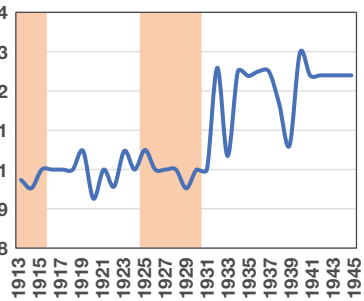
<sup>32</sup>A land tax was introduced in 1910, inheritance taxes in 1914, the first-ever federal income tax in 1915 (all three in addition to those concurrently imposed by the states), and later a wartime profits tax and an entertainment tax (Copland 1934).

**Figure 3.6. Australia's Debt, Balance of Trade, and Exchange Rates, 1930****1. Redemption Profile of Australia's Public Debt**  
(Millions of Pounds)

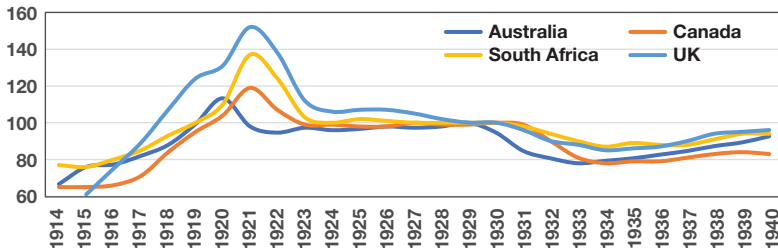
Australia's Public Debt, 1930	London	New York	Australia	Total
Amount outstanding (millions of pounds)	150.7	17.2	205.1	373.0
Share in total debt (percent)	40.4	4.6	55.0	100.0
Average period to maturity (years)	28.1	25.8	6.7	12.2
Average rate of interest (percent)	5.0	4.9	5.3	5.2

**2. Balance of Trade in Australia**  
(Millions of Australian Pounds)**3. Australian Pound**

(Per UK Pound; Shaded Areas: Gold Standard)

**4. Cost of Living**

(Index, 100 = 1929)



Sources: Interwar Debt Database and authors' calculations; *Official Year Book of the Commonwealth of Australia* (various issues).

concerns.<sup>33</sup> These investors understood that the country was living on borrowed funds and was vulnerable to external shocks:

In the whole British Empire there is no more voracious borrower than the Australian Commonwealth. Loan follows loan with disconcerting frequency. It may be a loan to pay off maturing loans, or a loan to pay the interest on existing loans, or a loan to repay temporary loans from bankers. . . . No Dominion takes such full advantage of these unique opportunities of raising cash as the Australian Commonwealth. But is the system safe? Are trustees in this country justified in continuing to hand over a large proportion of the nation's savings to such reticent and pertinacious borrowers? It is, in fact, high time to ask the question—Is Australian finance sound? (*Australian Finance*, October 1926)

It was increasingly apparent that a new fiscal arrangement was needed to maintain the flow of lending from the UK. In December 1927, representatives of governments of the six states and the Commonwealth signed the Financial Agreement Act. This act formalized the Australian Loan Council (ALC), which had been operating on a voluntary and temporary basis since 1923, in a constitutional amendment (Section 105A). The ALC was given the sole authority to determine the amounts, terms, conditions, and timing of all domestic and overseas loans raised by the Commonwealth and the states. But the act went beyond the mere coordination of new borrowing operations. It gave the Commonwealth the exclusive power to raise governmental loans in return for its assumption of existing state debts. The permanent constitutional status of the ALC, with representatives from the Commonwealth and each of the states, meant that no individual government could repudiate the agreement establishing the ALC or the power to enforce its decisions conferred on the Commonwealth government. This decision realigned creditors' interests away from Australian states and toward the federal government.

A new arrangement for grants to the states was implemented, and debt assistance payments replaced the per capita grants. The Commonwealth also agreed to pay a set sum to service existing and new debt (incurred after 1927) into a sinking fund over a period of 58 years, with the states paying the remainder. Sinking fund arrangements for preexisting and future debt were institutionalized to allay creditor concerns about debt servicing ability.<sup>34</sup> At the same time, the ALC increasingly became the institutional tool through which the Commonwealth government exerted control over state finances, debt management, repudiations, and restructuring.

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<sup>33</sup>The UK's return to the gold standard in 1925 at its prewar parity had also made life more difficult for Australian exporters.

<sup>34</sup>From the states' perspective, the adjustment to federal financial relations was agreeable because payments under the Financial Agreement Act represented nearly 80 percent of all payments and grants from the Commonwealth in 1927–28 (Gilbert 1973).

## Crisis and Adjustment: Prioritizing External Debt

By 1930, the Australian economy was in a tailspin, plagued by a staggering level of indebtedness, falling export prices and external demand, rising unemployment, and shrinking revenues from taxation (Figure 3.6). With funding from the London market progressively drying up and London banks pressing Australian governments for payments on overdrafts, Australia found itself in the midst of substantial balance of payments and fiscal crises. In February 1929, an Australian loan was subscribed to only 16 percent and had to be taken up by the underwriters.<sup>35</sup> In April of the same year, the London market refused to issue a loan and virtually ceased to be a source of funds for Australian long-term borrowing. The country's debt burden was crushing: public debt accounted for 60 percent of tax revenues; external debt was just under 20 percent of the value of exports.<sup>36</sup>

The UK, concerned about Australia's ability to repay its obligations in London, was advocating a deflationary plan, including cuts to government spending and wages, higher taxes, and prioritization of repayment of Australia's debt to the UK. The Bank of England even sent a representative to Australia, Sir Otto Niemeyer, to discuss solutions with the Commonwealth government.<sup>37</sup> Austerity policies in support of the gold standard also found favor with Australia's Commonwealth Bank, the country's government-owned trading bank and de facto central bank. The country's conservative banking sector was vehemently opposed to excessive monetary expansion and its inflationary consequences on the grounds that it would adversely impact the government's credit rating at home and abroad.<sup>38</sup> The Commonwealth Bank, working in conjunction with the ALC, had refused to provide financial assistance unless meaningful progress was made in reducing deficits and balancing budgets. In June 1930, the Australian prime minister made the following statement in the House of Representatives:

The Commonwealth representative in London has been in consultation with the Bank of England and other financial authorities, with a view to finding a solution of the growing difficulties of providing exchange to cover Australian payments overseas. At the same time the Australian Loan Council has been in consultation on the same subject with the Commonwealth Bank and associated banks in Australia. The Government and banks have already taken important corrective measures for adjusting the trade balance, and the banks have materially assisted the Australian Governments to secure exchange on London. The Commonwealth Government is determined that all necessary steps shall be taken to meet promptly all Australian oversea obligations; and, as the Bank of England has expressed its willingness to

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<sup>35</sup>Gruen and Clark (2009).

<sup>36</sup>Pincus (1988).

<sup>37</sup>Gruen and Clark (2009, 42) note that Niemeyer's arrival in Australia was a "1930s version of an International Monetary Fund's 'mission' to a developing country in financial crisis, but rather than bringing financial resources, he brought stern advice."

<sup>38</sup>See Bland and Mills (1931)



assist Australia, the Government and the bank have agreed that there should be consultation in Australia between a representative of the Bank of England, the Commonwealth Government, and the Commonwealth Bank Board. (*The Sydney Morning Herald*, June 20, 1930, 13).

In August 1930, the Premiers' Conference was held at State Parliament House in Melbourne to agree on a deflationary economic policy. The Commonwealth government and all states were represented; Niemeyer and his colleagues also attended. As noted in *The Recorder* (August 19, 1930, 1) on the opening day of the Melbourne conference:

It was evident by the Premiers' comments tonight that it was urged that Federal costs must be cut. Mr. Fenton [representing the Commonwealth Government] explained to the conference what economies the Federal Government had effected since it came into the office, but the Premiers seemed to think that too heavy burden was thrown on the States in the way of economy.... Queensland, [its Premier] said, had reduced the salaries of Ministers and members of Parliament, and had brought down the civil servants' basic wage. There must be reciprocity on the part of the Federal Government regarding general economy.... [The Premier of South Australia] proposed that the Commonwealth should quit the field of direct taxation and that the Constitution should be reviewed with a view to an amendment, to assist rural States.

Tensions between the states and the Commonwealth intensified by the second day of the conference because of differing views of how to meet the significant foreign obligations that were coming due. Niemeyer, advocating the interests of the UK, argued "that the existing financial circumstances had arisen from purely economic causes, that financial aid from overseas would have merely a palliative effect, and that the real situation could be rectified only by earnest efforts on the part of the Commonwealth and the States" (*The Singleton Argus*, August 20, 1930, 2). During the conference, he emphasized that without prompt fiscal retrenchment on part of the country, "the Commonwealth might appear before the world as a defaulter."

Ultimately, Australia decided to prioritize the repayment of the debt to its UK creditors at the expense of its domestic bondholders and taxpayers. Despite pressure from its deteriorating balance of payments to devalue its currency, the country held the line until January 1931, when it unofficially left the gold standard and devalued the currency by 25 percent against the British pound. As a result, the real burden of external debt service payments surged, and solutions to avoid a repudiation of the country's foreign debt service obligations were urgently needed.

### **Discriminating between Creditors: Domestic Debt Conversion**

The Premiers' Plan, agreed to by the Commonwealth and the states in May 1931, proposed servicing Australian debt owned by UK bondholders (in sterling) by cutting government spending (including sharp reductions in wages, salaries,

and pensions) and increasing federal and state taxation.<sup>39</sup> A key component of the plan was a domestic debt restructuring operation to lower the cost of servicing the country's large domestic debt. The conversion of all Commonwealth and states' domestic debt into new long-term securities bearing significantly lower coupon payments entailed a partial default on domestic creditors.

Between 1928 and 1931, the Australian economy had contracted by nearly one-third—one of the largest contractions suffered by any Western economy—and unemployment peaked at 30 percent. Sharp cuts in wages and salaries enacted in response to the economic crisis eroded incomes of the working classes. At the same time, price deflation increased the real value of holding debt, benefiting domestic bondholders and rentiers. The concept of “equality of sacrifice” in bearing the burden of adjustment gained ground in the political debate. A widely shared view in the trade union movement and the ruling Labour Party was that both bondholders and wage earners should share the burden.<sup>40</sup>

Jack Lang, the premier of New South Wales and a member of the Labour Party, was a key proponent of the conversion. “Call it repudiation or partial default,” he urged at the Premiers' meeting in February 1931, “but there is no alternative to interest reductions on all government loans whether in London or Australia.” “We can assure bond-holders that their money is safe,” he continued, “but it is impossible to pay existing rates.”<sup>41</sup> Others advocated defaulting only on foreign debt and honoring the debts to domestic citizens. But the domestic conversion operation also found widespread support from conservative politicians and wealthy bankers, who favored policies that protected Australia's reputation and credit standing in the “mother country.” Insofar as the debt conversion involved a breach of contract, it was justified by prominent economists on the following grounds:

In normal times breach of contract would constitute an insuperable objection, but, fundamental as is the sanctity of contracts, it must not be overlooked that insistence on their fulfilment to the letter might, in present circumstances, force the debtor Government into a policy that would surely destroy the value of the bond. Generally, breach of contract would cause lack of confidence, and would set up a flight of capital from the country subjecting investors to it. But when the alternatives are inflation and default, or taxation of an equal or probably greater severity, holders of fixed money claims may find it wiser to accept a variation of their contracts which is less onerous than taxation and insures them against the greater loss of total default. (Paragraph 42, Report to Premier's Conference, May 1931)

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<sup>39</sup>The Commonwealth and states had agreed to follow the 1930 Melbourne Agreement advocated by Sir Otto Niemeyer. This involved raising taxes, cutting welfare payments, reducing the basic wage by 10 percent, and abandoning public works projects to rein in fiscal deficits—actions deemed essential for restoring confidence. By June 1931, the deflationary elements of the Melbourne Agreement formed the basis of the May 1931 Premiers' Plan, which was eventually accepted by most state premiers and the Commonwealth government (Schedvin 1970).

<sup>40</sup>See Copland (1934).

<sup>41</sup>“Conference of Commonwealth and State Ministers. Proceedings and Decisions of Conference,” *Commonwealth Papers*, 1929–31, Vol. II.

On July 31, 1931, the Commonwealth government passed the Debt Conversion Agreement Act, in accordance with the provisions of the Constitution and the Financial Agreement Act. The debt restructuring was conducted as part of a package of measures to reduce the real burden of debt for both private and public debtors.<sup>42</sup> The conversion, which applied to all existing domestic state and Commonwealth debts controlled by the ALC, was eventually ratified by all of the states. Bondholders were offered the opportunity to convert existing domestic debt into securities bearing a significantly lower interest rate. The aim was to reduce the servicing cost of the debt by 22.5 percent. Holdings of existing securities were to be allocated among new securities with lengthened maturity dates, ranging from 7 to 30 years.<sup>43</sup>

Bondholders were appealed to on grounds of the financial difficulties of the governments and the need for sacrifice from every section of society, drawing on the tactics used in placing war loans. The prime minister, in encouraging people to convert, drew explicit parallels with WWI:

Never since the dark days of the war had Australia been faced with such a critical position, never has there been more urgent need for spontaneous bursts of patriotism.... Let the world know that the heart of Australia is sound, that her fighting people possess the same fighting spirit in peace as they showed in war, and that they will not repudiate their obligations. (Prime Minister Lyons, cited in Brett, 2003, 99)

Arguments for restoring Australia's credibility and ability to borrow on international markets found broad public support. Ultimately, the combination of moral suasion for institutional holders (about 40 percent of debt securities was held by banks and insurance companies) and the appeal to patriotism resulted in most bondholders voluntarily tendering their holdings for conversion. By the deadline, 97 percent of all bonds had been exchanged for new securities with lower coupons.

The debt restructuring was a success, and there was no flight of capital, as some had feared.<sup>44</sup> In the months before the conversion, prices of Commonwealth bonds temporarily fell in the domestic market but rose in London (Figure 3.7).

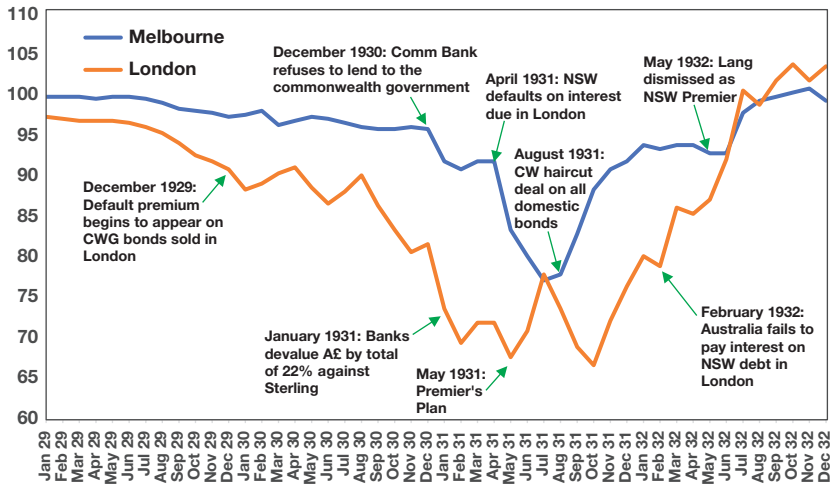
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<sup>42</sup>This conversion was conducted as part of a package of measures to reduce bank and mortgage interest rates. Banks agreed to reduce rates on fixed deposits and advances by an average of 1 percent. Legislation was passed in four states (New South Wales, Tasmania, Victoria, and Western Australia), providing for an automatic reduction of 22.5 percent on existing mortgage contracts, unless the mortgagee could satisfy a tribunal that the reduction was inequitable. In the other two states, the mortgagor had to apply for a reduction. Rates were reduced by 22.5 percent, with a minimum in most cases of 5 percent. See Copland (1934) for a detailed account of these measures.

<sup>43</sup>The general conversion was to a 4 percent nominal rate on 10 issues of new stock, but there were some at 3 percent. See Commonwealth Debt Conversion Act 1931 at <https://www.legislation.gov.au/Details/C1931A00018>.

<sup>44</sup>According to a contemporary account (Maclaurin 1937, 84, 94, 95–96): “While Mr. Lang’s stand [on debt haircuts] was most unpopular at the time, it was of material value in persuading the more conservative groups that conversion was necessary. . . The conversion loan proved a spectacular success.... The threat of compulsion was forgotten, and most people willingly turned in their bonds for conversion.... There was no flight of capital following the Plan, as some had forecast. In fact, capital... returned to Australia after the inauguration of the Plan, probably because it laid the ghost of inflation.”

**Figure 3.7. Commonwealth Bond Prices in the London and Melbourne Markets, 1929–32**



Source: Schedvin (1988).

Note: Melbourne-issued Commonwealth bonds were restructured from 5.25 to 4 percent in September 1931. CWG = Commonwealth Government; Comm Bank = Commonwealth Bank; CW = Commonwealth.

The haircut on domestic debt effectively meant that the London bankers could be paid in full.

Commonwealth and state leaders concluded that it would be unfair for the holdouts to be left in a more favorable financial position than those who had accepted. Bonds were redeemed for cash at full face value in hardship cases, but legislation was passed in December 1931 to compel the remaining dissenters to convert. Interest payments represented 33 percent of revenues in fiscal year 1930–31, when the Premier's Plan was announced. This proportion fell to 23 percent in fiscal year 1931–32 after the Conversion Act was enacted, even though the economy had contracted further.<sup>45</sup>

The Commonwealth and states' reputation for servicing domestic debt did not suffer following the conversion. Newly structured domestic bonds sold at a discount in September 1931. But within one year, Commonwealth bonds were trading at par and prices of domestic bonds rose as confidence was restored (Figure 3.7). This result was partly due to the fact that the conversion was made under the Financial Agreement Act and Section 105A of the Constitution. Bondholders were given strong assurances that the terms of their new contracts with the governments could not be altered in the future.<sup>46</sup> Effectively, the Australian government was successful in sustaining expectations that no future alteration in rates of interest could be made without the consent of all the parties to the Debt Conversion Agreement.

<sup>45</sup>Joffe (2012).

<sup>46</sup>See also Gilbert (1973).

## A Second Bailout

Although the Premiers' Plan was adopted in most Australian states, it was met with resistance from New South Wales. New South Wales premier, Jack Lang, advocated an effective default on English loans—he refused to pay the interest on UK debt. Lang believed that if England could renegotiate its debt to the US, Australia should be allowed to renegotiate its debt to the UK. His proposed program for New South Wales was to maintain wages and to use loans to fund public works, create jobs, and generate prosperity. Rather than service the UK debt, he wanted to use these resources to keep people employed in public works programs.

In April 1931, New South Wales unilaterally defaulted by missing coupon payments on its debt. The state was heavily indebted and, with its revenues falling, was restricted from raising state loans by the ALC. Nearly 70 percent of its debt had been raised in London, and a large interest payment had fallen due. The fact that the Australian currency had depreciated by 25 percent in January 1931 further aggravated the budgetary impact of the economic downturn as the real burden of interest payments on foreign debt ballooned.

Bondholders in London and New York did not suffer any losses because of New South Wales's default in 1931 and subsequent default in early 1932.<sup>47</sup> In both cases, the Commonwealth paid the coupons on behalf of New South Wales. To address the repeated interest defaults, the Commonwealth enacted the Financial Agreement Enforcement Act in 1932. This act sought to uphold the financial agreement between the Commonwealth and the states by establishing a procedure for recovering these amounts. It granted the Commonwealth the authority to seize New South Wales's revenue as compensation for the defaulted interest.<sup>48</sup> In April 1932, the Australian High Court upheld the law. Lang, however, refused to transfer state revenues to the Commonwealth Treasury. In May 1932, the governor of New South Wales—who protected British interests under Australia's political system—removed Lang from office for refusing to govern in accordance with the law.

## Reputation Regained

The parties to Australia's 1927 Financial Agreement Act recognized that paying Commonwealth and state obligations would enable the federal government to obtain lasting access to domestic and international credit markets. In bailing out New South Wales during the height of the depression, the Commonwealth

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<sup>47</sup>In January 1932, Lang defaulted again on overseas interest payments, after his request for additional borrowing had been turned down by the Loan Council. This time, the Commonwealth waited for 10 days before paying the interest (Von Hagen and others 2000).

<sup>48</sup>Once there was a certification of a state default, the attorney general could apply to the High Court for a declaration as to the amount due. The High Court declaration then operated as judgment against the state. Once a resolution was passed by both houses of federal parliament, the act required the prescribed state revenues, including income tax and money held in credit to the state in banks, to be transferred to the Commonwealth Treasury (Dixon and Williams 2015).

government reasoned that honoring the country's debts to its UK creditors was essential to restore financial confidence in Australia.<sup>49</sup> But the impact of the Financial Agreement Act and the High Court's decision to uphold it was far-reaching. It served to establish a strong reputation of the federal government vis-à-vis the states. To borrow from overseas, states now required a unanimous ALC decision, an effective impediment to its use.

Australia slowly started its recovery once the Premiers' Plan was implemented. The measures outlined in the plan were helped by a fall in the prices abroad, the imposition of import restrictions, the abandonment of the gold standard, and the move to floating sterling arrangement. Market sentiment in the UK began to shift. In July 1932, after Lang's dismissal from office, yields on Commonwealth government bonds in London fell back below 5 percent for the first time since 1928. Tomz (2007) reports that between January 1933 and December 1938, the number of Australian bonds quoted on the London exchange more than doubled, and yields fell to historical lows.

The UK government suspended principal and interest payments on the Australian government's own war debt following the Lausanne Conference in 1932 (see Chapter 2). The amount of face value debt written off amounted to about 6 percent of Australia's GDP.<sup>50</sup> The Australian governments also managed to successfully negotiate conversions of maturing privately held London loans and those loans for which the government had early redemption options. Tomz (2007) reports that the average contractual rate on Australian government bonds on the London market fell from 4.9 to 3.4 percent within a few years, generating considerable fiscal savings for the Australian government—a reward for acting in good faith toward its foreign creditors during difficult times.

## DOMESTIC DEBT RESTRUCTURING: THE CASE OF NEW ZEALAND

New Zealand's domestic debt restructuring closely followed the Australian model. Both countries had entered the depression highly indebted. In contrast to Australia, New Zealand did not face a balance of payments or sovereign debt crisis in the immediate aftermath of the depression. As late as 1931, overseas observers had contrasted the finances and credit standing of the two Dominions:

Although the debt of New Zealand is large in relation to the population and though the country in common with other primary producers has suffered severely from the fall in prices the management of the country's finances inspires more confidence than that of Australia. The New Zealand Government have tackled their problem in an impressively straightforward manner and as a result the Dominion's credit has not suffered from the economic crisis to the same extent as that of the sister Commonwealth. (*The [London] Times*, June 5, 1931)

<sup>49</sup>Eichengreen and Portes (1990) reach a similar conclusion.

<sup>50</sup>Reinhart and Trebesch (2016).

By 1932, the collapse in export prices and consequential drop in farm incomes hit New Zealand's undiversified agrarian economy hard. The decade since WWI had seen a rural land boom, with land prices moving in tandem with commodity prices. With credit freely available, many farmers borrowed heavily but found themselves vulnerable as prices for New Zealand's commodity exports dipped in 1921–22 and again in 1925–26.<sup>51</sup> A return to record commodity export price levels in 1927–28 again renewed land speculation, adding to the numbers of farmers that were highly leveraged on the eve of the worldwide depression.

Public debt surged to more than 200 percent of GDP in 1932 (Figure 3.3), the bulk of which was foreign owned. Despite significant fiscal consolidation and internal devaluation, the diminished access to new foreign financing and mounting budgetary pressures raised concerns about the country's debt servicing ability.<sup>52</sup> With such a high level of external debt, the government's ability to tap offshore funding markets and roll over maturing foreign debt was considered to be a matter of vital importance.

New Zealand's trading banks had been forced to informally devalue the currency by around 10 percent in 1930. Further depreciation of the New Zealand currency was a politically contentious issue. This was advocated by exporters (largely rural farmers) but resisted by trade unions and urban interests on the grounds of the higher living costs it would entail. The UK's departure from the gold standard in 1931 also provoked fears in New Zealand that external loans due the following year would have to be paid rather than rolled over.

In response to the economic downturn, the government first adopted policies to counter rural indebtedness and the fall in farm incomes. Deflation had increased the debt burden in real terms, and as rural incomes fell, debt servicing costs in the farm sector reached 26 percent of gross incomes.<sup>53</sup> In 1931 and 1932, various legislative measures were enacted to override private contracts to ease the debt overhang for farmers and other private borrowers. These measures included temporary moratoria on mortgage payments and farm foreclosures by creditors. The Supreme Court was expected to weigh in on decisions for mortgagees above a certain monetary value.<sup>54</sup> The government reasoned that given the economy-wide costs of large-scale bankruptcies in the sector, mortgage relief would be

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<sup>51</sup>MacDonald and Thomson (1987).

<sup>52</sup>See Belshaw (1933) for an account of the crisis in New Zealand and the policy response.

<sup>53</sup>Wright (2009).

<sup>54</sup>Under the Mortgage Relief Act passed in April 1931, "defaulting mortgagors were to be given one month's notice of a mortgagee's intention to sell or enter into possession of a mortgaged property, or to petition for bankruptcy proceedings. During this period, the mortgagor could apply for relief to the Supreme Court in respect of mortgages exceeding £2000, or to lesser courts for smaller amounts. The court could thereupon prevent the mortgagee from taking any action for up to a year" (MacDonald and Thomson 1987, p. 230). The Mortgageors and Tenants Further Relief Act of 1932 gave new rights to mortgagors. Mortgagors could now seek relief even if they were not directly threatened by mortgagee action. This act also extended to lessees the same protection that had been granted to mortgagors, permitted magistrates to rule on sums larger than £2,000 with the consent of both parties, and made it obligatory for the courts to refer all cases to Mortgageors



beneficial even if it resulted in redistribution between debtors and creditors.<sup>55</sup> In introducing the bill for the Mortgages Relief Act in 1931, the prime minister defended the abrogation of contracts by stressing the extremity of the situation:

No one wants to set aside contracts which have been entered into, because, after all, the whole of our progress is built on contracts, and one desires to disturb them as little as possible. But there are occasions—and this is one—when it is necessary to afford some protection against those who will not look at the position in a reasonable light and wish to take advantage of the situation. (Prime Minister Forbes, New Zealand Parliamentary Debates, 1931, vols. 227, 823)

By early 1933, influenced by Australia's successful domestic debt conversion, the political debate in New Zealand centered on the need to reduce the cost of servicing domestic debt.<sup>56</sup> As in Australia, the prime minister, in an address to the parliament, highlighted the importance of burden sharing:

While the prevailing economic disturbance lasts with its far reaching repercussions on every section of the population it is the bounden duty of a Government to see that the sacrifices involved are spread as evenly and as equitably as possible over the whole community. . . . The successful conversion of our internal indebtedness will bring about easier credit conditions, future stability of the market, greater confidence among investors in Government securities of all kinds, and lower interest rates for the future. Above all the reputation and prestige of the Dominion will be greatly enhanced in the eyes of the outside world. (Prime Minister Forbes, New Zealand Parliamentary Debates, February 28, 1933, vol. 228)

On March 1, 1933, the New Zealand Debt Conversion Act was passed, two months after the government officially devalued the currency against sterling by 25 percent. As in Australia, the plan was presented as a voluntary conversion scheme.<sup>57</sup> Holders of domestic government debt were invited to convert their existing debt instruments into debt with lower coupon payments (typically 20 percent lower), subject to a minimum yield of 4 percent.<sup>58</sup> A week later, legislation was passed providing for a 33.3 percent tax on any interest paid on domestic government securities for holdouts. This provided a strong coercive force in the restructuring; foreign holders of domestic debt were explicitly excluded. Any holders who did not voluntarily convert would be made significantly worse off than if they had chosen to convert.

When the conversion offer closed on March 24, 1933, less than 1 percent of bondholders had dissented. Assuming a 5 percent initial interest rate and discount rate, a holder of New Zealand government bonds with 10 years remaining

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Liabilities Adjustment Commissions. The commissions advised the courts and, where possible, encouraged voluntary settlements.

<sup>55</sup>Most farm debt was not owed to banks but to government agencies, nonbanks, and other individual private sector entities.

<sup>56</sup>New Zealand Parliamentary Debates (1933), 784–814.

<sup>57</sup>See Reddell (2012) for a comprehensive account of New Zealand's domestic debt restructuring.

<sup>58</sup>Interest rates for local government debt were reduced by a similar proportion in May 1933.



to maturity would have experienced an 8 percent loss in present value terms. Reporting to the parliament in late 1933, the minister of finance noted: “The effect on market rates of interest is fully up to expectations, for the new 4 percent stocks are being sold on the market at higher prices than ruled previously for 5 percent securities. Therein lies the proof of the real success of the conversion operations.”<sup>59</sup>

This suggests that, contrary to the predictions of standard economic theory, the government did not have trouble accessing capital markets, nor was there a “stigma effect” on new debt issues.

## ABROGATING GOLD CLAUSES: THE CASE OF CANADA

Canada raised funds in New York in US dollars for the first time in 1917. By the 1920s, all new government and government-guaranteed issues overseas were in New York in US dollars (in contrast to the prewar overseas issues in London in sterling) (Figure 3.8).

On the eve of the worldwide depression, around 80 percent of Canada’s public debt was denominated in Canadian dollars. Although held mostly by residents, more than one-half of the domestic government debt (federal, state, and municipal) and four-fifths of corporate bond debt were optionally payable in US dollars or sterling.<sup>60</sup> Following standard practice in the US, both domestic debt liabilities and US dollar debt also contained explicit gold clause provisions, which stated that borrowers must pay in gold coin or gold equivalent.<sup>61</sup> In 1930, gold bonds constituted 63 percent of the government’s funded debt, excluding Treasury bills or notes.<sup>62</sup> If the government honored the gold clause, a depreciation causing the price of gold to rise in Canadian dollars would increase the real value of gold bond liabilities.

Canada had returned to the gold standard in July 1926 after a 12-year hiatus. The legal tender money stock consisted of gold coin and government-issued dominion notes convertible into gold on demand at the rate of Can\$20.67 per ounce of gold (valued at par with the US dollar). Dominion notes were issued with a 25 percent gold backing up to a stipulated limit, in excess of which a

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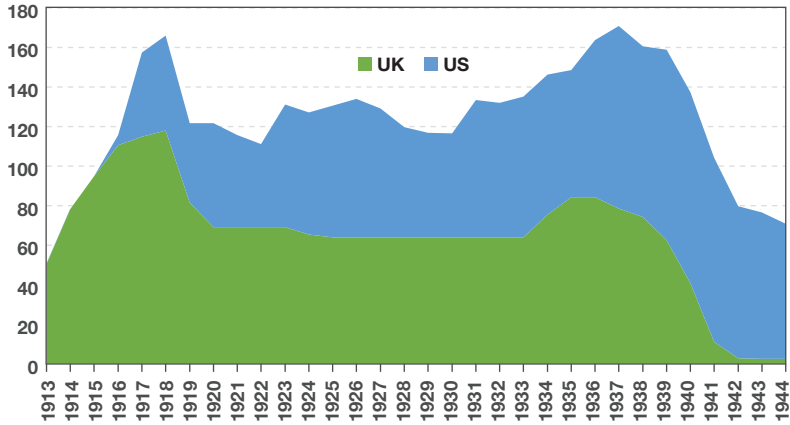
<sup>59</sup><https://paperspast.natlib.govt.nz/parliamentary/appendix-to-the-journals-of-the-house-of-representatives/1933/1/499>

<sup>60</sup>Bryce (1986).

<sup>61</sup>Foreign and domestic issuances in Australia, New Zealand, and the UK were exclusively floated in pounds sterling or domestic currency with no specific reference to gold coin in the agreement. In the US, however, following the inflation during the Civil War, gold indexation clauses were a standard component of long-term public and private debt contracts. For example, Liberty Loans issued by the US during WWI were required by statute to include a gold clause (Edwards 2018).

<sup>62</sup>Bordo and Redish (1990) report data on funded liabilities of the government.

**Figure 3.8. Canada: Foreign Debt Outstanding to the UK and the US, 1913–44 (1929 Parity British Pounds)**



Source: Interwar Debt Database.

100 percent backing was required.<sup>63</sup> By the 1920s, the Dominion notes outstanding were mostly small notes in the hands of the public and large-denomination notes used by banks as reserves.

In 1929, Canada de facto left the gold standard, imposing a series of informal restrictions on gold exports in response to the deteriorating economic situation. Markets appeared to believe that the restrictions on gold holding and the gold market were only temporary. In early 1931, the government took advantage of favorable interest rate conditions to engineer a large-scale domestic debt conversion of the war loans originally issued to finance WWI. Many of these loans had explicit gold clauses, and the obligations were now maturing; four issues were falling due by the mid-1930s (with nominal returns of 5-5.5 percent; see Table 3.2). The prime minister and finance minister in a public statement urged bondholders to convert:

It would not be prudent, either in the interest of the security holders or of the country itself, to wait until these loans become due before providing for their payment or conversion. Action must be taken well in advance of the due dates to protect the credit of the country. The Government believes this an opportune time to afford Canadians the opportunity to exchange the bonds which they own, maturing in the next few years, for new bonds of the Dominion of Canada carrying interest rates of four and a half per cent per annum, which is a very attractive return. [By accepting the invitation of the Government and converting their bonds, Canadian investors] will render less difficult the task of providing the future finances of the country, will enhance its credit, and will greatly assist the Government in the present period of world-wide depression. (R. B. Bennett, cited in *Maclean's* magazine, July 1, 1931)

<sup>63</sup>Dominion notes issued to banks pledged by securities under the authority of the 1914 Finance Act were not backed by gold. However, they were legally redeemable in gold on demand (Powell 2005).

The government's Conversion Loan of May 1931 successfully rolled over \$639 million of the outstanding war loans at par. The maturity of the new bonds was extended to 25 years (callable within 15 years). In the process, the gold clauses on the old bonds was removed. The conversion effectively transformed over one-fourth of the outstanding government debt from gold denomination to domestic currency.

Throughout the early 1930s, the government pursued sound money policies, resisting pressures to depreciate the currency on grounds that depreciation and inflation "would be ruinous alike to the credit and to the future development of this country" (cited in Bordo and Redish 1990, 372). The possibility of capital flight, given the considerable cross-border trade in optional payment bonds and the higher cost of servicing debt denominated in foreign currency, was also of concern.<sup>64</sup> Canada's reputation with its overseas creditors was seen as material for maintaining the flow of lending from New York.

In October 1930, the government successfully issued \$100 million 30-year US dollar bonds at 4 percent in the New York market (payable in gold), one of the few foreign countries able to do so. Contemporary accounts in Canada hailed this issuance as "an unqualified tribute to the sound financial status of the Dominion and her high credit rating in world financial markets."<sup>65</sup> Over the next few years, a number of government-guaranteed loans were successively placed in New York.<sup>66</sup> These bonds were among the last large overseas issuances that were payable in gold coin. Public and private debtors in Canada who had issued bonds payable in gold in the US were relieved of this obligation by a joint resolution of the US Congress approved on June 5, 1933.

The export of gold was officially prohibited on October 31, 1931, following the UK's decision to float the sterling. Amid mounting pressure on the currency and a deteriorating economic situation, the Canadian dollar fell below par against the US dollar. According to a contemporary account, investor concern focused on the wavering nature of Canada's commitment to the gold standard, the country's high level of debt, and low gold reserves.<sup>67</sup> The currency briefly fell to a low of roughly \$0.80, before rebounding, raising concerns about the country's debt burden denominated in US dollars. Yields on long-term domestic bonds jumped from 4.3 percent in September 1931, the month before the UK left the gold standard, to 5.1 percent in October of the same year, before peaking at 5.5 percent

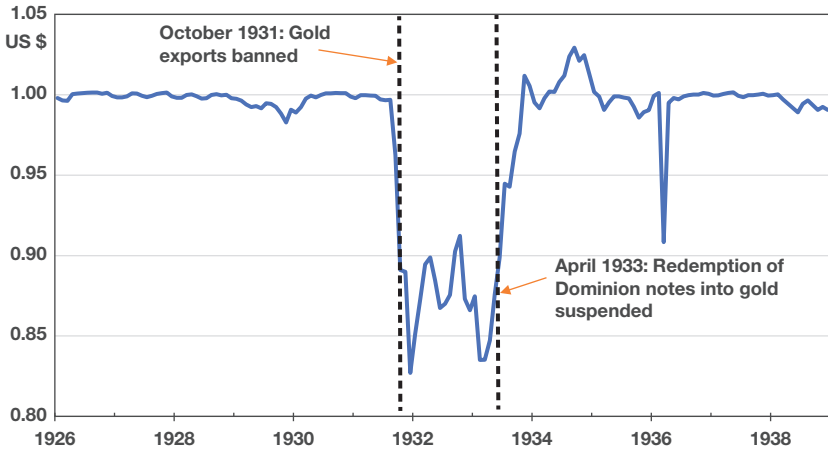
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<sup>64</sup>Helleiner (2014, 52) cites the 1940 Royal Commission on Dominion-provincial relations on the dangers of optional payment bonds: "Under some circumstances, they [optional payment securities] constitute a serious danger since anything that causes foreigners to take an extremely pessimistic view of Canadian conditions may precipitate a large withdrawal of capital that might shatter the Canadian financial system, and completely destroy Canadian credit, both internally and abroad."

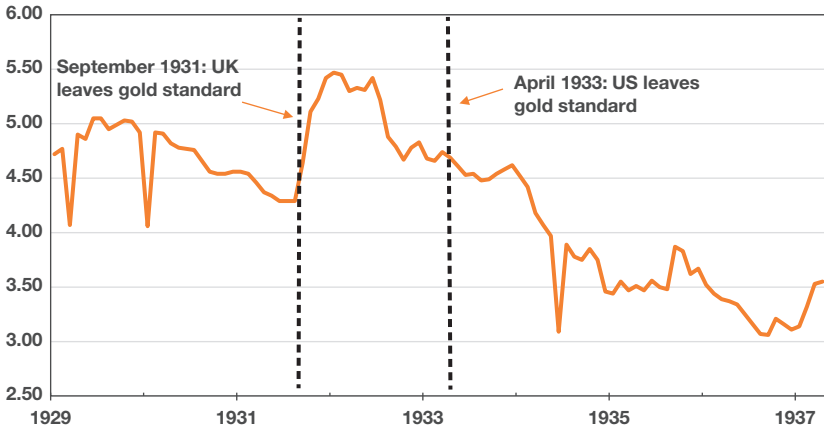
<sup>65</sup>*Maclean's* magazine, December 15, 1930.

<sup>66</sup>Eichengreen and Portes (1990) note that Canada was one of the last major countries to borrow from the US before international lending totally dried up in 1932.

<sup>67</sup>See Creighton (1933, 122).

**Figure 3.9. Canada's Exchange Rates and Long-Term Bond Yields****1. Canadian Dollar in Terms of the US Dollar Monthly Averages, 1926–39**

Source: US Board of Governors of the Federal Reserve System (1943).

**2. Long-Term Government Bonds Yields Monthly Averages of Selected Issues, 1929–37**

Source: Dominion Bureau of Statistics and published in *Prices and Prices Indexes* (April 1937, 18c).

in January 1932 (Figure 3.9), as investors sold off Canadian bonds optionally payable in US dollars in the domestic market.<sup>68</sup>

The official gold embargo weakened the currency's link to gold. The Canadian dollar nominally retained its value, but the government would not pay in gold to residents holding gold bonds. Instead, residents were offered Canadian legal tender—that is, Dominion notes. Foreign residents holding the same bonds or

<sup>68</sup>See also Hackett (1935).

bonds payable in a country other than Canada were paid in gold. When gold was demanded by domestic residents, the government's response was that since gold could not be exported it was only worth its face value in Canadian dollars.<sup>69</sup> By segmenting markets, the government was able to treat its domestic and external creditors differently. On April 10, 1933, following the US abandonment of the gold standard, Canada officially suspended the redemption of deposits and Dominion notes for gold. In the economic circumstances of the time and given similar developments in the US, this move elicited little market reaction (see Figure 3.9). The Canadian dollar returned to rough parity with the US dollar by 1934 but at reduced gold value. "Liability dollarization" was eventually reduced, as optional payment bonds falling due in the mid-1930s were redeemed or restructured into domestic currency bonds.

The informal ban on gold clauses in contracts continued until 1937 when a legal decision by the House of Lords in London held that an obligation to pay in gold implied an obligation to pay money equivalent to the value of the gold. In 1917, the UK government had issued a 20-year bond denominated in US dollars in New York that included a gold clause. The bond was payable at the option of the holder in New York in gold dollars or in London in sterling. In the case of the *King v. International Trustee*, the House of Lords, ruling in favor of the UK government, held that since the gold bond was placed with American investors, it was subject to US law.<sup>70</sup> This ruling allowed the UK government to pay the debt at its nominal value by invoking the 1933 joint resolution of the US Congress that had invalidated gold clauses.

State governments in Canada, concerned about the effect of this ruling on their own outstanding debt obligations, lobbied the central government to abrogate gold clauses in all contracts, government and private, in line with the US precedent.<sup>71</sup> The Canadian Gold Clauses Act of 1937, and its revision in 1939, prohibited the use of gold clauses in all future and past contracts, ending the right of a creditor to claim settlement in gold. Such obligations were to be settled only in the face value of the obligation in Canadian currency or, if applicable, in the legal tender of another country.

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<sup>69</sup>Bordo and Redish (1990, 367) cite the correspondence of R. B. Viets, solicitor to the Department of Finance, whose standard response to requests for redemption in gold of bonds with a gold clause was: "You say that you have a Dominion of Canada bond matured November 1, 1934, which you desire to have paid in gold coin that is legal tender in Canada. Gold coin in Canada is worth only its face value in currency. The reason this is so is that gold coin cannot legally be melted down nor can it be exported." The government's position on payments outside Canada was similarly clarified in a letter from Viets to the Canadian high commissioner in London: "Contracts payable in gold in Canada are sufficiently discharged by payments in legal tender currency, or at all events, damages for not paying in gold would be negligible. Of course, a contract to pay gold in a country other than Canada would be governed by the laws of such country."

<sup>70</sup>Borchard and Hotchkiss (1951).

<sup>71</sup>Bryce (1986).

## SELF-GOVERNMENT ABANDONED: THE CASE OF NEWFOUNDLAND

Newfoundland enjoyed a long history as a self-governing colony and Dominion within the British Empire before becoming a Canadian province.<sup>72</sup> In 1895, the country faced a banking and fiscal crisis, raising concerns about the colony's ability to service its public debt. The Newfoundland government unsuccessfully sought aid from the UK. It then tried to negotiate a union with neighboring Canada but talks foundered over disagreements about who would take responsibility for Newfoundland's debt. Canada asked the UK to assume responsibility, but London declined. Ultimately, the Newfoundland government was able to obtain a last-minute loan from private bankers in London and avert default. Legislation was enacted making the Canadian dollar legal tender, and the collapse of local banks allowed Canadian banks to take over Newfoundland's financial system.

The specter of default reared its head once again in the interwar period, highlighting the never-ending cycle of debt restructuring described by Reinhart and Rogoff (2011) in their treatise, *This Time Is Different*.<sup>73</sup> Spending during WWI and the costs of maintaining the Newfoundland Railway had resulted in substantial public debt. By the 1920s, Newfoundland's public finances were on precarious grounds (Figure 3.10 and Table 3.3). Throughout this period, the government had run large fiscal deficits, borrowing from foreign investors to repay maturing loans and finance capital expenditures.<sup>74</sup> The fiscal crisis only deepened with the onset of the worldwide depression. By the early 1930s, Newfoundland's debt burden was unsustainable. Public debt was around \$100 million in 1931—over three times the colony's national income and more than twice its 1920 level. About 95 percent of the public debt was held by Canadian banks and investors.<sup>75</sup>

Until 1931, the year the Statute of Westminster formally recognized the independent status of the Dominions, the Newfoundland government had found ready takers for its overseas loans. In early 1931, concerned about Newfoundland's dwindling revenues and mounting interest payments (interest payments accounted for 65 percent of current revenues and more than 30 percent of total expenditures, Figure 3.9), Canadian banks refused to grant further loans. A default on interest payments falling due on June 30, 1931, was narrowly averted when the

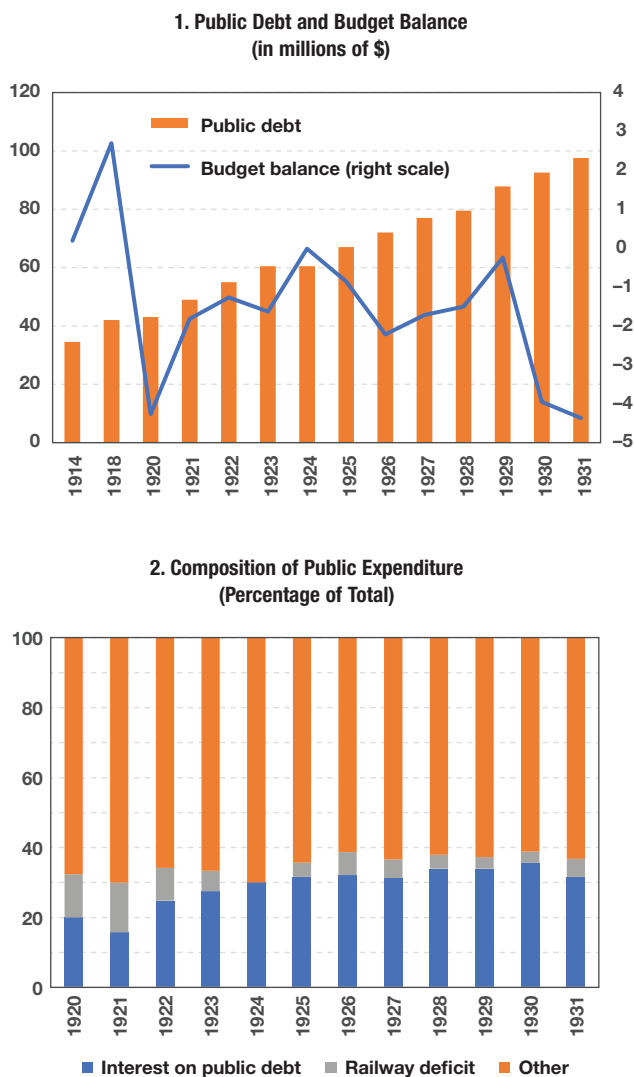
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<sup>72</sup>Newfoundland became the first self-governing dominion of the empire in 1855, with its own Legislature and Executive Council, 12 years before Canada and 45 years before Australia.

<sup>73</sup>Reinhart and Rogoff (2011) note that major default episodes are typically spaced some years (or decades) apart, creating an illusion among policymakers and investors that "this time is different."

<sup>74</sup>In 1928, for example, the government raised a \$10 million loan to retire a war loan of \$7.5 million and cover the budget deficit and provide for capital expenditures. The following year, \$6 million had to be borrowed to redeem a 1905 loan; in 1930 it raised another loan of \$5 million for similar purposes (Baker 1994).

<sup>75</sup>Baker (1994).

**Figure 3.10. Newfoundland: Public Finances, 1914–31****Table 3.10. Breakdown of Newfoundland's Debt in 1931**

Sterling loans raised before 1900 (not trustee stocks in the UK)	£3.3 million
Sterling loans raised over 1900–14 (trustee stocks in the UK)	£1.6 million
Sterling loan raised after WWI (trustee stock in the UK)	£0.4 million
Sterling dollar bonds raised after WWI (not trustee stocks in the UK)	£5.7 million
Gold dollar bonds raised in New York after WWI	\$31.5 million
Prosperity Loan (1932) and other internal dollar issues	\$3.4 million
Advances by Canadian banks operating in Newfoundland	\$6.3 million
Advances by the UK exchequer	£1 million

Sources: Amulree Report; Mergent Archives.

banks were persuaded by the Canadian government to roll over the debt. In return, the Newfoundland government agreed to raise taxes and cut public spending. Having lost control of its currency, the country was unable to devalue or print money in response to the crisis.

By late 1931, the prospect of Newfoundland defaulting on its debt interest payments due on December 31, 1931, loomed again—a prospect both the Canadian and the UK government wished to avoid.<sup>76</sup> Canada thought that its dollar—which Newfoundland had used since 1895—and Canadian banks would come under pressure at a time of heightened fragility in international capital markets. The UK feared for the reputation and credit rating of the British Empire as a whole. Federation with Canada was also not an option because Canada faced its own economic challenges coping with the fallout from the worldwide depression. Furthermore, federation would have entailed assuming Newfoundland's sizeable debt and devising an appropriate system of transfers between the central government and the new province.

Canadian banks were once again persuaded to temporarily cover interest payments falling due. In return, the Newfoundland government agreed to pass legislation preventing the export of gold and making the notes of the Canadian syndicate banks legal tender (the banks were to be relieved of any obligation to pay these notes in gold) to balance the government budget and make provisions for a sinking fund.<sup>77</sup> After June 30, 1932, the government was expected to meet interest payments on the national debt on its own accord; the banks announced that no new loans would be forthcoming.

Despite the austerity policies, the fiscal deficit worsened in fiscal year 1931–32 (Figure 3.10). By December 1932, the Dominion was once again facing an imminent default on interest payments due on January 1, 1933.<sup>78</sup> The governments of Canada and the UK moved immediately to avert the default. The two governments agreed to help meet Newfoundland's debt payments by providing a loan, pending the report of an imperial royal commission of enquiry. It was evident that more drastic measures were needed to avoid the certainty of default.

## Conditionality of Rule

The Amulree Commission, formed in 1933, recommended providing aid on the condition that Newfoundland voluntarily revert to the status of a crown colony and give up its status as a self-governing Dominion under the Statute of Westminster. The proposed solution to Newfoundland's debt crisis—loss of

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<sup>76</sup>See Hale (2003) for a detailed account of this period.

<sup>77</sup>In addition, the proceeds of the customs duties, the main source of the country's revenues, were to be deposited daily into a special account (Noel 1971).

<sup>78</sup>The Newfoundland government had avoided default on debt interest payments for June 30, 1932, because of an agreement with Imperial Oil Company. The company agreed to take Newfoundland government bonds valued at \$1,750,000 and pay the government a minimum annual royalty of \$300,000, in return for a monopoly on all petroleum products that were either imported or manufactured and sold in Newfoundland (Baker 1994).



independence and democratic self-government—was justified on the grounds that “default would be odious and might impact the credit of other Dominions” (MacKay 1934, 895). The Commission’s report noted:

No part of the British Empire has ever yet defaulted on its loan obligations; in the absence of any precedent, the consequences which would follow from a default by Newfoundland must remain to some extent a matter for speculation....The fulfillment of a private money contract depends, of course, in the last resort on the capacity of the debtor to pay, and the law provides accordingly for the bankruptcy of an insolvent debtor. But bankruptcy is at best an ugly word and carries a stigma which a nation even more than an individual would do well to avoid. Directly or indirectly, national bankruptcy is liable to affect the fortunes of every citizen.” (Amulree Commission Report, November 1933)

The Commission recommended reducing payments on Newfoundland’s privately held debt as part of an overall debt restructuring guaranteed by the British government. Bondholders would be guaranteed their principal, but coupon payments were to be temporarily suspended. The Commission noted that financial intervention of this kind was incompatible with self-governance. Accordingly, Newfoundland’s existing Constitution had to be suspended until fiscal responsibility was restored and the people of Newfoundland would demand self-governance.

The British Parliament accepted the Commission’s proposals but not without internal dissent. The opposition Labour Party leader in the House of Commons, Clement Attlee, argued that default was preferable to giving up democracy.<sup>79</sup> Referring to Britain’s own default on its wartime loans from the US (see Chapters 1 and 2), he said, “All the best countries default nowadays.”

The Commission’s proposals were accepted by both the people and the government of Newfoundland. Public confidence in Newfoundland’s democratic institutions had been eroded by a series of political corruption scandals in the 1920s and 1930s.<sup>80</sup> Higher customs duties on essential food items, as well as cuts in social spending and pensions, had led to disenchantment with the government’s austerity policies. Many Newfoundlanders concluded that the Commission would provide better fiscal administration. The country’s mercantile elite also saw the sacrifice of self-governance and economic conditionality as a small price to pay for financial stability.

On February 16, 1934, Newfoundland’s century-old parliament was terminated when the colony’s legislature voted itself out of existence. A commission form of government was established, managed by six appointees—three of whom were from the UK—presided over by the governor. The Governor-in-Commission was responsible to the Secretary of State for Dominion Affairs in the UK. In other words, the commission would be responsible to London and the UK Parliament rather than to the people of Newfoundland.

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<sup>79</sup>Hale (2003).

<sup>80</sup>The 1920s were a period of significant political instability, with some administrations lasting only days before defections and shifting alliances brought them down. In 1923, the government collapsed following accusations about the theft of public funds. In 1932, corruption charges against the ruling government culminated in a public riot, forcing the resignation of the prime minister (Neary 1973; Hiller 2005).

Taking over a sovereign nation to collect on loans was not without precedent. During the heyday of gunboat diplomacy, the UK invaded Turkey as a bill collector, and Egypt became a protectorate following its 1876 default. Similarly, the US deployed military forces to collect its debts in Latin America, occupying the Dominican Republic in 1916 and intervening in Haiti and Nicaragua to control customs houses and obtain revenue for debt servicing. But the notion that a British Dominion would voluntarily subordinate democracy to creditors was unprecedented in the history of sovereign debt crises.

Ultimately, the UK government was able to use Newfoundland's need of a bailout as leverage, eventually forcing it into confederation with Canada in 1949. At the time of its entry into the Canadian Dominion, the new province was virtually debt free because Canada agreed to assume its debt.

## CONCLUSION

External dependence, boom-bust cycles in capital flows, and sovereign defaults in emerging market economies today are often contrasted with the historical experience of the Dominions during the interwar period.<sup>81</sup> The argument is that, despite being emerging markets of the time, many of the Dominions were able to cope with large-scale external borrowing and graduate from "original sin" owing to their relatively developed domestic debt markets and stronger policy frameworks. Some have even argued that the main difference between the Dominions and other commodity exporters in Latin America was that capital flows to the former were stable, even during periods of global financial turmoil and low commodity prices.<sup>82</sup>

The historical record appears more nuanced. The story of the Dominions during the interwar period is also one of excessive external dependence, severe macroeconomic adjustments, refusals to grant debt relief by external creditors in some cases, and bailouts and debt restructuring in others. The complications of external dependence, especially if external creditors have "skin in the game," were exemplified by Newfoundland's experience. But the experience of the Dominions also emphasizes the interplay between domestic and external debt obligations and the ensuing opportunities created for discrimination among creditors.

The option to virtually repudiate a sizeable portion of their domestic debt with impunity had an important bearing on the Dominions' ability to manage the fallout from the worldwide depression. Governments in Australia, New Zealand, and Canada selectively defaulted on domestic obligations while sustaining expectations that they would not do that again, relying on strong constitutional mechanisms and impartial courts. Policies to retroactively alter domestic debt contracts found broad public and political support in all countries. By honoring their external obligations, governments in all three countries were able to maintain their reputations with overseas creditors and ensure continued access to international capital markets.

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<sup>81</sup>See, for example, Bordo, Meissner, and Redish 2003; Caballero, Cowan, and Kearns 2005.

<sup>82</sup>See Stone (1999).

## ANNEX 3.1. EVOLUTION OF THE RELATIONSHIP BETWEEN THE UK AND THE DOMINIONS, 1900–47



Sources: Dawson (1937); national sources (various); Reinhart and Rogoff (2010).

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## CHAPTER 4

# Two Decades of Walking on a Tightrope: Public Debt Management in France during the Interwar Period

NICOLAS END<sup>1</sup>

*And as the vicissitudes of Nations beget a perpetual tendency to the accumulation of debt, there ought to be in every government a perpetual, anxious and unceasing effort to reduce that, which at any times exists, as fast as shall be practicable consistently with integrity and good faith.*

A. Hamilton (1791)

*Il n'y a point de dette sitôt payée que le mépris.*

French proverb

France emerged from World War I (WWI) with an enormous stock of debt, significant reconstruction spending needs, and calls to scale up social protection. Against the backdrop of rampant political instability and external shocks, successive governments grappled with returning to the gold standard; consolidating runaway budgets in the context of successful and unsuccessful stabilization plans; and managing, in turn, inflationary and deflationary pressures. France also faced several confidence crises, particularly when Allied financial support was withdrawn and hopes of German reparation payments vanished. Yet the sovereign never officially defaulted.<sup>2</sup>

This chapter focuses on two central questions that resonate equally today as advanced economies cope with record-high indebtedness as was experienced in the interwar period.

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<sup>1</sup>The author would like to thank staff members at the Archives of the Ministry of Finance (CAEF) for their kind assistance.

<sup>2</sup>France stopping payments on its interallied debts and renegeing the gold clause of its foreign debt contracts is considered a borderline case of default because creditors never claimed their dues. Commentators at the time blamed creditor governments for their laissez-faire stance (for example, Samuel 1930).



1. How was France able to keep financing a level of debt that was twice its production of wealth and that, per any modern metrics, would be deemed unsustainable? How did France answer the “who should pay” question? In addressing these questions, the focus is not just on fiscal policies, but also the broader macroeconomic context, encompassing the monetary policy stance, financial sector policies, and the external environment. Specifically, this chapter examines the role refinancing, restructuring, and repudiation of foreign loans, and fluctuations in GDP growth rates, nominal interest rates, inflation, and primary government budget surpluses played in reducing debt during the interwar period.
2. From a debt management perspective, what kind of bonds was the government able to sell, to whom, and how? The role of debt management in reducing financing costs and attracting investors is assessed by examining individual bonds issued by the French government during the interwar period. The panoply of debt instruments issued also allows us to also assess the relevance of standard economic theories of government debt management for observed patterns.

## WHO SHOULD PAY?

### Setting the Stage

Once a powerful colonial empire, France entered WWI under the presumption that the war would be fleeting. Four years later, the country emerged at the armistice overburdened with debt. In economic terms, the war represented a massive shock to potential growth and output. Stocks of physical capital, labor, and human capital were destroyed by the conflict and the destruction wreaked by the retreating German forces. Combat and occupied zones—infrastructure, cattle, agricultural land, and housing—were heavily damaged.<sup>3</sup> At the same time, France regained the Alsace and Lorraine regions, which it had lost to Prussia in 1871, and absorbed new colonies. Rebuilding the destroyed territories and productive capital fostered renewal and modernization, which had a beneficial impact on growth. Overall, however, the war translated into a 40 percent decline in industrial production between 1913 and 1919–21 (Figure 4.1).

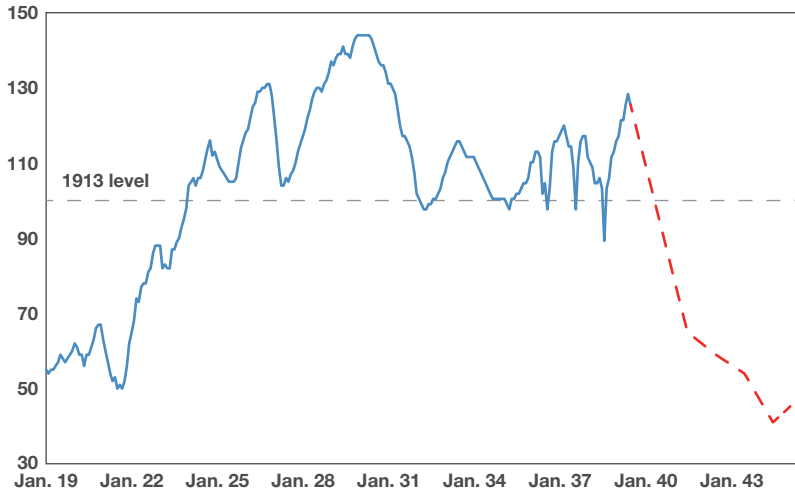
Not surprisingly, public finances deteriorated due to higher defense spending and accumulated war debts. This is in line with the general implications of the tax smoothing literature, which holds that a government facing temporary and unanticipated spending needs (for example, a war) should optimally respond by increasing government debt.<sup>4</sup>

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<sup>3</sup>Sauvy (1965); Fisk (1922).

<sup>4</sup>See, for example, Barro (1979), Lucas and Stokey (1983), Chari, Christiano, and Kehoe (1994), and more recently, Bhandari and others (2017). The underlying idea is that since mobilizing revenue is distortionary (and costly) in the short term, it makes sense for the government to issue debt and defer these costs onto the future when fiscal needs are lower. In the case of France, not only

**Figure 4.1. Industrial Production in France, 1919–45**  
(Percentage Monthly, 100 in 1913)



Sources: Sauvy (1965) in blue; author's interpolation of annual data from Direction de la Statistique Générale (1946) in red.

Overall, war costs amounted to an almost eightfold increase in nominal debt. To provide a sense of magnitudes, the stock of debt in 1919 amounted to around 32 years' worth of tax revenues, notwithstanding policy changes, inflation, and growth (Figure 4.2). In other words, the government could have repaid its debt in 32 years if all tax revenues were earmarked for amortization payments (assuming no nominal growth). Per any modern metrics, this debt stock was substantial.<sup>5</sup> In comparison, this ratio was around 2 in 2017. After WWI ended, the government also had to bear the budgetary cost of reconstruction and the compensation of soldiers and victims in the form of pensions and annuities.

Not only did public debt skyrocket during WWI, but its composition underwent a dramatic change. The average maturity shortened, as debt was largely financed through expensive, short- and medium-term instruments (see Annex 4.1 for a list of all individual debt instruments issued since 1913).<sup>6</sup> The share of long-term debt (largely composed of perpetual bonds or *rentes*) fell from 98 percent in 1913 to

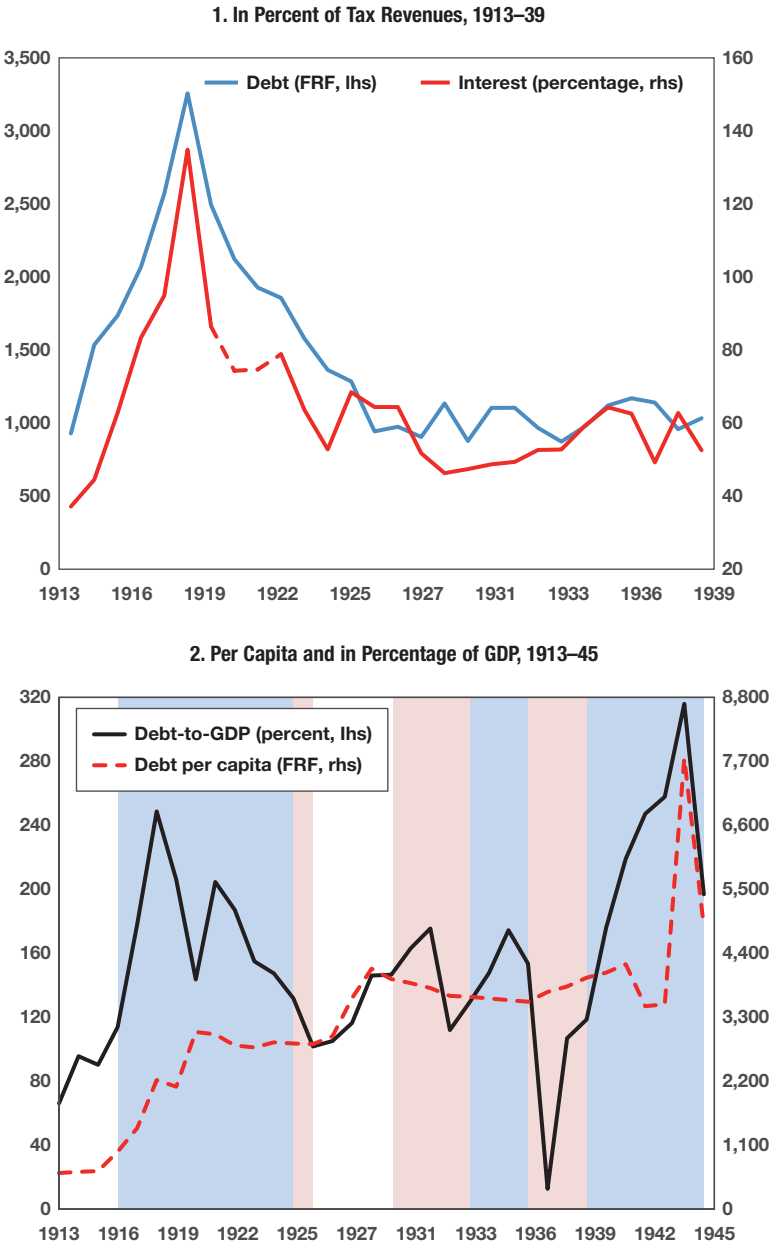
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was the tax system structurally weak at the onset of WWI, but policymakers found it difficult to pass substantial tax hikes or temporary war levies during the war. As noted by Plessis (2004), taxes covered around 15 percent of war spending in France, compared to 28 percent in the UK.

<sup>5</sup>The debt figures presented in this chapter should be viewed as a lower bound. The public sector was not clearly delineated; debt numbers for this period often do not consistently include the debt of public entities, such as railway companies, although they were guaranteed and serviced by the government. Colonies and municipalities were sometimes included inside and other times outside the French government perimeter (Agéron 1990). In addition, the government relied on off-balance-sheet operations.

<sup>6</sup>A number of recent theoretical papers examine the optimal maturity structure of government debt (for example, Bhandari and others 2017, Faraglia and others 2018, and references therein). This issue is examined in the section on debt management.

**Figure 4.2. The Size of Sovereign Debt**



Sources: Interwar Debt Database (Appendix); Sauvy (1965); Smits and others (2009) for nominal GDP; Madison Project Database (version 2013, Bolt and van Zanden 2014) for population; author’s calculations. Note: In panel 1, nominal interest payments are missing for 1920–21 and are assumed to follow a linear trend. In panel 2, shaded areas represent the alternation between left-wing (pink), right-wing (blue), and coalition (white) governments.

54 percent in 1920. During the war and its immediate aftermath, the government was unwilling to increase taxes, and the market was not ready for a long-term bond placement. The government therefore turned to more immediate sources of financing. It relied extensively on short-term National Defense bonds and central bank financing. The government also sold gold and repatriated abroad investments; capital controls were imposed in 1915 once the gold standard was abandoned.

During the war, the government was also forced to issue foreign-currency-denominated debt, breaking a long-term tradition of not borrowing externally. By 1918, close to one-fifth of public debt was officially owned by foreigners—mostly Allied governments, but also commercial banks in Europe and North and South America (Figure 4.3, panel 1). Official statistics, however, were based on prewar exchange rates and so underreported the true value of foreign indebtedness. The authorities had suspended gold convertibility in 1914 but kept using prewar parity as the official exchange rate until 1928, despite a de facto franc depreciation vis-à-vis gold and gold-backed currencies. The actual value of foreign debt in francs was almost five times the officially reported value (Figure 4.3, panel 2).

In summary, public debt overhang represented a thorny issue for the ailing French Third Republic and monopolized the political debate. A key question was: Who was going to pay the debt? Theory posits that the value of government debt should be matched by the net present value of future primary surpluses.<sup>7</sup> Thus, the greater the inherited debt, the higher the taxes required to reduce it in the future. This inherently implies a redistributive, hence political, struggle between different types of agents. The main instruments to reduce public debt—net increases in the taxation of capital, labor, or wealth; default; debt rescheduling; financial repression; and inflation—have a differential impact on bondholders, capital owners, workers, and future citizens. Successive French governments used all these instruments to varying degrees to reduce the country's debt overhang. But the interwar period also coincided with rampant political instability, ever-changing parliamentary coalitions, and weak executive governments. For instance, in the so-called ministerial waltz (*valse des ministères*), twelve different finance ministers took office between 1924–26 in the run-up to the franc crisis (Annex 4.2). Political instability, in turn, crucially shaped fiscal policy and debt reduction efforts.<sup>8</sup>

## Passing the Buck: The Role of German Reparations

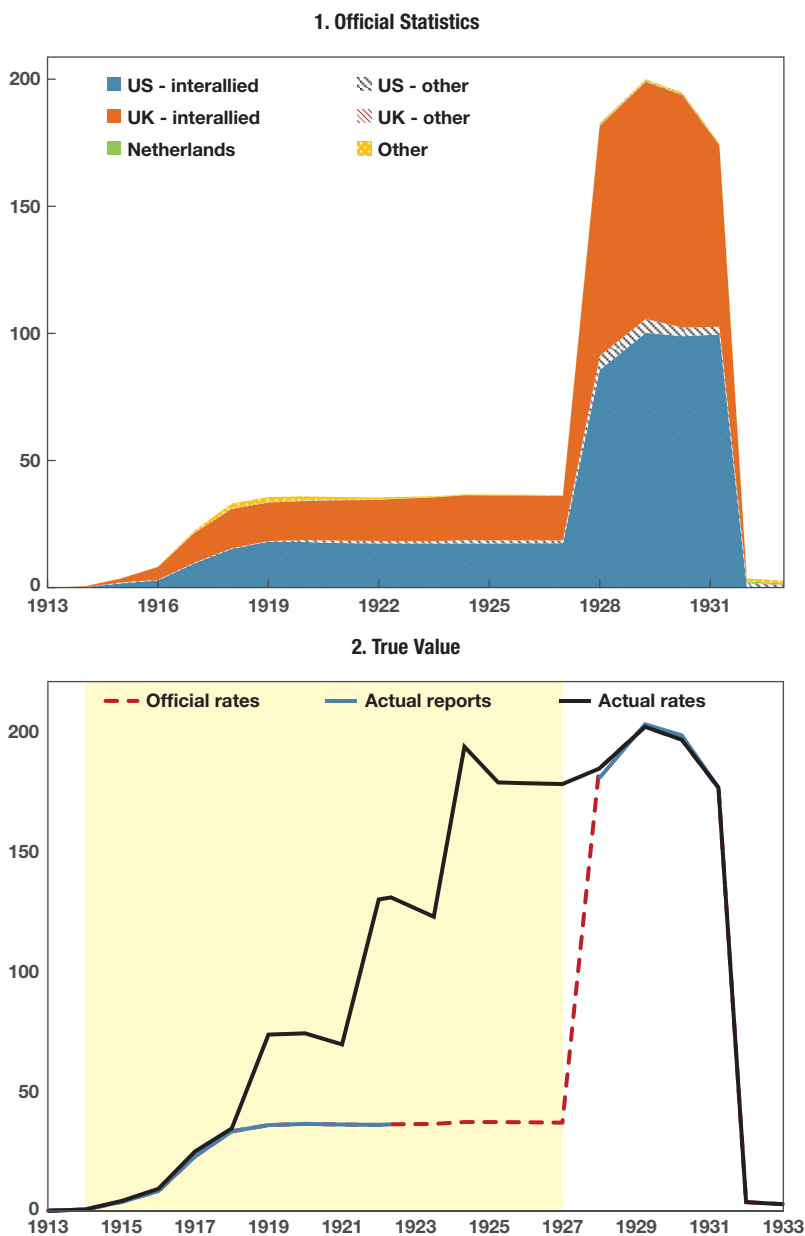
In the wake of WWI, a ready-made solution was found to the “who should pay” question. To avoid social unrest, the French government decided that its external debt would be paid by Germany. A headline in a prominent newspaper in 1919 read: “*Before talking about taxes, Germany has to pay! . . . How much? Everything, until the last penny!*”<sup>9</sup>

<sup>7</sup>Sargent (2012).

<sup>8</sup>Alesina and Passalacqua (2016) provide a broad summary of the political economy of government debt. Yared (2018) suggests that political distortions can lead to overborrowing due to time-inconsistent preferences and a bias toward present consumption.

<sup>9</sup>*Le Temps*, March 9, 1919: “Avant de parler d'impôt, il faut que l'Allemagne paye! . . . Payer combien? Tout, jusqu'au dernier penny” (author's translation).

**Figure 4.3. Foreign Sovereign Debt, 1913–45 (in French Franc Billions)**



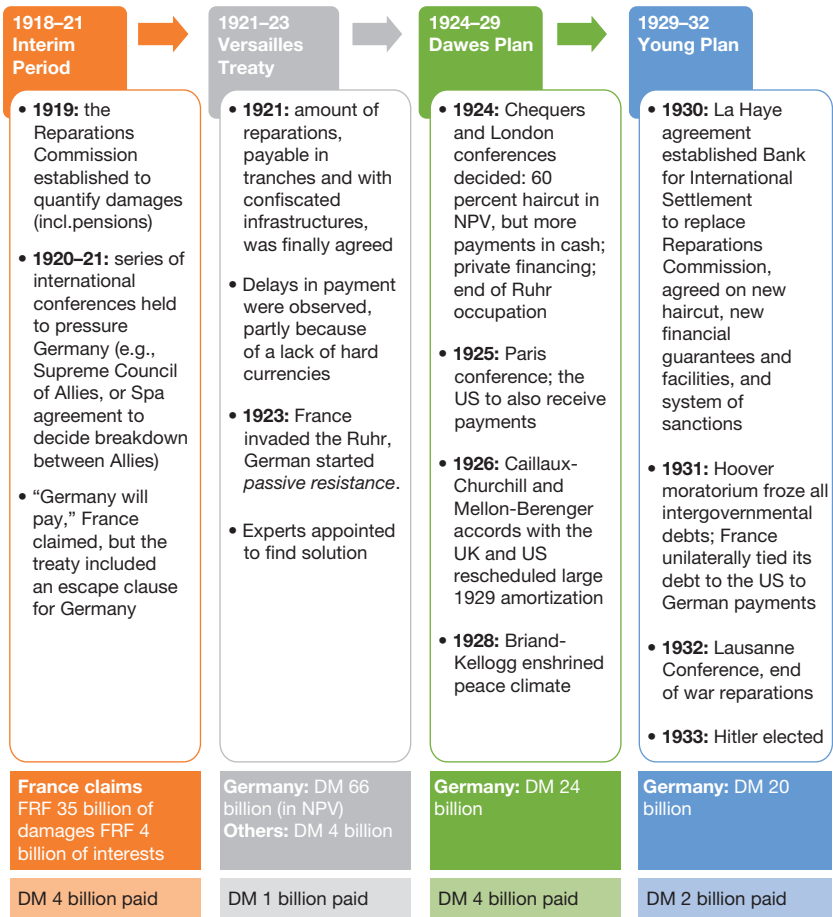
Sources: Interwar Debt Database; author's calculations.

Note: Debt is reported as the outstanding amount at the end of the fiscal year; fiscal years coincide with calendar years, except for 1929 and 1932. Panel 2 compares total foreign debt numbers as reported by the authorities, with some substantial gaps, and what can be inferred from instrument-level information, using either the official or market exchange rates. Shaded areas represent periods of inconvertibility to gold and forced exchange rates.

War reparations were an established practice that dated back to the early 19th century. For instance, after the 1870–71 Franco-Prussian War, Germany extracted substantial war indemnities from France.<sup>10</sup> In 1918, French President Clémenceau declared, “The most terrible ledger of people to people has opened; it will be paid.”<sup>11</sup> The question of whether Germany would pay preoccupied France until the worldwide depression. But German reparation payments to France from WWI proved elusive.

The Treaty of Versailles in 1919 did not determine the exact amount of German reparations, deferring the issue to a series of international commissions (Figure 4.4;

**Figure 4.4. The Burying of War Reparations in Four Steps**



Source: Author, based on reparation-related figures from Sauvy (1965).

Note: The last two lines provide, respectively, French claims on Germany and other war losers, and actual German payments. DM stands for Gold Marks, FRF for Gold Francs, NPV for net present value.

<sup>10</sup>Monroe (1919).

<sup>11</sup>Clémenceau’s address to the Senate, September 17, 1918: “Le plus terrible compte de peuple à peuple s’est ouvert, il sera payé” (author’s translation).

see also Chapter 1 on the US). Given the large number of stakeholders involved, achieving consensus on the amounts, as well as the sanctions for payment delays, was challenging. The limited availability of hard currencies constrained cash transfers; others forms of payments had to be devised, but France was reluctant to accept in-kind payments and Germany was opposed to the imposition of export levies or the appropriation of its productive capital.<sup>12</sup> In January 1923, incensed by the Reparation Committee's legal and political prevarications, Belgium and France invaded the Ruhr (see Chapter 2). But the Ruhr occupation proved futile.

For France, the insistence on reparations was more than mere negotiation posturing. The French government and investors had engaged in reconstruction efforts under the assumption that Germany would pay sizable—although yet to be quantified—war reparations. Effectively, since 1919, fiscal deficits in France reflected so-called “recoverable” expenditures, a separate budget dedicated to reconstruction that the authorities officially backed by German reparations. Recovery spending accounted, on average, for more than two-thirds of the government's revenues from 1919–24.

A dedicated public bank, the National Credit, was created in 1919 to finance reconstruction through bonds and lotteries (Figure 4.5). By the mid-1920s, government-guaranteed issuances by the bank represented around 10 percent of public debt. Adding up National Credit debts, National Defense bonds, and interallied credits, nearly 70 percent of French public debt was linked to war reparations. This amount is even larger if the de facto depreciation of the franc is accounted for.

**Figure 4.5. A Flyer for National Credit**



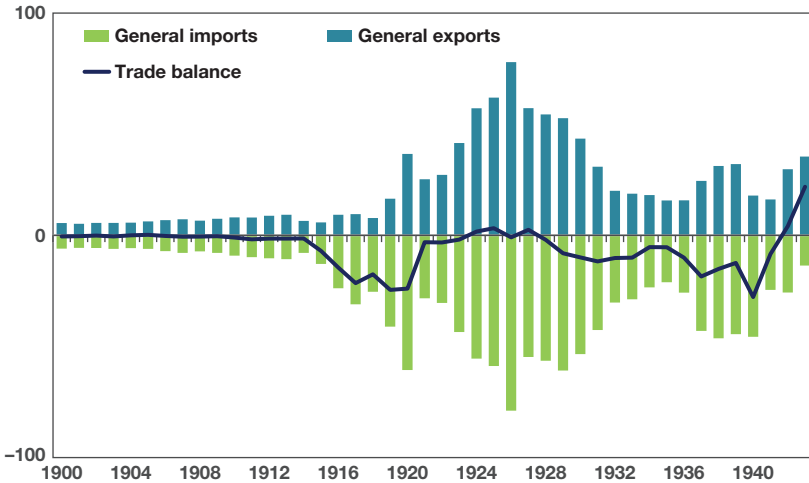
Note: “National Credit to Facilitate the Reparation of War Damages—Subscribe to Hasten the Revival of the Devastated Countries” (author's translation).

<sup>12</sup>See Sauvy (1965) for details.

## Buying Indulgences from the Allies: Interallied Debt Restructuring

The failure to find a satisfactory conclusion to the reparations issue stemmed in part from the intricate network of external public debts that emerged in the wake of WWI.<sup>13</sup> France ran large trade deficits from 1914 to 1920, largely due to war and reconstruction supplies (Figure 4.6). To finance these purchases, the French government collected privately owned gold in exchange for paper money. It also relied on credits and advances from its allies—chiefly from the UK and the US. Cash transactions and loans from other governments and their central banks were complemented by trade credits from overseas banks. According to their archives, J.P. Morgan & Co. covered one-third of the 17 billion francs (\$2.4 billion) of war stocks and trade contracts that France owed to the US.<sup>14</sup> Because the US accounted for slightly more than one-half of France's external debt, J.P. Morgan & Co. effectively held one-sixth of the world's claim on the French sovereign.

**Figure 4.6. Trade Balance, 1900–43**  
(in French Franc millions)



Sources: Direction de la Statistique Générale (1946); author's calculations.

Note: These data do not include special import/export regimes covering transiting or reexported goods.

<sup>13</sup>Another area of contention, from the French point of view, was Russian bonds. After the 1917 Bolshevik Revolution, the new government defaulted on the loans extended to the Tsarist regime, which were largely held by France and represented one-quarter of French foreign investments (Pittaluga and Seghezza 2016). In 1918, the French government decided to swap the nonperforming Russian bonds with its own bonds.

<sup>14</sup>Weems (1923).



France needed German reparations to amortize its liabilities to the Allies. To finance its external commitments, Germany relied on private loans that were traded in New York and London. Thus, the same private bankers that helped fund France were also involved in underwriting loans for Germany (see Chapter 1 on the US), which has led some commentators to argue that Allied powers had vested interests in keeping Germany's balance of payments afloat and postponing reparation payments.<sup>15</sup> When the French officials saw that the Allies would not support their claims on Germany, they tried, unsuccessfully, to condition their own debt service on German reparation payments. American and British private interests needed both France and Germany to not default. France, however, required its reparation claims on Germany to be a priority to repay its allies.

Did the numbers match the French rhetoric on reparations? Answering this question is challenging because the actual amount owed by Germany was open to interpretation. The Dawes and Young Plans merely provided a payment schedule. Taking the interest rate used in the official documentation of the two plans, one can approximate the equivalent debt stock with the net present value of the expected cash flows and assume that these stocks evolved in line with observed payments.<sup>16</sup> Figure 4.7 illustrates this calculation. Until the franc devaluation in 1928, the amount of expected war reparations from Germany was sufficient to cover the stock of interallied debt.

Eventually, the UK and the US cancelled or rescheduled interallied war debts on a bilateral basis (see Chapters 1 and 2). France, the primary debtor to the US, was one of the last countries to find a satisfactory arrangement, possibly because it was adamant in conditioning its debt service on war reparations. The Mellon-Bérenger and Caillaux-Churchill Agreements were reluctantly signed in 1926 and ratified in 1929, in time to avoid paying back the 10-year Victory bonds issued by the US and handed over to France in 1919.<sup>17</sup> In 1932, the Lausanne Conference formally wrote off German reparation obligations under the expectation that the US would also write off the claims on Belgium and France.<sup>18</sup>

National accountants did not wait for international negotiations to unravel. France had de facto stopped publishing detailed foreign public debt numbers in francs as early as 1923, in part to mask the effect of its currency depreciation.

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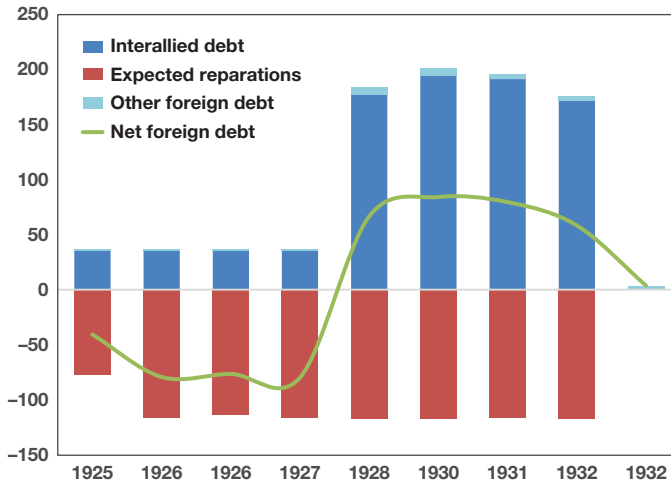
<sup>15</sup>Borio, James, and Shin (2014).

<sup>16</sup>Such computations are inevitably sensitive to the chosen discount rate,  $r$ . Interestingly, when renegotiating their own official debt vis-à-vis the UK and the US, the French media would use  $r=0$  and mistakenly compute the debt stock as the nondiscounted sum of future payments, thereby missing the actual haircut and concluding that France's allies wanted to extort even more money than initially agreed.

<sup>17</sup>The French were concerned that they would end up paying more in nominal annuities than in present value terms. The government, nevertheless, found a way to obtain cash advances from the UK and the US—repayments that were levied on Dawes Plan installments.

<sup>18</sup>Kindleberger (1973).

**Figure 4.7. France's Foreign Claims and Liabilities: Reparations versus Interallied Debt, 1925–32 (in French Franc billions)**



Sources: Interwar Debt Database; Young Committee (1930); The Hague Agreement (1930); Reparation Commission (1922–30); author's calculations.

Note: The claim on Germany ("expected reparations") is computed in a way designed to proxy what policymakers expected in real time:

- For 1924 and 1930, it is the net present value of the cash flows agreed upon under the Dawes and Young Plans. The discount rates used are the ones officially considered during the international conferences (7 percent for Dawes in The Hague and 7 percent for Young).
- For subsequent years, this stock is decreased by the effective payments made by Germany—which boils down to assuming that missed payments were still due:  $D_t = (D_{t-1} - \text{ActualPayment}_t) \times (1 + r)$ .
- After 1932, even though Germany still made a few payments, no official claim stands.

Interallied debts are credit lines, trade credits, and official loans between the French, the UK, and the US governments and central banks. Net debt is simply the difference between liabilities and claims.

By 1932, the government had written off both its German assets and its interallied liabilities.<sup>19</sup>

In short, American and British bondholders (taxpayers) eventually bore the brunt of French war debt in lieu of the Germans. From the perspective of the French, this outcome was appropriate, as noted in a prominent newspaper: "Nobody will ever make a Frenchman understand, even one whose spirit had been obliterated by the political discourse (. . .), that he must toil to pay America, whereas, under the protection of America, Germany flouts him and does not pay."<sup>20</sup>

<sup>19</sup>The Herriot government drafted a 1933 budget in which France would honor its financial commitments to its allies. A parliamentary contest overthrew the government, after which it was decided that France's debts had been implicitly nullified.

<sup>20</sup>*Journal des Débats*, December 9, 1932. "Jamais on ne fera comprendre à un Français, même d'esprit très oblitéré par le langage politique . . . qu'il doit peiner pour payer l'Amérique, alors que, sous la protection de l'Amérique, l'Allemagne se moque de lui et ne paie pas" (author's translation).

## Fiscal Policy: The Taxation Dilemma and Fiscal Shenanigans

How much of the debt burden fell on French taxpayers? During the war, the government was initially unwilling, and later unable, to commit to prudent fiscal policy. As long as the hope of receiving German reparations was alive, fiscal adjustment could be postponed. Only with the failure of the 1923 Ruhr occupation, the standstill of international negotiations around the question of reparations, and the external speculative attacks on the currency in 1924 did the country turn to a domestic solution. The fiscal consolidation engineered by Finance Minister Raymond Poincaré to stabilize the currency in 1926–28 helped contain budget deficits. But this fiscal restraint was short lived.<sup>21</sup>

Throughout the interwar period, creative budgetary accounting played an important role in making public debt, and the implied future tax revenue stream needed to service it, appear more manageable.<sup>22</sup> Budgets often presented overly optimistic revenue forecasts, based on administrative compliance efforts. Booking spending for only nine months made budgets appear balanced. Other creative accounting practices included transfers to and from off-budget entities. Several off-budget funds were instrumental in hiding the true extent of fiscal deficits and public indebtedness. For instance, the central government provided postwar support to devastated regions and industries by guaranteeing their bonds through dedicated budgetary annuities. Such guarantees were not considered public debt, although the ever-growing list of earmarked annuities represented a drain on annual budgets.<sup>23</sup>

Creative accounting alone could not cover growing financing needs for the emerging French welfare state, which made tax reform inevitable. A nascent social system had been in place by the end of the 19th century; the occupational hazard insurance was set up in 1898, child welfare services in 1904, and an old-age pension system in 1910. The social system was completed over 1928–32, with social housing and disability, medical, and maternity assistance added to the mix.<sup>24</sup> Rampant political instability, however, impeded tax reforms. A key question was who and what to tax. Conservatives were unwilling to tax the wealthy and raise direct taxes. The left wing, fearing working class unrest, rejected indirect tax increases in favor of a higher capital levy, but could not muster the required Parliamentary majority to pass such reform.<sup>25</sup>

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<sup>21</sup>Poincaré was a fiscal conservative, who advocated balanced budget policies and France's return to the gold standard (Sargent 1981).

<sup>22</sup>Germain-Martin (1936).

<sup>23</sup>It was also common to opportunistically classify loan receipts as revenues or to redefine the fiscal year. Similarly, the pension fund created in 1936 was an attempt to move pension liabilities off the government's balance sheet and to borrow without adding to headline public debt (Sauvy 1965).

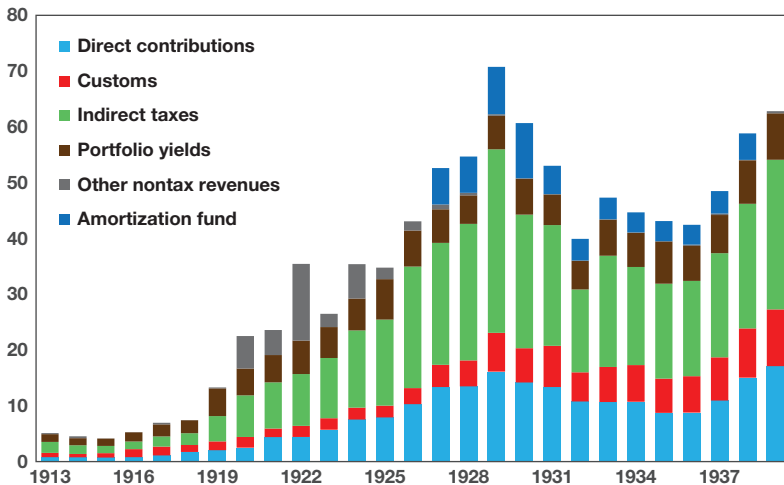
<sup>24</sup>In late 1931, new pension schemes were devised for combatants, family allowances were strengthened, and the social insurance system was reformed. All of these added to the budgetary pressures.

<sup>25</sup>See also Eichengreen (1990). In the aftermath of the war, a modest capital levy, designed as a tax on supernormal war profits, was introduced. This tax was accepted by French business because it produced sizeable revenue during 1919–21 but was expected to be transitory in nature.

As a result, governments found it easier to rely on one-off measures or excises on specific commodities (Figure 4.8). In the broader context of France's external imbalances, Keynes (1931) also underlined the decisive role that political conflict between French rentiers and taxpayers played: "The level of the franc is going to be settled in the long run, not by speculation or the balance of trade, or even the outcome of the Ruhr adventure, but by the proportion of his earned income which the French taxpayer will permit to be taken from him to pay the claims of the French rentier."

Ultimately, revenue mobilization proved to be an unreliable source of financing. When France emerged from WWI, it still relied on a tax system created during the French Revolution, one that was heavily tilted toward indirect taxes (Figure 4.8).<sup>26</sup> Reforms passed by successive governments during the interbellum sought to increase taxes, but uncertainty and legislative reversals undermined collections. For instance, a blueprint of general income tax, which the French Parliament had passed before the advent of WWI, was only implemented in 1920. Further, the rate schedule changed a dozen times over 20 years (Figure 4.9), generating considerable revenue uncertainty and undermining the general income tax reform. As part of Prime and Finance Minister Raymond Poincaré's stabilization efforts in 1926–28, some direct taxes were reduced, including the top income tax

**Figure 4.8. French Government Revenues, 1931–39**  
(in French Franc Billions)



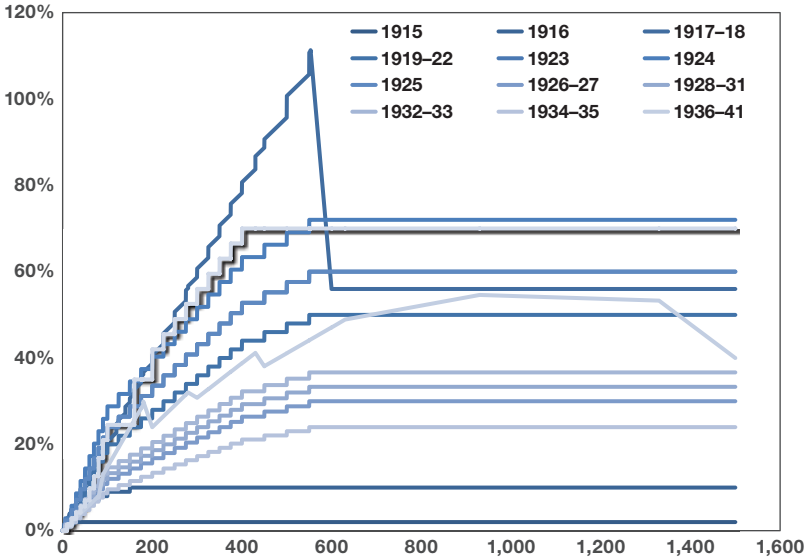
Sources: Sauvy (1965); Direction de la Statistique Générale (1946); author's calculations.

Note: The 1929 budget year was extended over 15 months, while the 1932 term was only 9 months long.

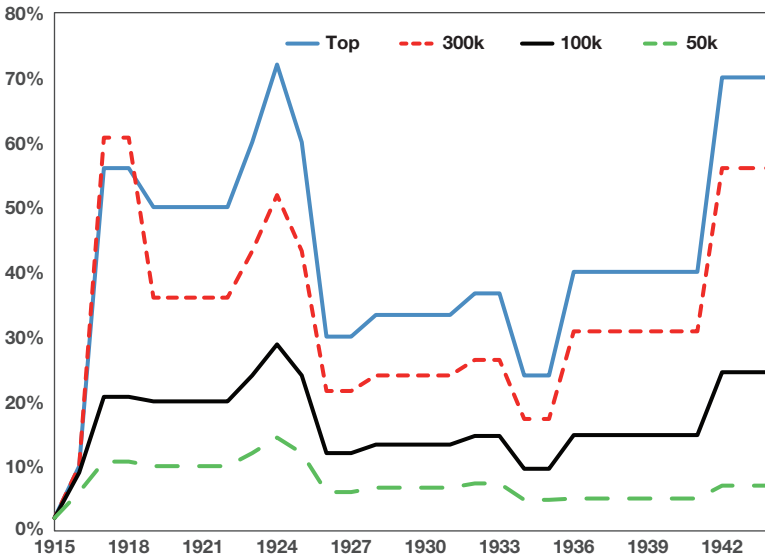
<sup>26</sup>Four direct taxes had been created in the 1790s: a business tax, land tax, movable property tax, and tax on doors and windows. Indirect taxes included customs tariffs, stamp duties, registration fees, and excises.

**Figure 4.9. Marginal Income Tax Rates**

1. Tax Brackets, Each Line Represents a Change in Income Tax Law (in percent; brackets in French Franc thousands on the horizontal abscissa)



2. Evolution for Selected Brackets

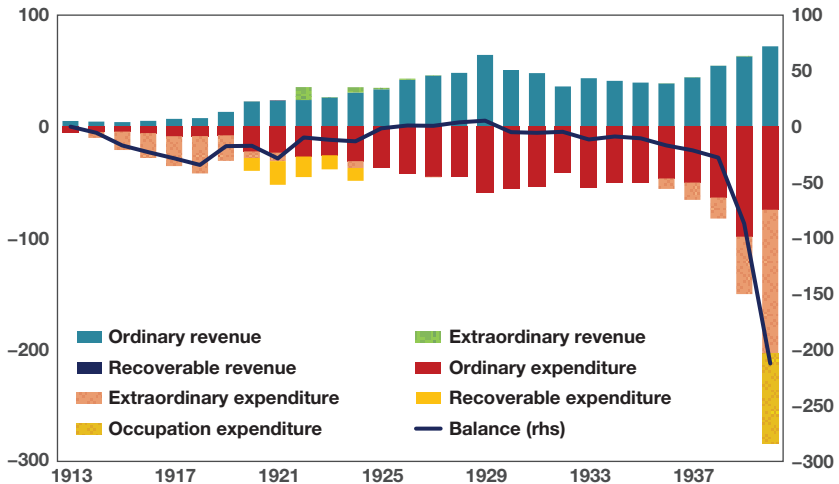


Sources: André and others (2016); author's calculations.

rate, making reforms more politically palatable to the wealthier class; indirect taxes were raised markedly to rein in budget deficits and stabilize the economy.<sup>27</sup>

Poincaré's "piggy bank" of budgetary surpluses was depleted after his resignation in 1929 amid mounting pressures for redistribution (Figure 4.10). By the early 1930s, tax rebates, social protection measures, and a national equipment plan drove up fiscal deficits. Some commentators exhorted the government to "bring the red-hot iron into the wound, which is the monstrous cost of a wasteful and rubber-stamping social legislation (. . .), to reduce its spending madness and not to raise taxes until the state has seriously reduced its living standard."<sup>28</sup> The issue was which line item in the budget to cut—in other words, whom to penalize in the "fiscal war of attrition."<sup>29</sup> The government imposed short-lived

**Figure 4.10. Budget Aggregates, 1913–40**  
(as Executed in French Franc Millions)



Sources: Statistical Yearbook (1946); Sauvy (1965); author's calculations.

Note: Positive bars represent revenues, and negative bars represent spending. The 1929 budget year covered 15 months, and 1932 covered only 9 months. Various sources present somewhat different numbers.

<sup>27</sup>See Prati (1991), Sargent (1981), and Alesina (1988), among others, for a discussion of the stabilization policy package passed by Poincaré.

<sup>28</sup>*Le Matin*, February 12, 1933: "Nous faisons appel à la sagesse et à l'énergie du Sénat pour qu'il porte le fer rouge dans la plaie, qui n'est autre que le coût monstrueux d'une législation sociale ruineuse et paperassière. Nous lui demandons de contraindre la démagogie étatiste, à réduire la folie dépensière et à ne pas accroître les impôts tant que l'État n'aura pas diminué sérieusement son niveau de vie."

<sup>29</sup>In Alesina's (1988) analytical framework, absent a stable political leadership, fiscal and debt outcomes boil down to a bargaining game among unions, businessmen, and rentiers.

austerity measures on captive transfer recipients, cutting public wages, pensions, and veteran allowances. The recipients of these measures, in turn, denounced politicians who, “capitulating to banks and economic congregations, do not hesitate to protect tax evaders and looters of savings.”<sup>30</sup>

Facing social unrest, successive governments eventually reversed or softened consolidation policies. The 1936–38 Popular Front government, led by Léon Blum, firmly anchored the budget balance in negative territory (see Annex 4.2 for a political chronology). As in the immediate aftermath of WWI and the run-up to the franc crisis in 1926, persistent government deficits in the late 1930s created pressures to monetize government debt.

## Fiscal Dominance

The central bank (Banque de France [BdF]) pursued the conflicting objectives of maintaining the value of the franc and providing active government support at various points during the interwar period. This conflict first came to a head as the country attempted to rejoin the gold standard in the mid-1920s. Despite a series of wars and sweeping institutional changes, the revolutionary germinal franc had been stable since 1803.<sup>31</sup> WWI had thrown the international monetary system into turmoil, and France was not alone in getting off the gold standard.

After the war, the BdF found it difficult to engineer sufficient deflation to bring the franc back to the prewar parity, in part because of the resistance of industrial lobbies.<sup>32</sup> Imported inflation and sluggish postwar domestic production spurred bouts of inflation, while political and social pressures made lowering wages difficult (Figure 4.11). More important, although operating within a peg required fiscal discipline, the BdF had to accommodate the government’s voracious financing needs.

In the 1920s, political debate crystalized around the amounts of notes in circulation, a monetary aggregate published monthly by the central bank that eventually came under significant public scrutiny. The practice was to grant the government outright advances or to contract repurchase agreements involving sovereign bonds, thereby increasing the size of the BdF balance sheet (Figure 4.12).<sup>33</sup> The counterpart on the liability side was growth in the money base (notes in circulation).

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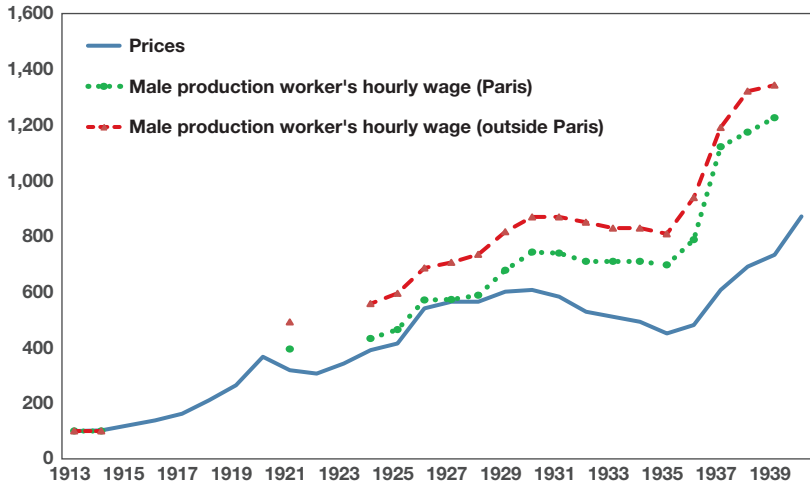
<sup>30</sup>Union speech, February 27, 1933: “capitulant devant les banques et les congrégations économique, n’hésitent pas à couvrir les fraudeurs de l’impôt et les pilleurs de l’épargne.”

<sup>31</sup>This germinal franc draws its name from the date its parity was enacted in the revolutionary calendar in 1803. Apart from short-lived episodes (1848 and 1970–71) where its convertibility was suspended, it kept the same content of gold.

<sup>32</sup>Einzig (1934).

<sup>33</sup>A convention between the Ministry of Finance and BdF was meant to limit these loans and ensure repayment, but the ceiling was regularly raised.

**Figure 4.11. Wages and Prices, 1913–40**  
(Index, 100 in 1913)



Sources: Mitchell (2003); Sauvy (1965); author's calculations.

By 1924, the partial relief from reparations provided to Germany under the Dawes Plan made it clear that German reparations would not be sufficient to redeem French government debt. The ensuing depreciation of the franc in the first half of 1924 and higher inflation translated into lowered appetite for government securities, as seen in sharply declining sovereign bond prices and rising effective interest rates in Figure 4.13. By mid-1924, the government had trouble rolling over its domestic debt, especially the National Defense bonds. With foreign financing dwindling, monetization of deficits intensified.

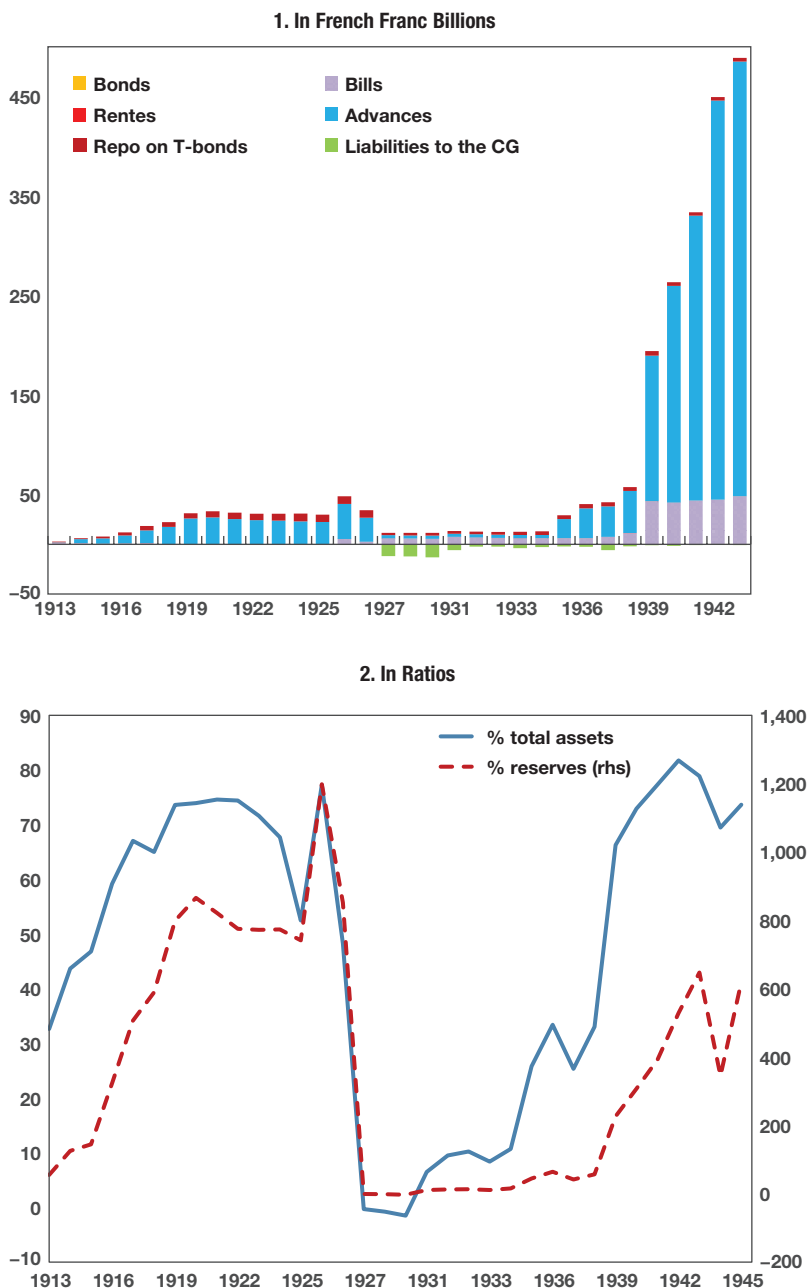
The liquidity crisis peaked in 1925. By late 1924, in the face of renewed speculative attacks on the franc, the BdF started falsifying its balance sheet (namely, the notes in circulation).<sup>34</sup> The franc eventually stabilized in 1926 as a result of Poincaré's policy mix: tight fiscal and monetary policies accompanied by a devaluation of the franc. The devalued franc supported the French balance of payments—both the trade balance and the financial account. France de jure rejoined the gold standard in early 1928. However, in contrast to its peers, France returned to gold at a sharply devalued parity—at one-fifth of its prewar value—which, according to some commentators, helped fuel economic expansion until late in the Great Depression (Figure 4.14).<sup>35</sup>

<sup>34</sup>See Blancheton (2012) for details.

<sup>35</sup>See Kindleberger (1973) for a compelling account of the Great Depression.

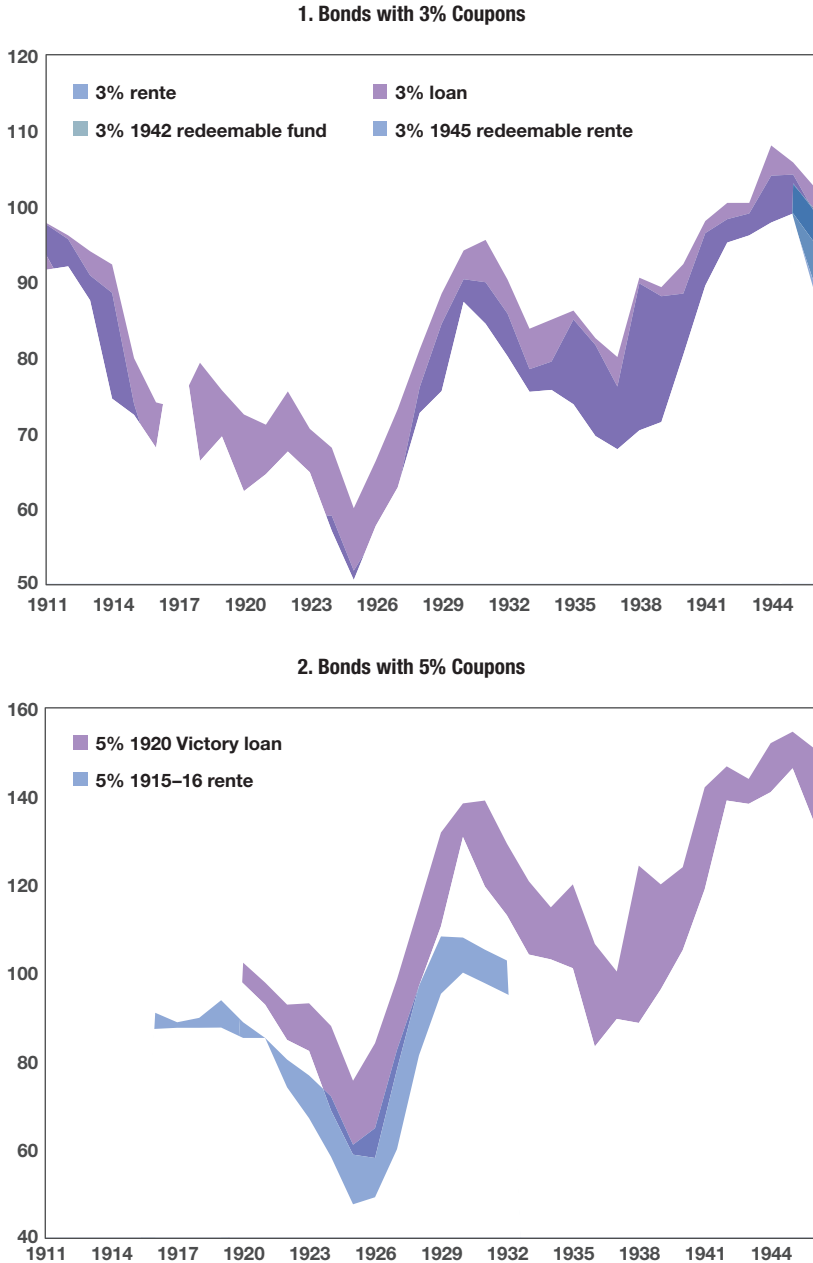


**Figure 4.12. Banque de France's Net Claims on the Government, 1913–45**



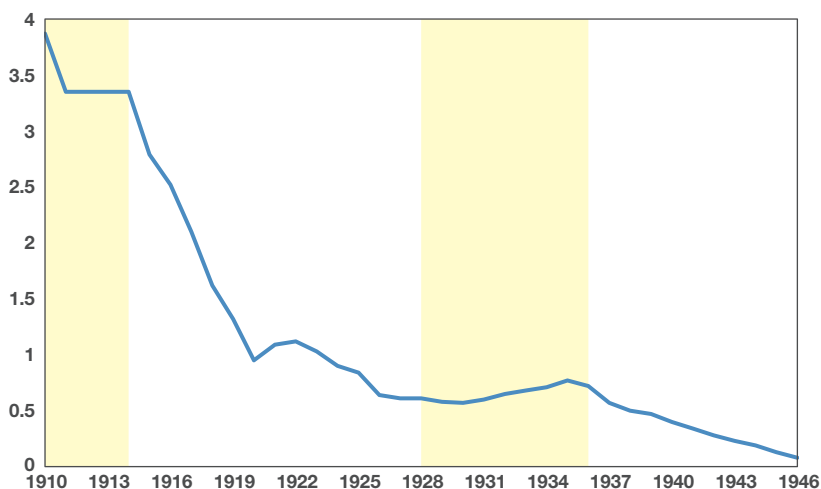
Sources: Interwar Debt Database; Baubeau (2015); author's calculations.  
 Note: CG = central government; rhs = right-hand side; T-bonds = Treasury bonds.

**Figure 4.13. Quotes of Flagship Sovereign Bonds in the Paris Stock Exchange, 1911–45 (Annual High-Low Ranges, in French Franc)**



Sources: Direction de la Statistique Générale (1946); author's computations.

Note: For each coupon rate, we gathered several instruments quoted at the Paris Stock Exchange for a face value of French Franc 100. The lower the quote, the higher the implicit yield-to-maturity.

**Figure 4.14. Purchasing Power of the Franc, 1910–46 (in 2015 Euros)**

Source: Insee website. The franc-euro converter is available at <http://www.insee.fr/fr/information/2417794>.

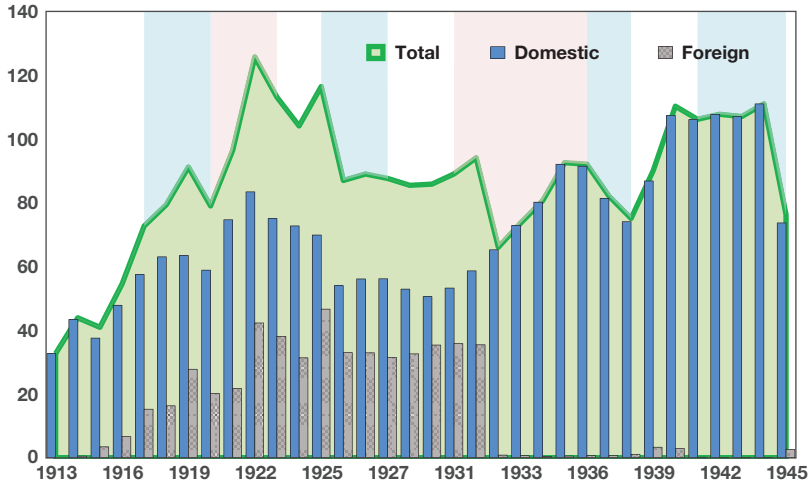
Note: Purchasing power of the franc in terms of 2015 euro, accounting for inflation. Shaded areas represent periods of adherence to the gold standard.

Fiscal profligacy in the 1930s was again at odds with the objectives of sustaining the value of the franc. Several episodes of financial stress in 1930–31 and 1934 and war preparations in the second half of the 1930s helped justify renewed BdF complacency (Figure 4.12).<sup>36</sup> Mainland and colonial central banks agreed on new financing through monetary advances in the 1930s, and high inflation increasingly became the norm. As in the earlier episode of monetization, sovereign bonds prices fell as investor appetite for government debt was reduced (Figure 4.13).

In sum, fiscal dominance contributed to reducing the real value of public debt (Figure 4.15). Seigniorage revenue flowed directly into the budget. For instance, in the 1930s, profits from devaluations were used to amortize debt, especially debt held by the BdF.<sup>37</sup> The policy rate was also chosen to lower sovereign yields. In other words, inflation and currency devaluation redistributed some of the public debt burden to domestic and foreign savers.

<sup>36</sup>Patat and Lutfalla (1986); Baubeau and others (2018).

<sup>37</sup>Assuming the central bank's balance sheet only contains foreign reserves  $e$ , government assets  $G$ , other assets  $A$ , and money  $M$  on the liability side, then a devaluation  $\varepsilon + 1 = \Delta e$  can be used to amortize  $\Delta G = -\varepsilon F$  of sovereign bonds or equivalently generate seigniorage revenue by increasing notes in circulation:  $S = \Delta M = \varepsilon F$ .

**Figure 4.15. Debt in Real Terms, 1913–45 (Index)**

Sources: Interwar Debt Database; Reinhart and Rogoff (2011); author's calculations.

Note: Shaded areas represent times of deflation (pink) and hyperinflation (blue); hyperinflation is defined as inflation exceeding 20 percent.

### A Tentative Bottom Line: Who Effectively Paid the Public Debt?

What factors helped bring down debt during the interwar period? As can be gleaned from the previous discussion, in the absence of German reparations, successive French governments adopted various approaches to bring down the country's large stock of public debt. Foreign debts were rolled over until the Great Depression and the advent of World War II diverted international attention. Governments also made short-lived attempts to implement restrictive budget policies and generate fiscal surpluses and used off-balance-sheet financing to obfuscate the true extent of debt. Finally, fiscal dominance was used as a means to inflate away debt.<sup>38</sup>

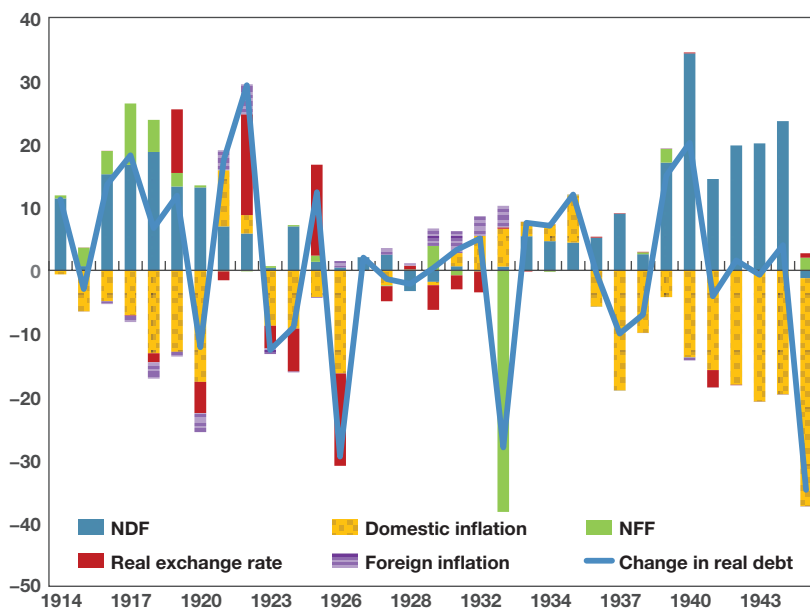
<sup>38</sup>The standard debt-to-GDP accumulation equation is:  $\Delta \left( \frac{D}{Y} \right)_t = \frac{r_t - g_t}{1 + g_t} \left( \frac{D}{Y} \right)_{t-1} + other_t$ .

The second term includes the primary deficit, valuation changes, and other stock-flow adjustments. The first term is the automatic response of the ratio to macroeconomic conditions (the nominal effective interest rate  $r$  and nominal growth  $g$ ). On average, in 1920–39, nominal growth was around 9 percent (mostly as a result of inflation), whereas effective nominal interest rates were kept at around 5 percent. This implies that, in the absence of further budgetary deficits, the debt ratio would have declined automatically by 5 percent of GDP per year.

Figure 4.16 quantifies the relative contribution of these factors in reducing the real (face) value of public debt. The green bars represent changes in foreign-held debt, with the large decline in 1932 representing the external debt write-off. The blue bars indicate net domestic financing. The two bars together represent the financing needs stemming from the budget deficit and stock-flow adjustments, demonstrating how little fiscal austerity was achieved in real terms over the interwar period. Most of the reductions in real debt can be attributed to franc devaluations and domestic inflation (the plain red and dotted yellow bars).

Figure 4.17 presents the decomposition of debt dynamics from the perspective of debt-creating flows. Large budget deficits, which mostly occurred in the wake of WWI and in the run-up to World War II, were systematically offset by inflationary pressures, highlighting the complicit role of the monetary authority in driving debt dynamics.

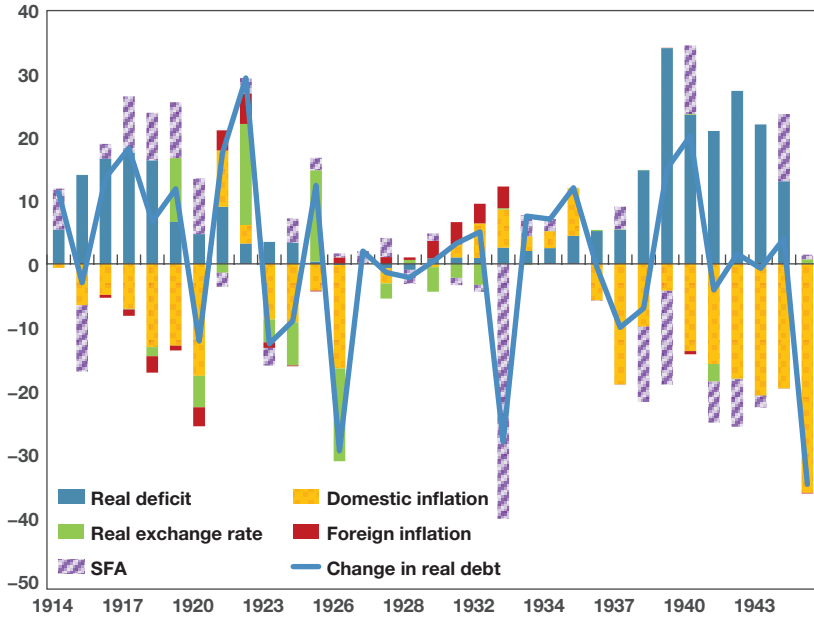
**Figure 4.16. Decomposition of Changes in Real Debt by Financing Sources, 1914–45 (Index)**



Sources: Interwar Debt Database; author's calculations.

Note: NDF/NFF = net domestic/foreign financing. See Annex 4.3 for methodological explanations.

**Figure 4.17. Decomposition of Changes in Real Debt by Financing Needs, 1914–45 (Index)**



Sources: Interwar Debt Database; author's calculations.

Note: SFA = stock-flow adjustments, a residual that accounts for off-budget debt-creating flows, changes in the government's financial assets (for example, deposits), and valuation effects. For instance, the 1932 write-off gives rise to a large negative SFA contribution. See Annex 4.3 for further methodological explanations.

## DEBT MANAGEMENT: THE WHAT, WHOM, AND HOW

How did successive French governments manage the country's large public debt? What type of borrowing instruments were issued during the interwar period? This section documents patterns of debt management observed in the interwar period.

Most of the economic literature considers debt management to be broadly irrelevant for the debt burden in real terms.<sup>39</sup> As summarized by Sargent (1993), this irrelevance no longer holds when taxes are accounted for and when the

<sup>39</sup>This is a consequence of term structure formulas à la Hicks (1939). The irrelevance of debt management also arises from Barro's (1974) Ricardian equivalence proposition, which postulates that it is irrelevant whether the government decides to finance itself using debt or taxes, or whether the government borrows using short-term or long-term debt. Theories of optimal debt management hinge on failures of one or more of the assumptions underpinning this proposition.

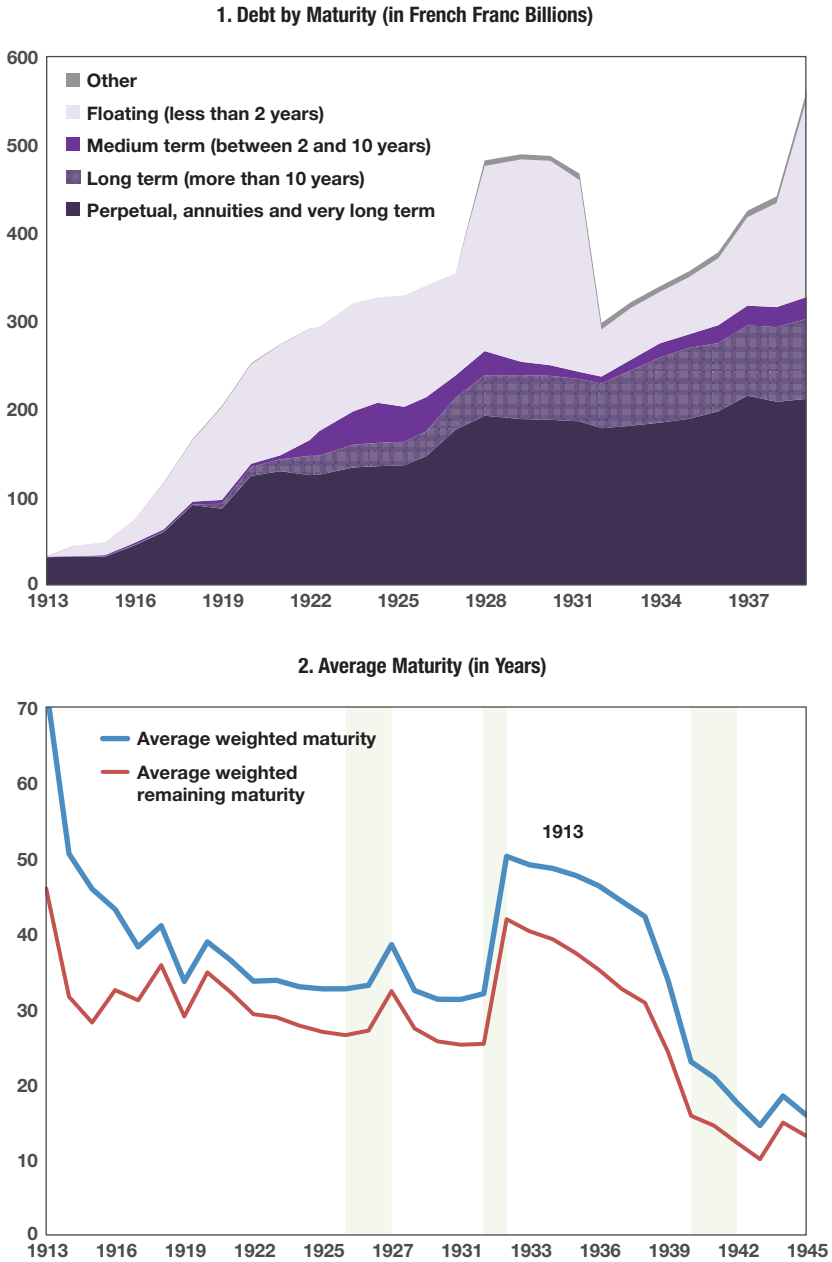
government operates under imperfect commitment, so that the risk premium increases with debt maturity. Debt also implicitly constrains the set of tax policy choices available to future governments. In other words, debt management matters when the government's credibility—about future taxes or future inflation—is in question or when taxes are distortionary. This was clearly the case in post-WWI France: public debt was surging, the tax rate schedule was changed frequently, financial markets were underdeveloped, and there was no clear price anchor to replace the abandoned gold standard. An examination of interwar debt instruments, however, suggests that French governments also resorted to various commitment devices to bolster the credibility of debt policies.

Standard theoretical models of optimal debt management imply that a government should issue more long-term bonds because these provide a form of “fiscal insurance.”<sup>40</sup> Debt management in France during the interwar period was at odds with this prescription. Throughout the interwar period, the government debt portfolio consisted of a significant (and stable) share of short-term debt (Figure 4.18), suggesting that the government issued both short- and long-term debt in response to a deficit shock. When in need, French governments would first rely on relatively short-term instruments (floating debt), suggesting that short-term debt also played an important role in reducing tax volatility in the face of fiscal shocks.<sup>41</sup> When more favorable conditions prevailed, the government would try to convert some of these bonds into longer-term obligations (funded debt). The average (weighted) maturity of debt outstanding broadly declined over time (Figure 4.18, panel 2), except in conversion episodes, as the government moved away from perpetual bonds (*rentes*) and increasingly issued short- and medium-term bonds. Moreover, as documented later, many bonds were held to maturity (for example, nominative bonds), suggesting that the government did not always buy back debt until it matured at its redemption date.

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<sup>40</sup>The recommendations from standard Ramsey models with effectively complete markets for optimal debt management typically suggest a very large issuance of long-term bonds, large negative positions on short-term bonds, and a negative correlation between short and long issuance (see Faraglia and others 2018; Bhandari and others 2017; and references therein). Long-term bonds provide fiscal insurance in the presence of persistent government spending shocks because the resulting fall in the market value of long-term debt implies that taxes must rise by less than otherwise. This prescription for holding long-term as opposed to short-term debt, however, fails when markets are incomplete or imperfect, or when governments do not necessarily buy back debt each period (thereby introducing an asymmetry between long- versus short-term bonds in terms of liquidity and interest rate risk).

<sup>41</sup>This conclusion is also consistent with the findings of Faraglia and others (2018) for US debt management over the period 1955–2015.

**Figure 4.18. Maturity of Public Debt, 1913–45**

Sources: Interwar Debt Database; author's calculations.

Note: In panel 1, "floating" includes advances and deposits; "other" includes uncategorized bonds. Shaded areas in panel 2 indicate debt conversion episodes.



Debt management also mattered from a political economy standpoint:

- Debt issued at different maturities and with varied design features can be used to attract different types of investors—a fact well exploited by French authorities in the interwar period. For instance, the composition of bondholders can influence bond pricing.<sup>42</sup> To the extent that debt management impacts the investor base, it also matters in terms of the effective interest rate.
- Holding foreign and domestic bonds implicitly implied a trade-off between inflation risk and default/devaluation risks, as well as a choice between relatively sophisticated foreign capital markets and captive, potentially less-informed domestic investors.<sup>43</sup>

The analysis of debt management practices, in turn, raises the question of why private agents would hold public debt, particularly in turbulent times. Economic theory usually posits sovereign bonds as riskless assets. During the interwar period, however, French governments were unevenly credible; investors were aware of default risks, even though the BdF arguably stood ready to provide government support.<sup>44</sup> In contrast to the debt management literature that focuses on the relative merits of long- versus short-term bonds, the French sovereign also offered a wide variety of instruments across different maturities with acceptable returns (Annex 4.1 details each of the bonds issued during the interwar period, their coupon rates, and outstanding amounts). Given that domestic capital markets were relatively undiversified at the time, the yields and segmentation of sovereign bonds likely offered sufficient inducement to private savers or financiers to hold government debt.

## Public Debt the Unconventional Way

Compared with today's practice of standardized, plain vanilla bonds, the French Treasury issued a wide variety of debt instruments in an attempt to attract savers and lower financing costs.<sup>45</sup> By 1938, the number of active public debt instruments was around 72 (Figure 4.19). By way of comparison, France's debt management office featured fewer than 10 different types of bonds on its website in early 2019.

*Rentes*, or perpetual bonds, were the main debt instrument in use before WWI. These represented around half of the total debt in the interwar period. Moreover, individual investors accounted for an important share of the bondholders (Figure 4.20), with all contracts registered in the *Grand Livre de la Dette* (literally, *Great Book of Debt*). Traditionally, Treasury bills were held by aristocrats and in bank vaults, whereas longer-term obligations were designed to attract savings. Treasury bills, nevertheless, became popular with the public after the introduction of National Defense bills to

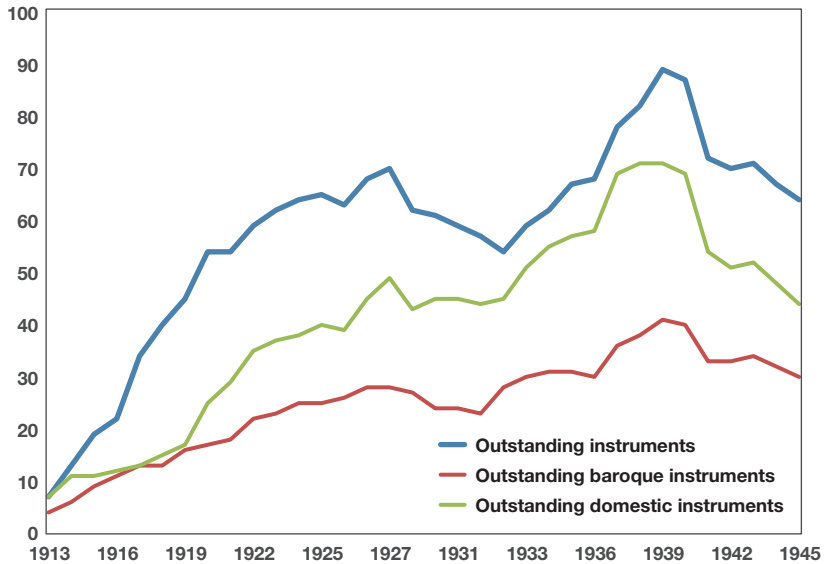
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<sup>42</sup>Andritzky (2012).

<sup>43</sup>Bassetto and Galli (2017).

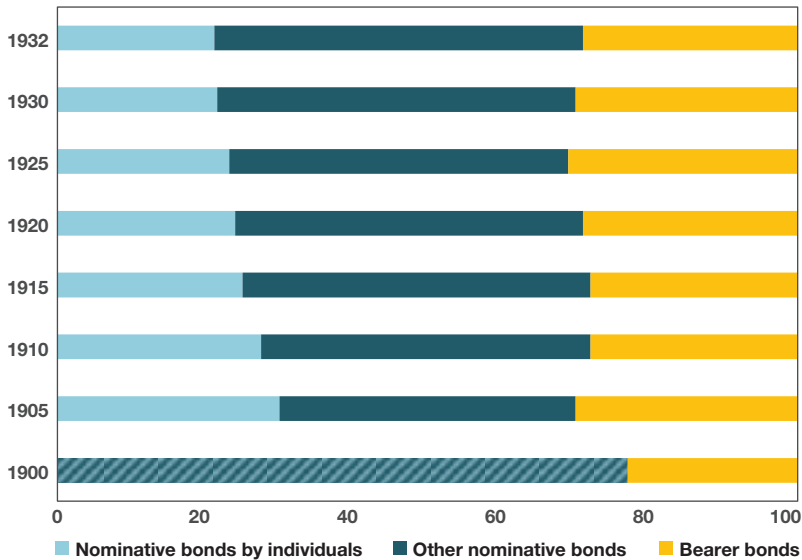
<sup>44</sup>A recent literature examines the interplay between default and debt management (Aguar and others 2019; Acharya and Rajan 2013).

<sup>45</sup>Because domestic capital was scarce and cross-border capital flows limited, the sensitivity of interest rates to the stock of debt was high, even for a large country like France (Teillard 1921).

**Figure 4.19. Number of Public Debt Instruments, 1913–45**

Sources: Interwar Debt Database.

Note: “Baroque” instruments are somewhat subjectively defined as instruments that do not seem standard. Typically, these include one-off financing instruments (e.g., for the reconstruction of cities after the war), bonds issued on behalf of the government by third parties, and lottery bonds.

**Figure 4.20. Marketability of the 3 Percent Rentes, 1900–32**

Sources: Internal Ministry of Finance memos found in the national archives.

Note: For 1900, the breakdown of nominative bonds is not available, hence the shaded bar.

finance and repay spending in WWI.<sup>46</sup> Such bonds were typically destined for conversion into longer-term bonds. The government made use of both marketable and nonmarketable debt (for example, most of the external loans from the US during WWI) during this period.

The methods used to sell domestic debt in France were similar to those in other countries at that time.<sup>47</sup> The Treasury and the central bank would organize auctions to place long-term debt, announce the rate to be paid, and hold the subscription open for a given period. In contrast, Treasury bills were continuously on sale (on *tap*) at predetermined rates of interest. In-kind payment was possible for both types of debt, namely, using older bonds to subscribe to new ones, sometimes at a discount. External debt, apart from intergovernmental debts and small bank credits, took the form of syndicated loans. Sovereign bond offerings were issued by a lead underwriter and a consortium of banks, in exchange for a substantial commission.

The marketing of public debt auctions was a crucial part of the debt management strategy. Most bonds had a moniker or nickname, related to specific events (“Liberation bonds”), purposes (“conversion bond”), or politicians (“Clémentel bonds”). Patriotic feelings were frequently appealed to and, at times, were central to government’s placements (Figure 4.21). Financing the government was often marketed as a nationwide effort “for the motherland.”<sup>48</sup>

**Figure 4.21. Propaganda for the National Defense Loans by the Lyon Credit**



Note: It reads: “Lyon Credit—Subscribe to the Fourth National Loan.”

<sup>46</sup>Teillard (1921); Fisk (1922).

<sup>47</sup>See Dornbusch and Draghi (1990) and references therein.

<sup>48</sup>For instance, in a speech on November 11, 1915, Finance Minister Ribot proclaimed: “May this army of French savings rise, like the one that is fighting; she is the army of France, or rather she is France herself. Let us salute, gentlemen, she is the one who will help us fight and conquer” (later reproduced on bond advertisement billboards). [“Que se lève cette armée de l’épargne française, comme celle qui se bat elle est l’armée de la France, ou plutôt elle est la France elle-même. Saluons-là, Messieurs, c’est elle qui nous aidera à combattre et à vaincre.”] (author’s translation).

More broadly, the French sovereign bonds were designed in an unconventional way by current standards. The bonds included a series of technical elements—embedded grace periods, premiums, call options, and lotteries. Cultural and historical factors likely influenced debt instrument choices. French savers were used to perpetuums and lottery bonds; secondary markets were still nascent. At the same time, the demand for bonds was multifaceted, typically involving many players, with different appetites for the diverse features of the bond. Consequently, the government offered a wild gamut of debt instruments.<sup>49</sup> Beyond coupon rates and maturities, bonds were differentiated along several dimensions:

- *Indexation.* After WWI, the French government rapidly abandoned the gold clause—the option for foreign bondholders to claim payment in gold equivalent. Bonds issued in the interwar period often involved a predetermined conversion rate or the choice of currency of redemption. Such features were meant to assist with trading the bonds abroad. Except for a few instances of indexation of Treasury bills to the BdF policy rate, there were no formal indexation mechanisms. Yet the terms offered during conversion episodes would typically account for the fact that some debt had been inflated away.
- *Redeemability and liquidity.* Some bonds were callable at the initiative of the holder, or redeemable by the government, according to a prespecified schedule and limits on amounts. Others were pure bullet bonds. Some instruments were marketable or endorsable; others were either nominative or continuously issued, and thus mandatorily held to maturity. A legacy of the first *rentes* in the 17th century, the option to end the contract was more often in the hands of the sovereign (the borrower) than the lender. Typically, there was a grace period after which bonds could start being redeemed. Redemption by the government often involved some sort of randomization or lottery. Liquidity was limited. Bonds were often nominative, which reduced their transferability to third parties, although some mechanisms for endorsing or selling them were provided.
- *Premia.* In most cases, the Treasury would deliberately set issuance below par and below market price to attract loyal investors. It would give away an especially generous premium for short-term securities (considered riskier) and subscriptions made by exchanging older debt bonds. It was also common practice to give away a redemption premium. Some bonds even included a lottery ticket, which could then be redeemed for a prize (with some probability).
- *Taxation.* Tax incentives were also common practice, although the income tax treatment of sovereign bonds (value gains, as well as interest received) varied over time. Although a blanket tax exemption had been in force since 1797, it was gradually eliminated after WWI.

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<sup>49</sup>Other factors that could have played a role include concerns about concentrating debt issuance at certain maturities because of liquidity or rollover risks. Debt management, therefore, plays an important role in leveling off promised repayment cash flows.

These peculiarities raise a fundamental question: What was the effective yield on a French sovereign bond? From the lender's perspective, pricing debt instruments and anticipating the amortization schedule was likely difficult. It was a probabilistic exercise and required knowledge of or assumptions about many parameters (Annex 4.4 provides a tentative pricing formula). Even from the debt manager's perspective, extracting the maturity structure of the portfolio was likely a challenge.

The explanatory statement of the 5 percent perpetual issued in 1915 is suggestive of the confusion surrounding the real effective rate and market clearing prices: “[5 percent] is the rate already admitted for Treasury operations and short-term National Defense bonds; the public's eagerness to subscribe to the Treasury's values has testified the appetite for this coupon rate. The issuance cannot be made at par while the actual bond placement rate is 5.5 percent, before factoring in the redemption premium; moreover, the margin between the issuance price and the par will give to these new securities capital gains prospects that are essentially favorable to State credit for future operations.”<sup>50</sup>

Even the Treasury was seemingly unable to get the mathematics right. As an example, when the government accepted 3 percent *rentes* as subscription to the new 5 percent “Victory” loan, this meant a loss of more than 100 basis points in terms of the effective rate.<sup>51</sup> As a result, market-derived interest rates were quite volatile and likely offered arbitrage opportunities between floating and fixed-rate instruments (Figure 4.22).

## Rule-Based Amortization Schemes

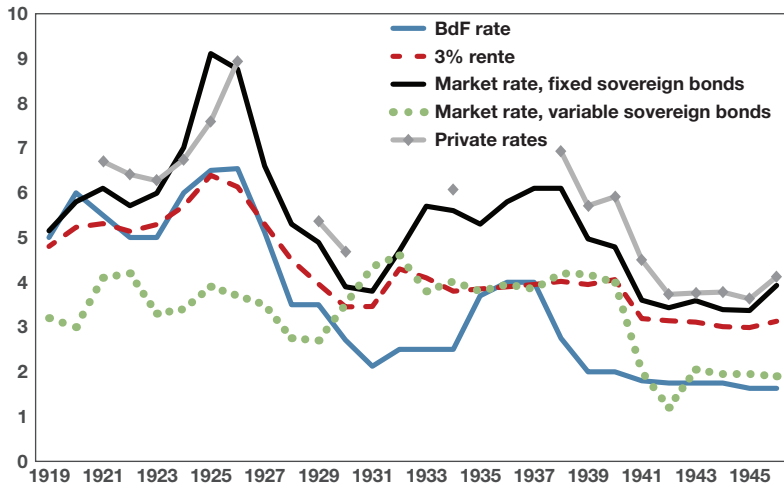
During the interwar period, several rule-based mechanisms were used to tie the hands of successive governments and provide credibility to debt policies. Adding a form of collateral (for example, an implicit claim on future taxes) to the debt contract helped raise investors' appetite and lower the risk premium. The most formalized commitment mechanisms were sinking funds.<sup>52</sup> Upon issuance, the government would commit to paying back the bonds by provisioning a share of the budget surplus or tax revenues to redeem the bonds in accordance with a preannounced schedule. Typically, a price ceiling was established below which the sinking funds were authorized to buy back the bonds. Approximately one-fifth of French public debt was guaranteed in this manner

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<sup>50</sup> “[5%] est le taux déjà admis pour les opérations de trésorerie et les emprunts à court terme faits au nom de la Défense nationale; le public a témoigné par l'empressement avec lequel il a souscrit aux valeurs du Trésor, de la faveur que ce taux rencontrait près de lui. L'émission ne saurait être faite au pair, alors que le taux réel de placement des obligations ressort à 5.5% sans compter la prime de remboursement et, d'autre part, la marge qui existera entre le prix d'émission et le pair donnera aux titres nouveaux des perspectives de plus-values essentiellement favorables au crédit de l'État en vue des opérations futures” (author's translation).

<sup>51</sup> Teillard (1921).

<sup>52</sup> The first occurrence of a sinking fund in history can be traced back to Italian city-states in the fourteenth century.

**Figure 4.22. Interest Rates, 1919–46 (Percent)**

Sources: Laufenburger (1947); Ministère des Finances (1946).

Note: BdF = Banque de France.

during the ministerial “waltz” of the 1920s, when 12 different finance ministers took office between 1924–26.

The same idea was behind the creation of the Caisse Autonome d’Amortissement (CAA) in 1926.<sup>53</sup> When Poincaré stepped in with his stabilization program in 1926, markets and investors needed a strong signal of the credibility of his macroeconomic policies. The CAA, a de jure independent institution, could issue guaranteed securities and received earmarked revenues as an implicit asset (essentially, receipts from the public tobacco and match monopolies and transfer taxes). In exchange, the CAA would hold a series of short-term bonds on its balance sheet, particularly the problematic short-term National Defense bonds. The CAA played an important role in lengthening average maturities and lowering interest costs.<sup>54</sup>

<sup>53</sup>Short for all successive official names of the institution: *Caisse autonome de gestion des bons de la défense nationale et d’amortissement de la dette publique* [Autonomous fund for the management of national defense bills and the amortization of public debt], then *Caisse autonome de gestion des bons de la défense nationale, d’exploitation industrielle des tabacs et allumettes et d’amortissement de la dette publique* [Autonomous fund for the management of national defense bonds, the exploitation of the tobacco and match industries and the amortization of public debt].

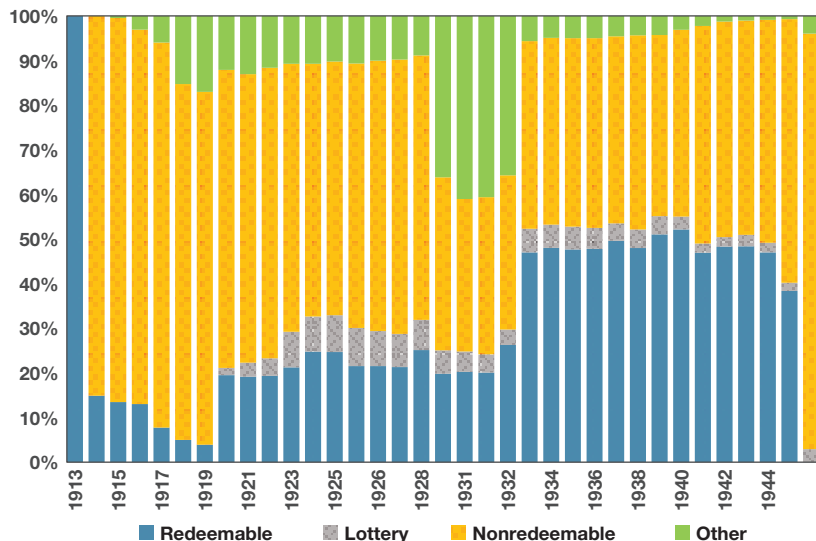
<sup>54</sup>With the creation of the CAA, the share of short-term debt fell and average maturity lengthened, at least temporarily. In addition, the central bank was concomitantly lowering its discount rate during the related conversion operations, so that the maturity-lengthening effort did not boost interest costs.

More generally, even without an explicit sinking fund, the government would commit, as part of a bond's design, to buy back (redeem) some of the principal regularly. Ceilings were typically imposed on how much the government could call back; floors were also set. These regular redemptions helped to level off the amortization schedule. The desire to lengthen debt maturity also underpinned the rationale for redemption funds. For investors to accept longer maturities, bonds should generally be redeemable at predetermined rates long before maturity and carry a higher return the longer investors hold them. The share of redeemable debt increased during the interwar period (Figure 4.23), but nonredeemable debt continued to be an important part of the government's debt portfolio.

### Conversions: Spring Cleaning of the Debt Portfolio

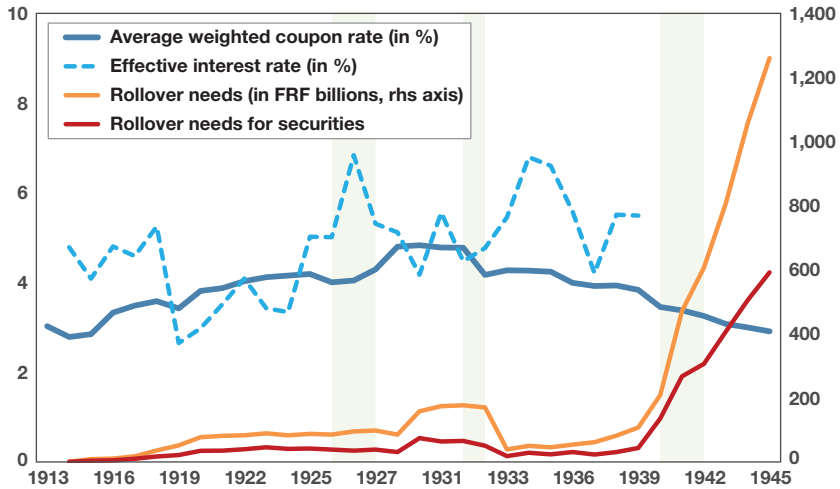
Debt management was not as active during the interwar period as today, given the relatively underdeveloped secondary markets. However, debt conversions were common when the share of short-term bonds was deemed too high or interest rates were considered to be favorable to retire bonds paying a high coupon and replace them with bonds paying a lower coupon (Figure 4.24). One or several long-term bonds would be issued to replace targeted older or shorter-term

**Figure 4.23. Public Debt by Redemption Mechanism, 1913–45**  
(Percentage Total Debt)



Sources: Interwar Debt Database.

Note: Redeemable debt are bonds that the government had the option to amortize earlier than the face maturity, which was usually permitted only after a contractual grace period. "Other" includes bonds for which no information is available.

**Figure 4.24. Liquidity Risk Indicators, 1913–45**

Sources: Interwar Debt Database; national sources; author's calculations.

Note: FRF = French francs; rhs = right-hand side. Rollover needs are computed as the outstanding amount of debt maturing in the current year; depending on whether central bank financing and other advances from public banks and allies are included (orange versus red lines), the magnitude is quite different. Effective interest rates are the ratio of interest paid to previous year debt. Shaded areas indicate conversion episodes.

securities. Preferential prices were generally set to incentivize subscription, especially subscription made with older securities.

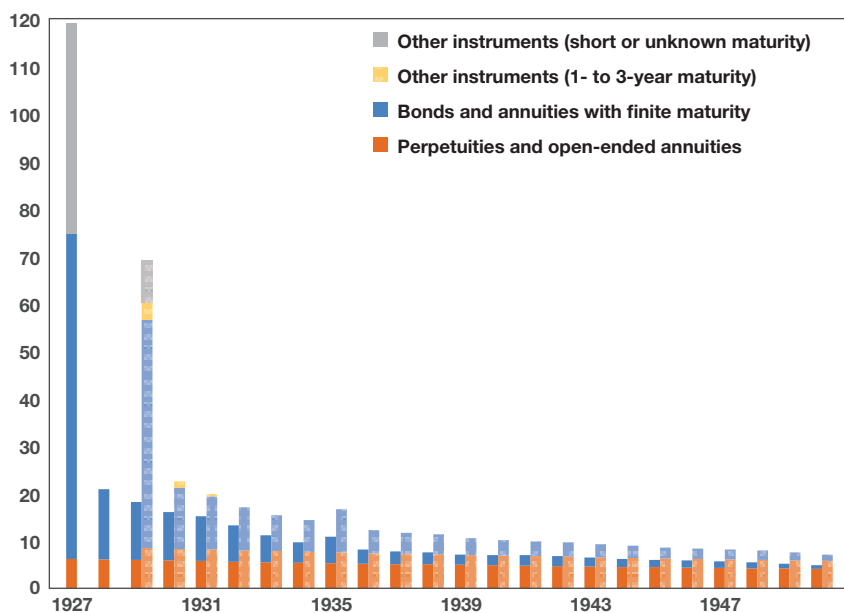
Several large conversions took place during the interwar period, especially under the mandate of the CAA. The largest conversions occurred during Poincaré's stabilization and in the early 1930s. In 1928–29, enabled by the creation of the CAA and a lull in bond market quotes, a large-scale conversion episode helped reshape the sovereign debt portfolio. This allowed for the retirement of several instruments, mostly short-term National Defense bonds and bills. As a result, the number of instruments available dropped.

The other large conversion took place in 1931, with the objective of replacing old perpetual bonds and alleviating the debt service burden. In 1931, prices were slightly above par, and the government could have accrued substantial savings had it decided on the conversion earlier. Instead, Parliamentarians hesitated out of concern for small bondholders, who had been hit hard by inflation. When the conversion finally took place in a less favorable interest rate environment, the government had to rely on public entities to intervene in bond markets and influence the interest rate. This resulted in an increased aversion for French *rentes* and stunted the development of the fixed-term Treasury bond market. Nevertheless, the objective of decreasing the debt service burden was achieved (Figure 4.25).

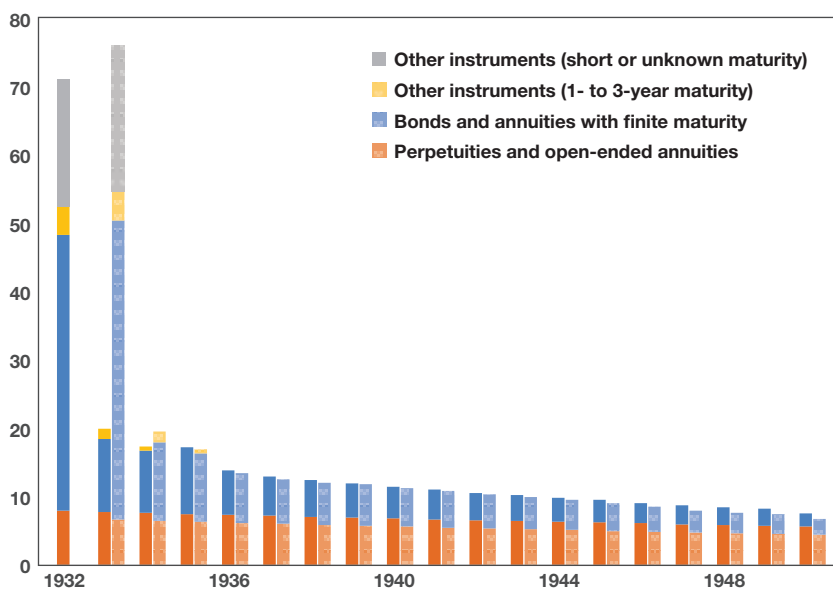


**Figure 4.25. Impact of Conversions on the Domestic Debt Service Profile (in French Franc Billions)**

**1. The Protracted Poincaré Conversion: 1927 versus 1929**



**2. The 1932 Conversion: 1932 versus 1933**



Sources: Interwar Debt Database; author's calculations.

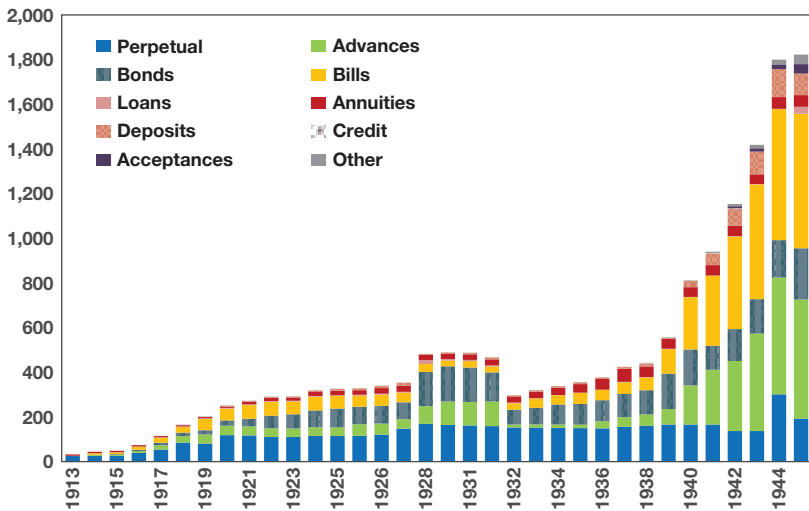
Note: Before and after conversions are represented by plain and dashed bars, respectively. See Annex 4.3 for methodological details.

## The Role of the Banking System and State-Owned Enterprises

Debt management relied on several players. Initially, the Treasury played the role of financial representative and accountant in charge of debt issuance and service. The Treasury also used its network of decentralized representatives, outside Paris and abroad, to provide short-term liquidity, showcase public debt, and receive sovereign bond subscriptions.

The BdF assumed several debt policy responsibilities. As discussed in previous sections, the traditional role of a central bank at the time was to provide deficit financing, both directly in the form of advances and indirectly through purchases of bonds and repurchase agreements (Figure 4.26). Notably, the bank engaged in repo transactions on short-term Treasury paper, which eased the government's financing constraint. The government also used the BdF as a broker: the bank would count on its regional and foreign branches to promote sovereign paper, granting advances to subscribers.<sup>55</sup> Other BdF actions included manipulation of

**Figure 4.26. Composition of Public Debt, 1913–45 (in French Franc Billions)**



Sources: Interwar Debt Database.

Note: This classification mimics that used by the official publications and does not match today's definitions. For instance, loans and bonds are both sovereign securities serving a coupon rate over a certain maturity. All debt data are presented as stocks at the end of the fiscal year; therefore, there are two data points for 1926 and 1932 and none for 1929.

<sup>55</sup>Not surprisingly, some of the 1917, 1918, and 1932 *rentes* were still held by British investors, even at the end of World War II (Ministry of Finance 1946).

security prices by intervening in the market or changing its discount rate, especially for conversions.<sup>56</sup>

Public banks served as guarantors and played a promotional role in debt placements. In addition, they were entrusted with the conduct of specific public policies. For example, the *Crédit National*, founded in 1919, oversaw war reconstruction, leveraging a guaranteed budgetary annuity. The *Crédit Foncier* helped develop subsidized mortgages and local real estate projects; the *Crédit Agricole* supported agriculture. The *Caisse des Dépôts et des Consignations* intervened in various sectors (for example, social housing) and played a key role in debt management.<sup>57</sup> The CAA also provided advances to the government when the latter committed to reduce its reliance on central bank money.

Financial flows between public banks and the government were intricate. While the government provided resources and net lending, public banks could borrow in the market with an implicit or explicit government guarantee. More generally, the banking system was a key source of government financing. At the same time, these banks invested their cash flow in Treasury bonds, suggesting that financial repression played a role in managing the debt burden.<sup>58</sup> Public banks and, more broadly, secondary banks also helped the government circumvent the legal ceilings imposed on direct credit by the BdF in the wake of Poincaré's stabilization. They would buy sovereign paper and immediately seek recourse to the BdF discount window—de facto adding to the sovereign bonds on the BdF balance sheet.

State-owned enterprises also served as active executors of government policies. For instance, the postal company (*Postes, Télégraphes et Téléphones [PTT]*) was part of the budget (a subsidiary budget since 1923) and borrowed the sovereign's signature to issue long-term securities.<sup>59</sup> Even after its conversion into a financially autonomous, self-governing administration in 1932, recourse to the Treasury continued. PTT or PTT-related bonds would show up regularly in public debt statements.<sup>60</sup> Government agencies and enterprises had to deposit their cash into the Treasury account (the so-called *correspondent accounts*, still in use today). The financial scheme was simple: PTT, for example, would issue bonds, deposit the proceeds at the Treasury, and let the government use the funds.

By the 1930s, the central bank, public entities, and commercial banks were increasingly forced through moral suasion to meet the government's financing needs. A finance minister admitted:

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<sup>56</sup>Blancheton (2001).

<sup>57</sup>For example, the *Caisse des Dépôts et des Consignations* agreed to buy large amounts of the 1926 conversion bonds, but it did so only because in return the CAA had pledged to buy them back immediately thereafter (de Toyot 1991).

<sup>58</sup>The concept of financial repression was introduced in the seminal papers by Shaw (1973) and McKinnon (1973). See also Reinhart (2012) for a more recent discussion of financial repression.

<sup>59</sup>LeRoux and Oger (1999).

<sup>60</sup>In the same vein, national railroad companies were a drain on public finances until their bail-out and nationalization in 1937. The government could also utilize public companies to borrow on its behalf, which was the case during WWII (Laufenburger 1947).

During the first months of 1935, we will abstain from long-term loans and resort to medium-term debt, by appealing to the Caisse des Dépôts et des Consignations, which can easily make the necessary effort. For the circulation of short-term securities, our banking system does not have the flexibility we see in London. The holder of these values must be henceforth assured of finding an organism that accepts and keeps them when necessary; this is what happened in the past for national defense bonds. So, we are planning a rediscount facility for treasury bills. The state has no intention of directly discounting its bonds at the Banque de France. On this point, the latter will retain all freedom; it will merely allow secondary, bond-holding banks, to overcome rough patches.<sup>61</sup>

Commentators at the time noted that “the Caisse des Dépôts et des Consignations is stuffed with government paper. The Banque de France is also beginning to be submerged. This is a very grave peril.”<sup>62</sup>

Overall, interwar governments (ab)used their influence over the network of public companies. Public banks and corporations were instrumental in canvassing investors, making the market for sovereign bonds, and smoothing out confidence shocks. In this respect, they contributed to the success of debt placements. The fragmentation of public debt management also likely contributed to deceiving market players about the true extent of public indebtedness, and consequently impacted the market pricing of sovereign risk.

## CONCLUSION

On the eve of WWII, the public debt-to-GDP ratio in France was close to its pre-WWI level of nearly 100 percent, after peaking at 250 percent in 1918. Yet France avoided defaulting and even sowed the seeds of a welfare state. Contemporary documents of the time suggest that default was never considered a viable option. France managed its staggeringly high level of public debt in the interwar period using all the tools at its disposal: (1) periods of economic growth (around +10 percent per year in 1919–39, in nominal terms) that stemmed in part from France’s return to gold at a sharply devalued parity in the late 1920s; (2) bouts of inflation that played a role in containing debt; (3) substantive,

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<sup>61</sup>Finance Minister Germain-Martin’s address to the Senate on January 29, 1935: “Pendant les premiers mois de 35, nous nous abstenons d’emprunts à long terme, nous recourons au crédit à moyen terme, en nous adressant à la Caisse des dépôts, qui peut faire facilement l’effort nécessaire. Pour la circulation des valeurs à court terme, notre système bancaire n’a pas la souplesse qu’on lui voit à Londres. Il faut que, désormais, le détenteur de ces valeurs soit assuré de trouver un organisme qui les reçoit et les conserve en cas de besoin: c’est ce qui se passait naguère pour les bons de la défense nationale. Aussi prévoyons-nous l’organisation d’un réescompte pour les bons du Trésor. L’État n’entend nullement faire escompter directement ses bons pour la Banque. Celle-ci conservera, sur ce point, toute sa liberté; il ne s’agira, pour elle, que de permettre aux banques secondaires, porteuses de bons, de passer des moments difficiles” (author’s translation).

<sup>62</sup>Gaston Jèze in the Financial Column of *The Journal of Science and Financial Legislation*, 1935: Q4. “la Caisse des dépôts et consignations est bourrée de papier d’État. La banque de France commence, elle aussi, à être submergée. Il y a là un péril très grave” (author’s translation).

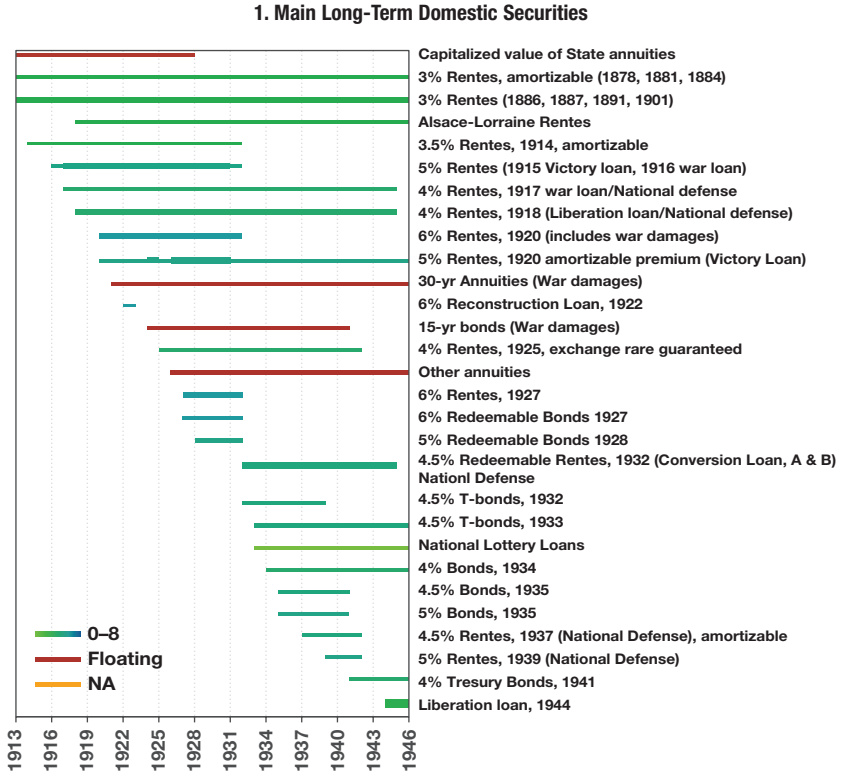
although short-lived fiscal austerity measures; (4) debt restructuring; and (5) financial repression. Each of these strategies had its own features and potential costs and was deployed amid significant political instability.

Because none of these tactics alone was sufficient to firmly put debt on a downward trajectory, the government also sought recourse to off-budget transactions and a range of debt management tactics. The latter included using credibility-enhancing redemption funds, market manipulation, and structuring and marketing of domestic bonds in a manner designed to both attract (and confuse) investors.

On the foreign debt front, the French government managed its liabilities by linking repayments to war reparations from Germany, alternating between pledging to the gold standard and fiscal discipline, and manipulating the exchange rate. In the end, the combination of policies proved sufficient to uphold investor confidence and appetite for government paper.

## ANNEX 4.1. ALL PUBLIC DEBT INSTRUMENTS (1913–45)

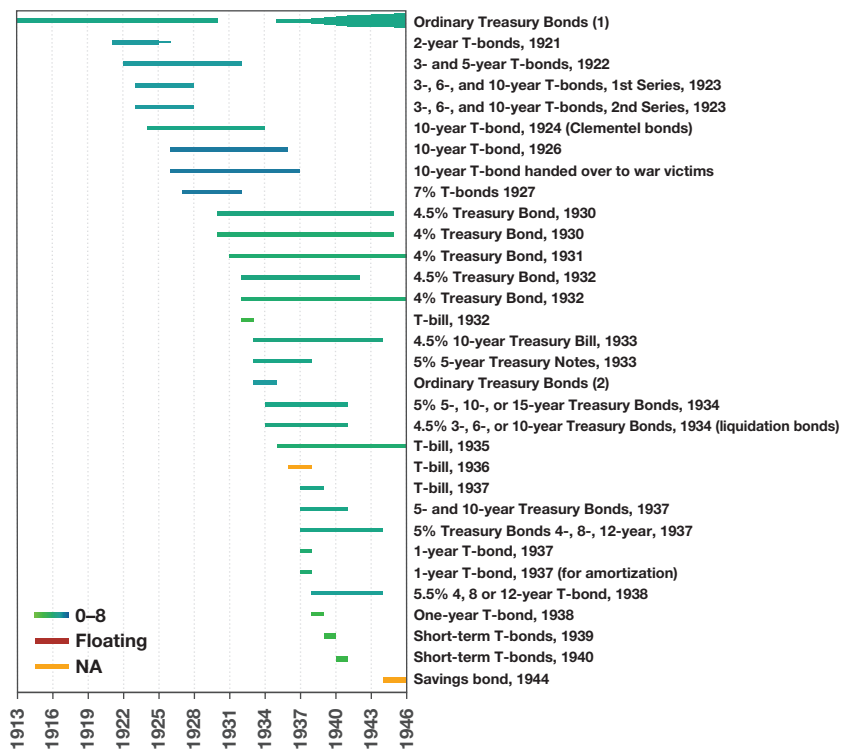
In the figures that follow, bars represent the life of the instrument (from issuance to full amortization), its color the coupon rate, and its width the outstanding amount (according to a square root scale that is the same for all charts).



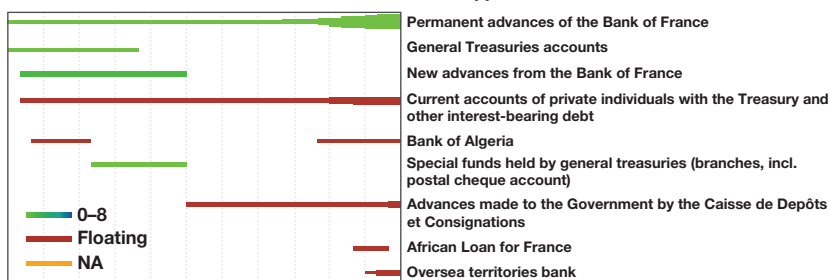
Source: Interwar Debt Database.

Note: T-bond = Treasury bond.

## 2. Treasury Securities



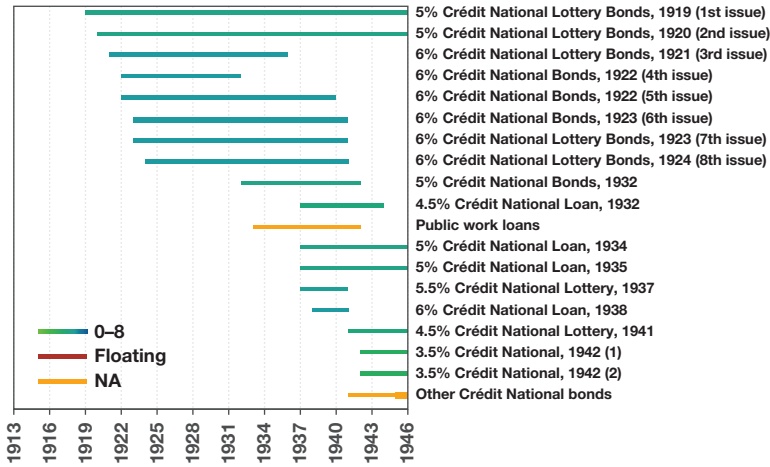
## 3. Central Bank Support



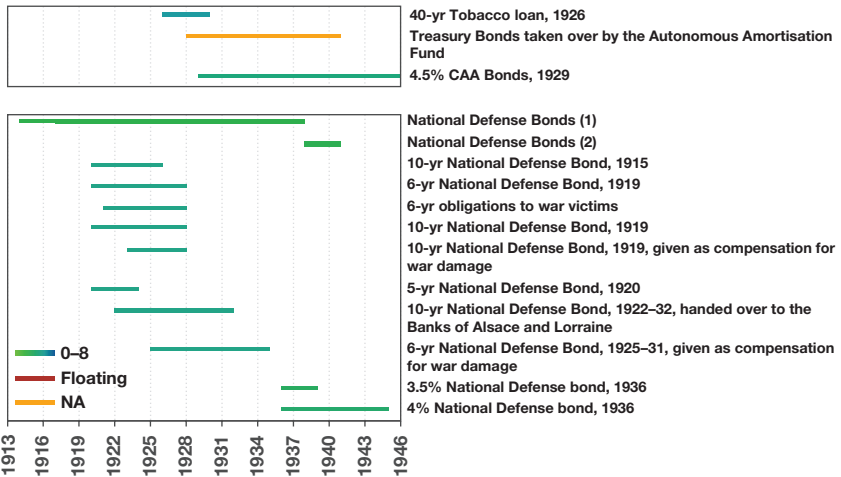
Source: Interwar Debt Database.

Note: T-bill = Treasury bill; T-bond = Treasury bond.

### 4. National Credit Bonds



### 5. CAA and National Defense

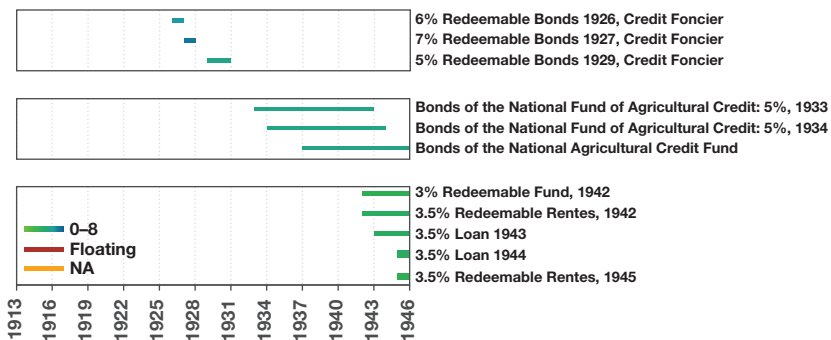


Source: Interwar Debt Database.

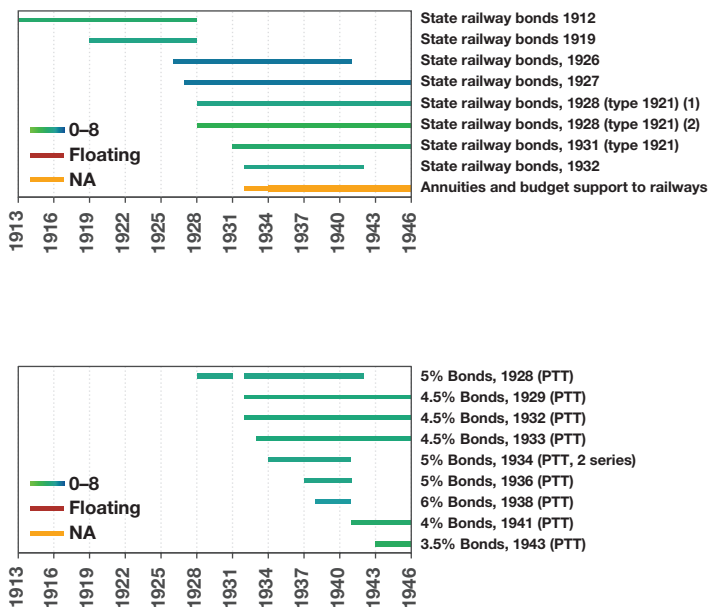
Note: CAA = Caisse Autonome d'Amortissement.



### 6. Mortgage Credit institution, Agricultural Credit, and Vichy Conversion Bonds



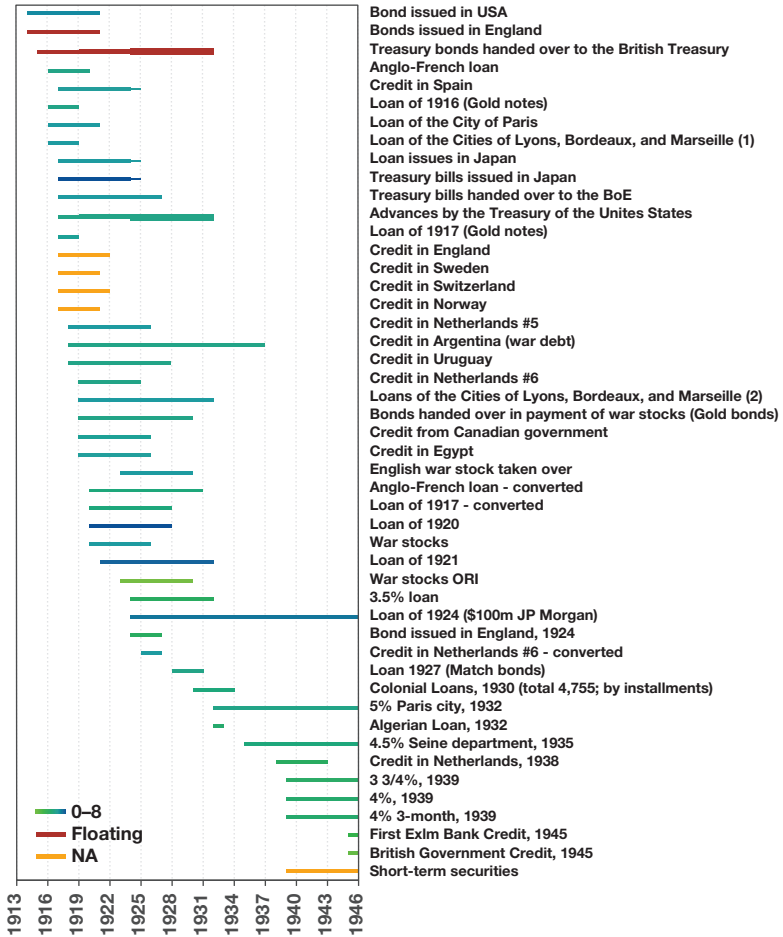
### 7. Railway and Post and Telegram Companies



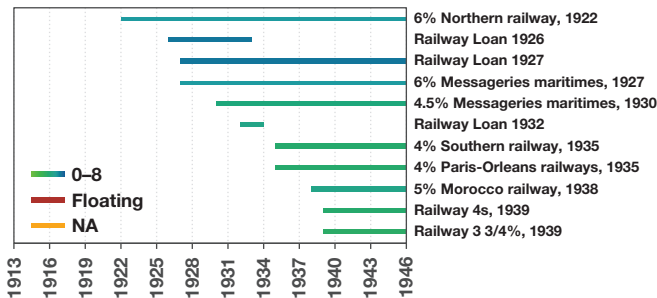
Source: Interwar Debt Database.

Note: PTT = Postes, Télégraphes et Téléphones.

### 8. Foreign Debt



### 9. Foreign Guaranteed Debt



Source: Interwar Debt Database.

Note: Bars represent the life of the instrument (from issuance to full amortization), its color the coupon rate, and its width the outstanding amount (according to a square root scale that is the same for all charts).

## Annex 4.2. Governments during the Interwar Period

Start	End	President	Coalition	Prime Minister	Minister of Finance	Banque de France Governor	
18 Feb. 13	18 Mar. 13	Raymond Poincaré		A. Briand	L.-L. Klotz	G. Pallain (24 Dec. 97)	
22 Mar. 13	2 Dec. 13			L. Barthou	C. Dumont		
9 Dec. 13	2 Jun. 14			G. Doumergue	J. Caillaux, R. Renoult		
9 Jun. 14	12 Jun. 14			A. Ribot	É. Clémentel		
13 Jun. 14	26 Aug. 14		Sacred Union		R. Viviani		J. Noulens
26 Aug. 14	29 Oct. 15				R. Viviani		A. Ribot
29 Oct. 15	12 Dec. 16				A. Briand		
12 Dec. 16	17 Mar. 17				A. Briand		
20 Mar. 17	7 Sep. 17				A. Ribot		J. Thierry
12 Sep. 17	13 Nov. 17			P. Painlevé	L.-L. Klotz		
16 Nov. 17	18 Jan. 20		National Bloc (center-right)		G. Clemenceau		
20 Jan. 20	18 Feb. 20				A. Millerand		F. François-Marsal
18 Feb. 20	23 Sep. 20				A. Millerand		
24 Sep. 20	12 Jan. 21		Paul Deschanel		G. Leygues		
16 Jan. 21	12 Jan. 22	Alexandre Millerand			A. Briand	P. Doumer	
15 Jan. 22	29 Mar. 24				R. Poincaré	C. de Lasteyrie	
29 Mar. 24	1 Jun. 24				R. Poincaré	F. François-Marsal	
8 Jun. 24	10 Jun. 24				F. François-Marchal	É. Clémentel	
14 Jun. 24	10 Apr. 25			Gaston Doumergue	Lefts Cartel	É. Herriot	A. de Monzie
17 Apr. 25	27 Oct. 25		P. Painlevé			J. Caillaux	
29 Oct. 25	22 Nov. 25	P. Painlevé	P. Painlevé				
28 Nov. 25	6 Mar. 26	A. Briand	L. Loucheur, P. Doumer				
9 Mar. 26	15 Jun. 26	A. Briand	R. Péret				
23 Jun. 26	17 Jul. 26	A. Briand	J. Caillaux				
19 Jul. 26	21 Jul. 26	É. Herriot	A. de Monzie		É. Moreau (26 Jun. 26)		
23 Jul. 26	6 Nov. 28	Center-Right	R. Poincaré			R. Poincaré	
18 Nov. 28	26 Jul. 29		R. Poincaré			H. Chéron	
29 Jul. 29	22 Oct. 29	Lefts Cartel	A. Briand				
3 Nov. 29	17 Feb. 30	DA	A. Tardieu				
21 Feb. 30	25 Feb. 30	Radical	C. Chautemps	C. Dumont (M. Palmade Min Budget)			

(Continued)

Start	End	President	Coalition	Prime Minister	Minister of Finance	Banque de France Governor
2 Mar. 30	4 Dec. 30	Paul Doumer	DA	A. Tardieu	P. Reynaud (L. Germain-Martin Min Budget)	C. Moret (25 Sep. 30)
13 Dec. 30	22 Jan. 31		Radical	T. Steeg	L. Germain-Martin (M. Palmade Min Budget)	
27 Jan. 31	13 Jun. 31		Independent	P. Laval	P. Flandin (François Piétri Min Budget)	
3 Jun. 32	14 Dec. 32		Lefts Cartel	É. Herriot	L. Germain-Martin (Maurice Palmade Min Budget)	
18 Dec. 32	28 Jan. 33		J. Paul-Boncour	H. Chéron		
31 Jan. 33	24 Oct. 33		É. Daladier	G. Bonnet (Lucien Lamoureux Min Budget)		
26 Oct. 33	24 Nov. 33		A. Sarraut			
26 Nov. 33	27 Jan. 34		C. Chautemps			
30 Jan. 34	7 Feb. 34		É. Daladier	F. Piétri (A. Gardey Min Budget)		
9 Feb. 34	8 Nov. 34		Radical	G. Doumergue	P. Marchandeu, L. Germain-Martin	
8 Nov. 34	31 May. 35	DA	P.-E. Flandin	L. Germain-Martin	J. Tannery (2 Jan. 35)	
1 Jun. 35	4 Jun. 35	Independent	F. Bouisson	J. Caillaux		
7 Jun. 35	22 Jan. 36	Independent	P. Laval	M. Régnier		
24 Jan. 36	4 Jun. 36	Radical	A. Sarraut			
4 Jun. 36	21 Jun. 37	Popular Front	L. Blum	V. Auriol	É. Labeyrie (6 Jun. 36)	
29 Jun. 37	14 Jan. 38	Radical	C. Chautemps	G. Bonnet	P. Fournier (20 Jul. 37)	
18 Jan. 38	10 Mar. 38	C. Chautemps	P. Marchandeu			
13 Mar. 38	8 Apr. 38	Popular Front	L. Blum	L. Blum		
12 Apr. 38	11 May 39	Radical	É. Daladier	P. Marchandeu, P. Reynaud		
11 May 39	14 Sep. 39	É. Daladier	P. Reynaud			
14 Sept. 9	20 Mar. 40	É. Daladier				
22 Mar. 40	16 Jun. 40	DA	P. Reynaud	L. Lamoureux		
16 Jun. 40	11 Jul. 40	French State	P. Pétain	Y. Bouthillier		
16 Jul. 40	13 Dec. 40	Philippe Pétain	P. Laval			Y. Bréart de Boisanger (31 Aug. 40)
14 Dec. 40	9 Feb. 41		P.-E. Flandin			
10 Feb. 41	18 Apr. 42		F. Darlan			
18 Apr. 42	19 Aug. 44		P. Laval	P. Cathala		

Note: DA = Democratic Alliance (center-right).

## ANNEX 4.3. MATHEMATICAL DERIVATIONS

### Debt Decomposition by Financing Sources (Figure 4.17)

The first way to examine changes in real debt—that is, debt deflated by a price index—is to look at how the changes were financed. This real value of debt can be decomposed as follows:

$$D_{\mathbb{R}} = \frac{D_d}{p} + \sum_{\substack{\text{creditor} \\ \text{country } c}} \frac{D_c}{p_c} \times \frac{e_{FRF/c}^{\mathbb{R}} p_c}{p}$$

with price indices  $p_c$  that grow at inflation rates  $\pi_c$  and the real exchange rates  $e_c^{\mathbb{R}} = e_{FRF/c}^{\mathbb{R}} \frac{p_c}{p}$ . Therefore, the evolution of debt can be broken down as:

$$\Delta D_{\mathbb{R}} = \left. \frac{\Delta D_d}{p} - \frac{\pi}{1+\pi} \frac{D_d}{p} \right|_{t-1} + \sum_{\substack{\text{creditor} \\ \text{country } c}} \frac{\Delta D_c}{p_c} e_c^{\mathbb{R}} + \left( \Delta e_c^{\mathbb{R}} - \frac{\pi_c}{1+\pi_c} e_c^{\mathbb{R}} \right) \frac{D_c}{p_c} \Bigg|_{t-1}$$

### Debt Decomposition by Financing Needs (Figure 4.18)

The second way to decompose the change in the real value of public debt is:

$$\Delta D_{\mathbb{R}} = \frac{G-R}{p} + SFA - \left. \frac{\pi}{1+\pi} \frac{D_d}{p} \right|_{t-1} + \sum_{\substack{\text{creditor} \\ \text{country } c}} \left( \Delta e_c^{\mathbb{R}} - \frac{\pi_c}{1+\pi_c} e_c^{\mathbb{R}} \right) \frac{D_c}{p_c} \Bigg|_{t-1}$$

where the  $p_c$  are price indices that grow at inflation rates  $\pi_c$ , the  $e_c^{\mathbb{R}} = e_{FRF/c}^{\mathbb{R}} \frac{p_c}{p}$  are the bilateral real exchange rates, and  $G-R$  stands for the budgetary deficit.  $SFA$  is a residual that accounts for real stock-flow adjustments. Typically, these adjustments will be related to off-budget debt-creating flows. They also include changes in the government's financial assets (for example, deposits) and in the value of financial liabilities.

### Guessing the Expected Amortization Schedule (Figure 4.25)

Because the characteristics of public debt bonds left ample discretion to the government in terms of redemption timing, Figure 4.25 shows the debt service profile  $(DS_{t+s})_{s \in \mathbb{N}^*}$  for each subsequent period that a passive debt manager could expect at the end of year  $t$ , under the following simplifying assumptions:

- Bonds with finite maturity date  $T$  and coupon rate  $i$ : we assume a constant redemption rate after the end of the grace period  $\gamma$ .

$DS_{t+s} = \frac{D_t}{T - \max(t, \gamma)} + \frac{iD_t(T - s - \max(t, \gamma))}{T - \max(t, \gamma)}$ . The two terms are, respectively, principal and interest payments.

- For annuities with finite maturity date  $T$ , the challenge is to infer the implicit actualization rate  $r$  that official statisticians used to present annuities as a net present value:  $\forall s, D_{t+s} = \sum_{\sigma \in \{t+s+1, \dots, T\}} \frac{A_\sigma + rD_{\sigma-1}}{(1+r)^{\sigma-t-s}}$ . Assuming these annuities were designed to provide a constant cash flow  $A_\sigma + rD_{\sigma-1} = CF$  (like a pension, but presented here as amortization plus interest payments) and are well behaved in the first two years, then  $r = \frac{\Delta^2 D_t}{\Delta D_t}$  and  $\forall s \geq 1, A_{t+s} + rD_{t+s-1} = \frac{D_t D_{t+2} - D_{t+1}^2}{\Delta D_t}$ . The breakdown between interest and principal follows by induction. Note that this method works only when  $\Delta D_t \Delta^2 D_t < 0$ ; otherwise we use the Banque de France interest rate.
- For perpetuities and other open-ended instruments, debt service comprises only interest:  $DS_{t+s} = iD_t$ .
- For instruments whose maturity is lower than a year, interest is assumed to have been prepaid (which was usually the case for Treasury bills), and debt service is the entire principal repayment:  $DS_{t+s} = D_t \delta_{s=1}$  (the Dirac  $\delta_X$  equals 1 if the condition  $X$  is verified, 0 otherwise).
- For rolling instruments whose maturity  $\tau > 1$  year, the exact maturity composition is unknown. A truncated exponential distribution is used for the share of these instruments maturing in periods  $t+s, \forall 0 < s \leq \tau$ . Hence, with the additional assumption that interest is prepaid:  $DS_{t+s} = D_t e^{-s} \left( \sum_{1 \leq \sigma \leq \tau} e^{-\sigma} \right)^{-1}$ .
- One percent of instruments (except foreign bonds or central bank advances) are assumed to be extinct every year (for example, death of bondholders), and 1 percent of callable bonds are expected to be called every year. In the same vein, one could also assume an average redemption rate; the choice here was made to represent a passive debt profile, with no further redemptions than strictly required, thereby omitting that some bonds were backed by automatic redemption rules.
- When no information is available regarding coupon rate, the Banque de France discount rates are used as a lower bound estimate.

Payments are also adjusted to account for the annual frequency of redemption and coupon payments.

## ANNEX 4.4. FINANCIAL ENGINEERING AND SOVEREIGN BOND PRICES

This annex presents the features generally encountered in the fauna of French debt instruments, as well as a framework to compute their effective interest rates.

The basic setup of a bond issued in  $t_0$  is a principal  $P$  to be paid at a maturity time  $t_0 < T \leq +\infty$  and coupons  $\frac{i_c P}{n_c}$  to be paid  $n_c$  times a year over  $t_c \leq t \leq T$ . The coupon rate  $i_c$  was generally chosen to match a short-term comparable market rate. In addition, some bonds had embedded options:

- **Premia:** In most cases, the Treasury would deliberately adjudicate below par, only cashing in the capital  $(1-\delta)P < P$ , with an even more favorable premium for investors subscribing by exchanging older debt bonds. It was also common practice to give away a redemption premium  $\alpha_{r,t}$ .
- **Redeemability and callability:** There usually were a grace period  $t_g - t_0$  and some randomization (or lottery) regarding which bonds would be redeemed first. That is, there was a series of probabilities for a bond to be drawn and redeemed at each period,  $\mathbb{P}_{r,t} \forall t_g \leq t \leq T$ . The convention that  $\mathbb{P}_{r,t} = 0 \forall t < t_g$  is used for simplicity. One can also assume  $\mathbb{P}_{r,t} = 0$  when  $t$  is larger than life expectancy. This is important for the formulas to work in the case of a perpetual bonds,  $T \rightarrow \infty$ .
- **Convertibility:** Some short-term instruments were ex ante designed to be eligible for the next conversion episode. An investor could therefore anticipate the likelihood  $\mathbb{P}_{c,t}$  of having the next conversion at time  $t$  with a premium  $\alpha_{c,t}$ .
- **Lottery:** Some bonds even included a lottery ticket and would then be redeemed with a prize  $\alpha_{\ell,t}P$  with probability  $\mathbb{P}_{\ell,t}$ .

Even more parameters needed to be accounted for. First, there was a timing issue. In general, the auction was open to bids for a few months, and the capital would be paid up only a few months after the end of the bid (say, at time  $t_p > t_0$ ). Further, coupon payments could be collected at predetermined dates only, but the number of days to compute accrued interest at the beginning or the end of the payment schedule was generally rounded up. Second, the net present value of the cash flows required assumptions on (the evolution of) the market discount rate  $r_t$ , which included inflation expectations, as well as the specific taxation regime to which the bond was subjected (some *ad valorem* tax  $\tau_p$  on principal and  $\tau_i$  on interests).

The net present value of such an instrument can be written as:

$$\begin{aligned} \frac{PV_{t_0}}{P} = & -\beta_{t_p} (1-\delta) + \sum_{t=t_0}^T \beta_t \mathbb{P}_t \left[ i_c (1-\tau_i) \right. \\ & \left. + \left( \mathbb{P}_{r,t} \alpha_{r,t} + \mathbb{P}_{c,t} \alpha_{c,t} + \mathbb{P}_{\ell,t} \alpha_{\ell,t} \right) (1-\tau_p) + \left( \mathbb{P}_{r,t} + \mathbb{P}_{c,t} + \mathbb{P}_{\ell,t} \right) \right] \end{aligned}$$

where  $\beta_t = \mathbb{E}_{t_0} \prod_{s=t_0}^t (1+r_s)^{-1}$  denotes the compounded expected discount factor and  $\mathbb{P}_t = \prod_{s=t_0}^{t-1} (1 - \mathbb{P}_{r,s} - \mathbb{P}_{c,s} - \mathbb{P}_{\ell,s})$  the probability that at time  $t$  the bond has been redeemed, converted, or drawn in a lottery. This formula stems from the promised cash flow approach that is traditional for debt bond pricing. Given the presence of embedded options, the only analytically sound way to price these sovereign bonds would be through replication and arbitrage, techniques that were invented for derivatives in the 1970s.

The effective yield-to-maturity of these bonds was, therefore, a function of a wide number of mostly unknown probabilities.

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## CHAPTER 5

# Conquering the Debt Mountain: Financial Repression and Italian Debt in the Interwar Period

MARINA MARINKOV

*American debt is a liability freely incurred by the Italian nation. It is, in other words, a debt of honor which we are bound to meet to the utmost limit of our capacity to pay.*  
Count Volpi (cited in *The Chronicle*, January 9, 1926)

*Under financial repression, banks are vehicles that allow governments to squeeze more indirect tax revenue from citizens by monopolizing the entire savings and payments system, not simply currency. Governments force local residents to save in banks by giving them few, if any, other options. They then stuff debt into the banks via reserve requirements and other devices. This allows the government to finance a part of its debt at a very low interest rate; financial repression thus constitutes a form of taxation.*

Reinhart and Rogoff (2009)

On August 18, 1926, amid speculative attacks on the currency, Benito Mussolini declared that the value of the lira was to be reset at 90 to the pound sterling (the so-called *quota novanta*). The average exchange rate of the Italian currency at that point stood at 148 with respect to the pound sterling. A few months earlier in November 1925, Italy's well-connected Finance Minister Giuseppe Volpi had concluded an extremely favorable war debt deal that opened the door to an inflow of new credit from American bankers.<sup>1</sup> A combination of policies was adopted in support of the officially announced parity—restrictions on the right to issue legal tender to the Bank of Italy (*Banca d'Italia*), tight monetary and fiscal policies, mandatory domestic debt consolidations, foreign exchange controls, and generalized wage and price cuts. This policy mix allowed

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<sup>1</sup>Volpi's success was noted in *Time Magazine* on November 23, 1925: "Joseph Caillaux thought he could settle the French debt to the U. S. in seven days. And he failed. Giuseppe Volpi spent twelve days with Mr. Mellon and his associates trying to settle Italy's debt to the U.S. And he succeeded."

Italy to weather the storm in foreign exchange markets and peg the lira to the pound close to the quota of 90 by the end of 1927.<sup>2</sup>

Italy emerged from World War I (WWI) with public debt that peaked around 180 percent of GDP in 1921.<sup>3</sup> In the years following the war, limited progress was achieved in tackling the country's debt burden and reducing recurrent primary deficits. Not surprisingly, the period was characterized by severe monetary and financial instability: between 1913 and 1921, the value of the lira in terms of the pound fell by some 270 percent due to large current account deficits and speculative capital movements. By 1921, Italy's external public debt—owed mostly to the UK and the US—was more than five times the country's annual export trade at the prevailing exchange rate.<sup>4</sup> The struggling liberal governments of the post-war period sought political and economic concessions from Washington, particularly on the issue of the settlement of war debts, but without success.

Against this backdrop, Mussolini's policy mix to defend the exchange rate "whatever the cost" was received favorably by the Bank of England and the Federal Reserve Bank of New York, as well as by the UK and US banking interests they represented. From the Italian government's perspective, dealing with the foreign component of its debt problem was part of a broader strategy to stabilize the country's beleaguered economy and ensure continued access to international capital markets. Paying down foreign debt was also inextricably linked to the war reparations owed to the US and the UK (see Chapters 1 and 2).

On the domestic front, reducing the burden of servicing the large amounts of debt held by the public and banks was a priority. Lengthening the maturity structure of government debt and altering its composition were initially carried out through voluntary conversions—transformation of short-term debt due for maturity into long-term debt—in the 1920s. Given the limited success of voluntary conversions, however, Italy ultimately resorted to the use of various mandatory conversions (*conversiones forzosas*), most notably, the Littorio loans. These forced conversions represented partial defaults and lowered investor appetite for government debt.

By the early 1930s, the Great Depression and international economic sanctions imposed following Italy's invasion of Ethiopia led to a rise in protectionism and a move toward autarky. In an environment of weak tax capacity, credit requirements for the development of industrial activity and financing war efforts were increasingly met by financial repression—the government required banks and other financial institutions to hold more government bonds than they would absent such policies (see also Chapter 4 on France). This "hidden" financing helped direct savings at low cost to the government. In other words, public finance considerations played a key role in driving financial repression in Italy.<sup>5</sup>

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<sup>2</sup>Tooze (2014).

<sup>3</sup>Using Bank of Italy's estimates of GDP (see Baffigi 2011).

<sup>4</sup>Galassi and Harrison (2005).

<sup>5</sup>See Chari, Dovis, and Kehoe (2018) for a theoretical framework that shows the conditions under which financial repression policies may be optimal. This is discussed later in the chapter.

This chapter documents the evolution of domestic and foreign debt in the context of Italy's political economy. It starts by detailing the mountain of debt that Italy faced coming out of the WWI and the policy mix adopted by the government to reduce (repress) the debt burden. The chapter concludes that the significant level of debt Italy inherited after WWI could only be reduced through restructuring, financial repression, and formal repudiation, despite fiscal surpluses that existed for the better part of the interwar period. However, this debt reduction strategy came at the expense of significant reputational and crowding-out costs.

## **ECONOMIC AND POLITICAL CONTEXT BEFORE AND DURING THE FIRST WORLD WAR**

In the years leading up to WWI, Italy was emerging from a period characterized by significant political agitation and external wars. It was still a relatively young nation and in the initial stages of industrialization, having achieved full integration only half a century earlier. The government played a significant role in the economic development process through its state interventionist program. As a result, public administration expanded and expenditure grew, both at the local and central government levels, particularly budgetary spending related to education, state welfare, military operations, and infrastructure (in particular, the railways).<sup>6</sup> At the turn of 20th century, Italy's central government expenditure, relative to the size of its economy, was higher than that of France, the UK, and the US (Figure 5.1).

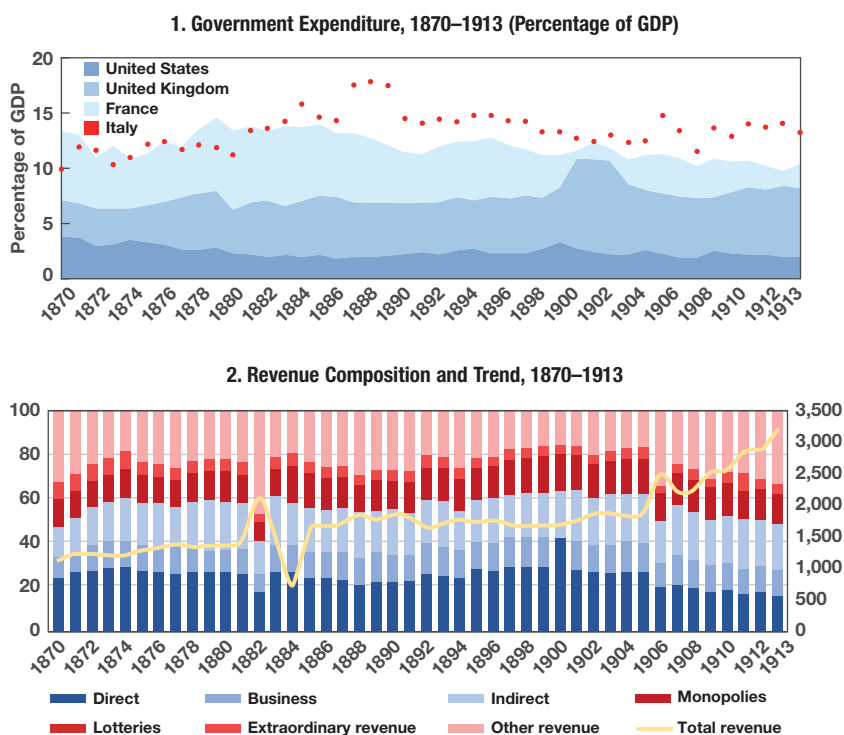
At the Treaty of London in 1915, Italy signed an agreement with the Allied Powers (France, Russia, and the UK), although it was still technically aligned with the Central Powers (Austria-Hungary and Germany). Negotiations with Austria-Hungary and Germany did not progress in a manner satisfactory to Italy, which ultimately led to Italy's decision to declare war on Austria-Hungary in 1915.

Despite Italy's late entry into the war, the total cost of its involvement was significant. Among the Allied and Associated Powers, Italy ranked fifth in terms of the total cost incurred during the war, ahead of Japan and behind France, Russia, the UK, and the US (Fisk 1924). The imposition of high taxes enabled Italy to finance some 16 percent of war costs through tax revenue. In contrast, less than 2 percent of these costs were covered by taxes in France and Germany, suggesting that these countries were in a better position to engage in tax smoothing.<sup>7</sup>

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<sup>6</sup>Schram (1997) notes that the Italian government's intervention in railways during 1861–1913 was larger than that in the UK or the US.

<sup>7</sup>Forsyth (1993).

**Figure 5.1. Italy's Public Finances before the First World War**

Note: Revenue composition is expressed as percent of total revenue; total revenue is expressed in millions of lira (right-hand side axis).

Sources: Mauro and others (2013); national sources; author's calculations.

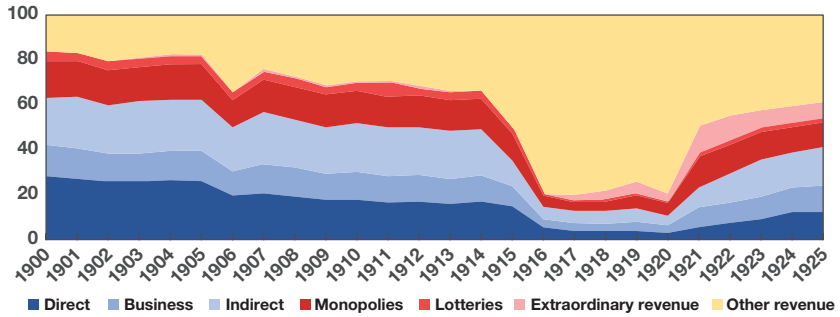
The Italian tax system was not designed to cope with the heavy wartime expenditures. Prior to WWI, taxes on consumption generated more than 60 percent of tax revenue.<sup>8</sup> During the war, the tax on land increased from 9 to 14 percent, and the tax on buildings increased from 16 to 22 percent. In addition, new taxes were established, including taxes on mobile wealth, luxury products, and supplementary income. These hikes led to a sharp increase in the contribution of nontraditional revenue sources to total revenue (Figure 5.2).<sup>9</sup>

Because banks were mandated to make advances to the government, war efforts were also initially financed by turning to the Bank of Italy for financial assistance and, to a lesser extent, to the Banks of Naples and Sicily.<sup>10</sup> Ultimately,

<sup>8</sup>See Clough (1964) and Forsyth (1993) for details.

<sup>9</sup>Surplus earnings from corporations were taxed unless they were used for plant expansion or reinvested in state bonds from 1916. War profit taxes could reach 100 percent; in some cases, inheritance taxes exceeded 100 percent. A capital gains tax introduced in 1919 could amount to 50 percent of an individual's wealth.

<sup>10</sup>Italy did not develop a single monetary authority until 1926. Up to that time, these three banks were legally permitted to issue notes and hold gold reserves. See Spinelli and Fratianni (1991).

**Figure 5.2. The Composition of Revenue (Percentage of Total)**

Sources: National sources; author's calculations.

the government had to issue national loans, which increased public debt. Given that state advances were met by the growing issuance of bank notes, Italy faced higher inflation, capital flight, and sharp depreciation of the currency in the aftermath of the war. The depreciation of the lira was particularly costly for economic activity, given the need to import raw materials and foodstuffs and the weaknesses in the country's industrial and financial structures. Furthermore, like other nations during this period, the country faced high unemployment rates. These factors were compounded by the inability of the parties represented in parliament to form stable coalitions after 1919, leaving postwar Italy in the throes of socioeconomic and political turmoil (Figure 5.3).<sup>11</sup>

As in many other countries at the time, Italy grappled with the politically charged questions of whether to return to the gold standard and, if so, at what parity. Prior to WWI, Italy adhered to the standard only intermittently. It became evident, however, that the country would face severe economic strain by returning to the prewar parity, and the rigid proposals by the UK and the US for an immediate return to the gold standard were rejected. Arthur Cecil Pigou, a representative for the UK at the First International Financial Conference in Brussels in 1920, observed<sup>12</sup>:

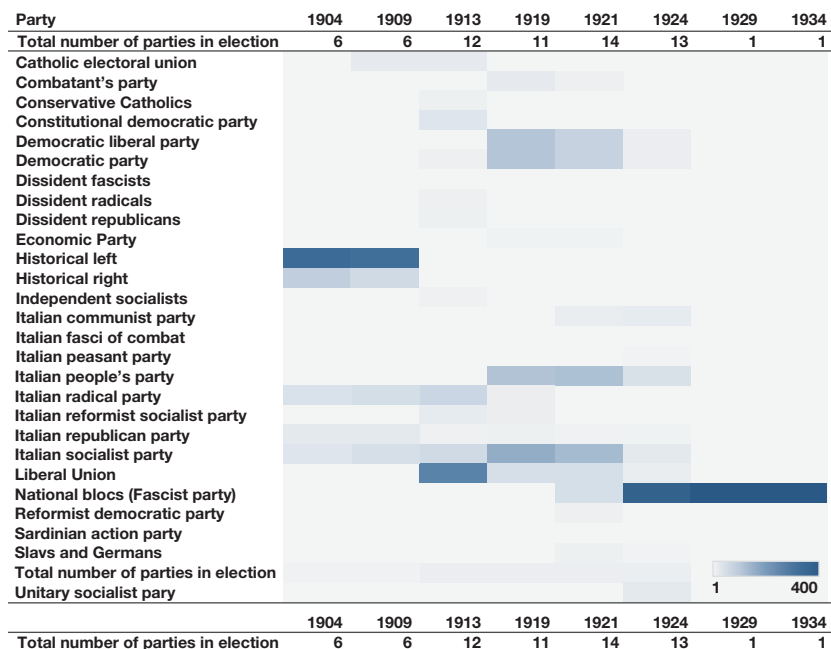
[F]or the United Kingdom, where the gold exchange is only depreciated some 20 percent, the balance of argument is clearly in favour of a return to pre-war parity; for Austria and probably Germany it points to a substantially lower parity; for Italy and France the issue is less clear, but there can be no doubt that, if a return to pre-war parity is aimed at, the strain will be exceedingly severe, and the process of return must be slow.

<sup>11</sup>There is a large literature that shows that presence of political uncertainty leads policymakers to be shortsighted and to thus choose inefficient policies that lead to production distortions. See, for example, Persson and Svensson (1989) and Alesina and Tabellini (1990).

<sup>12</sup>Davis (1920, 353).



**Figure 5.3. Results of Italian Elections, 1904–34**



Source: National sources.

Another impending challenge was the issue of war debt owed to the UK and the US; references to it can be found as early as 1918<sup>13</sup>:

It is scarcely necessary to emphasize that credits obtained abroad produce corresponding improvements of the Treasury cash holdings and therefore limit the necessity of expanding the note in circulation. However, it would be inconsiderate to forget that such indebtedness, contracted outside Italy, will have to be met some day, both for interest and for principal, thus requiring a continuous effort of our economic power. Such indebtedness may become a concealed menace for a long time to come, after the Peace, for the exchange of our currency and for the monetary relations of Italy with the outside world, unless adequate provisions are made in due course.

In the first years of the interwar period, the Italian authorities' focus thus turned to issues of debt management and the exchange rate. These two constituted the main pillars of the economic stabilization in the 1920s.

<sup>13</sup>Bank of Italy (1923, 12).

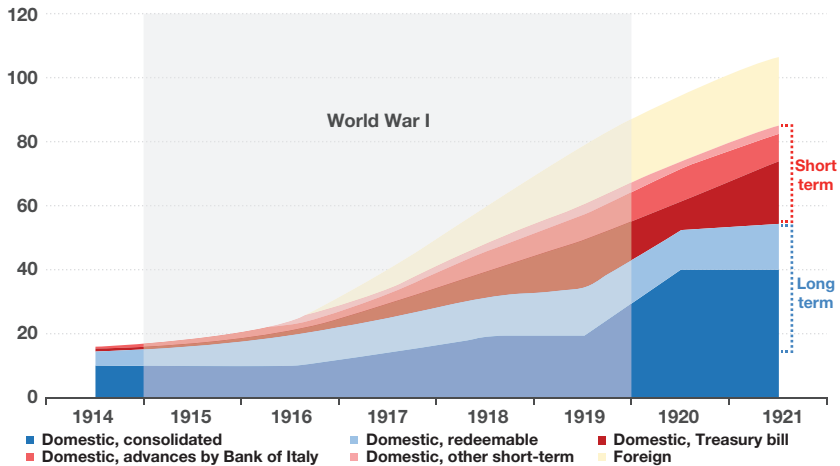
## ITALY'S PUBLIC DEBT MOUNTAIN

### National Loans and Bank of Italy

Before WWI, public debt in Italy was low; over 95 percent of the total stock consisted of long-term debt (Figure 5.4). During the war and immediately after, Italy's debt more than quadrupled, primarily due to the issuance of six national loans from 1914–20. The last three loans were issued as perpetual bonds; the first three were longer-term bonds redeemable over a period of 10–25 years (Table 5.1)<sup>14</sup>. Less than 15 percent of the subscriptions were outside of Italy and its colonies. The rising difficulties encountered in placing securities are clear from the fact that the issue prices of the debt instruments decreased from 97 in December 1914 to 87.5 in November 1919 (Table 5.1)<sup>15</sup>.

The First National Loan was issued for tax-smoothing purposes to cover the widening deficit arising from extraordinary expenditure and weak revenues during fiscal year 1914–15.<sup>16</sup> The government's goal was to raise one billion lira; however, when the market failed to take up the entire issue, the Bank of Italy purchased the remainder.<sup>17</sup> The loan was exempt from taxation to encourage subscription. It was also nonconvertible and irredeemable for the first 10 years, thereby containing the risk of early repayment for the government.

**Figure 5.4. The Composition of Italy's Public Debt, 1914–21 (Billions of Lira)**



Source: Interwar Debt Database.

<sup>14</sup>The maturity of these loans was not fixed, and they formed part of long-term, consolidated debt (see Figure 5.4).

<sup>15</sup>See Bartoletto, Chiarini, and Marzano (2011).

<sup>16</sup>Legge del 16 Maggio Dicembre 1914, n. 1354.

<sup>17</sup>The Bank of Italy formed an underwriting syndicate of some 200 banks to guarantee the loan up to 500 million lira. In the end, the general public subscribed to about 880 million lira (Forsyth 1993).

**Table 5.1. Italy's National Loans, 1914–20**

Loan	Issue Price	Amount Issued (million lira)	Of Which to:			Maturity	Interest Rate (percent)	Tax Treatment
			Italy	Colonies	Abroad			
First National Loan, 1914	97	1,000	998.5	1.5	—	1940	4.5	Exempt
Second National Loan, 1915	95	1,145.9	1122.4	1.9	21.6	1940, but callable after 1925	4.5	Exempt
Third National Loan, 1916	97.5	3,018.1	2,633	3.9	81.2	1941, but callable after 1926 <sup>1</sup>	5	Exempt
Fourth National Loan 1917	90	3,798.5	3,673.3	3	182.2	Not fixed, but callable after 1932	5	Exempt
Fifth National Loan, 1918	86.5	6,089.1	5,638.5	10.6	440.2	Not fixed, but callable after 1931	5	Exempt
Sixth National Loan, 1920	87.5	20,527	18,468		2,059	Not fixed, but callable after 1931	5	Exempt

Sources: Forsyth (1993, 306); Interwar Debt Database; Mergent Archives Online.

<sup>1</sup>At the government's discretion, a sinking fund could be established from 1926–41.

By the time the Second National Loan was issued, Italy was already at war; the proceeds from the loan were specifically earmarked for financing the war effort. The loan characteristics were similar to those of the First National Loan, although the effective interest rate was slightly higher at 4.73 percent, resulting in a subscription that exceeded 1 billion lira. The subscriptions to the Third National Loan exceeded the first two, because it offered an even higher effective interest rate (5.12 percent) and a longer subscription period. By the time the Fourth and Fifth National Loans were issued, the government's use of posters and other means to publicize the loans intensified to maximize subscriptions. Figure 5.5 is an example of a war poster that used dramatic and powerful imagery for the public to continue to financially support Italy's war effort.<sup>18</sup>

The prices of the first three loans declined rapidly below their subscription levels shortly after the issuance of the third loan. The reason was that institutional investors—mainly banks that had been pressured into purchasing the state securities by the government—were eager to restore healthier liquidity levels by selling

<sup>18</sup>The successes of the Fifth and Sixth National Loans are also ascribed to Finance Minister Francesco Nitti, who was keen to establish the credibility of his cabinet and who made the most of the national will to continue fighting in WWI until the end (Galassi and Harrison 2005).

**Figure 5.5. Poster for the Fifth National Loan**

Note: Text at the top of the poster translates to “For the Fatherland, my eyes! Peace for your money.”

these securities.<sup>19</sup> This situation was reversed with the Fourth, Fifth, and Sixth National Loans, because banks started to intervene in the markets to sustain war loans. Commercial credit rose as greater sales of state securities led to greater levels of private borrowing, suggesting that government debt served an important function as a safe asset.<sup>20</sup>

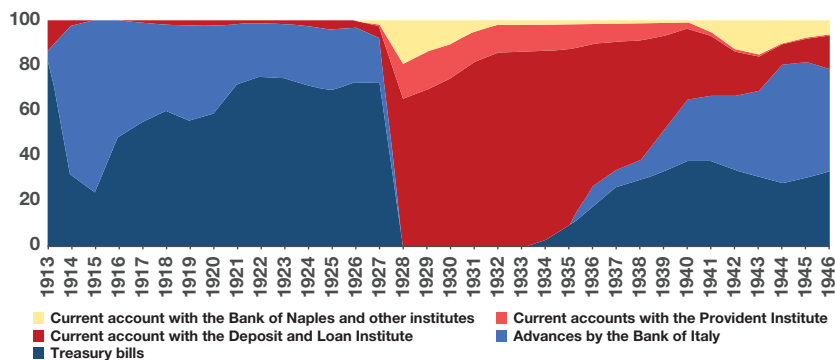
At the same time, foreign and short-term debt was also rising (Figures 5.4 and 5.6). The excessive costs related to war efforts and reconstruction resulted in significant deficits that had to be financed by the issuance of short-term debt, specifically the issuance of Treasury bills and advances by the Bank of Italy (Figure 5.6).<sup>21</sup> In the aftermath of the war, floating debt (short-term debt of maturity that is usually two years or less) was considered problematic because the Italian government was concerned about the willingness of investors to roll over their holdings of short-term securities and about the potential monetization of debt in the event of a funding crisis.

<sup>19</sup>Forsyth (1993).

<sup>20</sup>This is in line with Woodford (1990). According to this theory of optimal government debt, since government debt is less risky relative to private defaultable debt, the government can ease financial constraints for borrowers by increasing the issuance of government bonds, while simultaneously increasing the supply of safe assets available to lenders (see also Yared 2013).

<sup>21</sup>Treasury bills had maturities of less than one year. Advances by Bank of Italy included extraordinary advances issued during the war.

**Figure 5.6. The Composition of Italy's Short-Term Public Debt, 1913–46  
(Percent of Total Short-Term Debt)**



Source: Interwar Debt Database.

## External Loans: War-Related Entanglements

Italy's external public debt at the start of the interwar period constituted about one-fifth of total public debt. External loans incurred during the war were helpful to Italy in the postwar readjustment phase. Nevertheless, readjustment was more difficult compared to that in France and the UK. Italy's prewar trade deficit was considerably larger, its economy was heavily dependent on coal imports, and its living standards were lower, compared to other Allies. Italy's war debt burden relative to its income was also the heaviest of the Allies. In 1921, Italy's war debt to the US was around 40 percent of GDP, compared to 32 and 24 percent of GDP in France and the UK, respectively.<sup>22</sup>

In addition to territorial inducements, the 1915 Treaty of London included a line of credit for Italy with the Bank of England that amounted to £50 million sterling. This credit had to be extended many times because of the substantial costs of the war, and Italy ultimately entered the US market.<sup>23</sup> By 1919, Italy's external debt consisted almost exclusively of bilateral government loans from the UK and the US, which had allowed Italy to finance its imports of foodstuffs and raw material during the war.

Foreign loans were discontinued relatively rapidly after the signing of the armistices with the Central Powers in 1918, partially due to political reasons. Italy's good relations with the UK and the US, in particular, were perceived as incompatible with the country's program of expansive territorial claims in the Adriatic. The termination of American and British government credits in late 1919 and the reluctance of private investors to make additional loans forced Italy and the country's liberal political establishment to bear the brunt of the

<sup>22</sup>Based on national GDP figures and information published by the United States, Department of the Treasury (1923).

<sup>23</sup>See Galassi and Harrison (2005, 281); Clough (1964, 175).

readjustment crisis and postwar recession with its own resources. Between November 1919 and April 1920, the lira devalued 85.3 percent against the pound sterling, further pushing up the country's external debt (see Figure 5.4).<sup>24</sup>

## POSTWAR STABILIZATION

In the 1920s, stabilizing the economy and reducing the country's crushing debt service burden gained urgency. By 1922, a new wave of nationalist remedies replaced the earlier leftist efforts, and a new equilibrium for politics and the economy was established (see Figure 5.3).<sup>25</sup> The rising fascist movement, with Mussolini at its helm, took advantage of the domestic economic turmoil and social unrest; it made bringing order to chaos the theme of its government. The movement presented its economic policy as a "liberal orthodoxy," involving a balanced budget, curbed inflation, and a fiscal policy favorable to firms and wage controls.<sup>26</sup> Such policies received considerable sympathy from Italy's external creditors, in contrast to the policies adopted by preceding liberal governments.

The Italian lira steadily depreciated from about 1920, forcing the authorities to more aggressively pursue macroeconomic policies to support and stabilize the currency.<sup>27</sup> It also became increasingly apparent that public debt and deficits needed to be tackled on multiple fronts. At the same time, the depreciating lira put pressure on Italy to settle its bilateral government war debts to the UK and the US.

### The Quota Novanta: Revaluation of the Lira

With domestic and external funding pressures intensifying in the mid-1920s and capital outflows accelerating, the Italian government was determined to halt the depreciation of the lira. Following a collapse of the French franc in mid-1926 (see Chapter 4 on France), the lira was targeted by speculative attacks, raising widespread concern among small savers in Italy and financial circles abroad. In a highly publicized speech in August 1926, Mussolini committed his government to an outright defense of the lira: "The lira, which is the sign of our economy, the symbol of our long sacrifices and our hard work, will be defended, and defeated most firmly, at whatever the cost" (Mussolini, cited in Clough 1964, 228).

Mussolini declared that the value of the lira was to be reset at "quota 90" (quota novanta) relative to the pound sterling, the prevailing rate in 1922 when

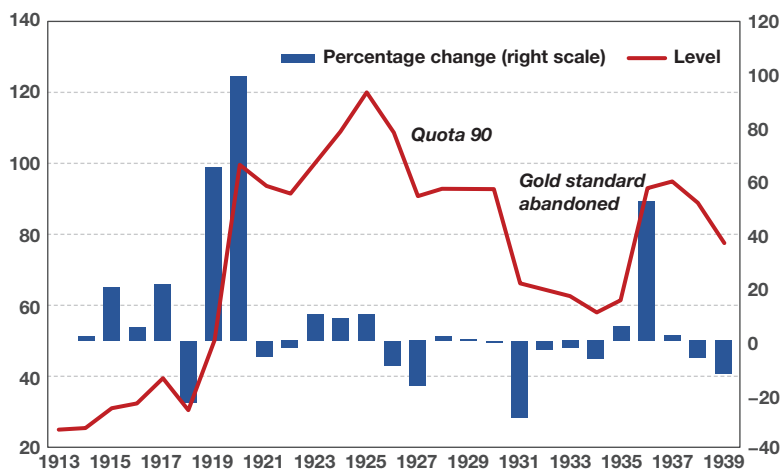
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<sup>24</sup>Cotula and Spaventa (2003).

<sup>25</sup>According to Maier (1975), this equilibrium supplemented the authoritarian dictatorship of the fascist party with direct bargaining among the "corporatist" forces of industry and labor.

<sup>26</sup>Storaci and Tattara (2001).

<sup>27</sup>For example, the index of wholesale prices went up from 100 in 1913/14 to 616 in 1919/20 (United Nations 1948).

**Figure 5.7. Italy's Exchange Rate (Lira/Pound Sterling)**

Sources: Bank of Italy (*Relazione Anuale*, various editions); author's calculations.

Note: RHS = right-hand side.

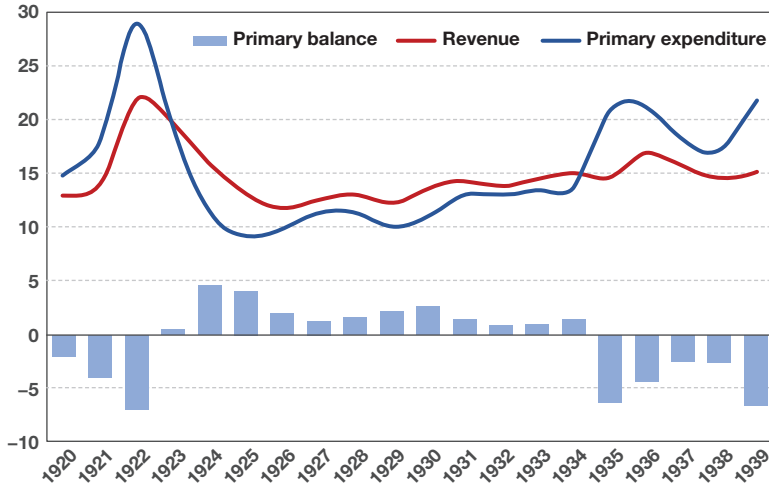
he had taken power. This amounted to a significant revaluation of the currency (Figure 5.7). Commentators have argued that the major benefit was not simply in prestige calculations and large political payoffs but in a lowered cost of borrowing.<sup>28</sup> The operation entailed a considerable trade-off, because quota novanta represented a considerable overvaluation of the lira, thereby undermining the competitiveness of Italian industry.

A range of austerity policies in support of domestic stabilization and exchange rate stability had been in place since 1923. The government attempted to change tax legislations but subsequently opted to cut expenditure to achieve a balanced budget.<sup>29</sup> The tax base was broadened by bringing in taxpayers that had, up until that point, been exempt from taxation (for example, farmers and peasants). Tax rates for those taxpayers who were more likely to invest (the industrialists) were reduced.

Deficit reduction was achieved primarily through a sharp retrenchment in government expenditure (Figure 5.8). Social programs were eliminated, and wages were cut with the help of Fascist unions—real wages fell by about 20 percent between 1921 and 1929. Taxes, particularly those on consumption, were raised. By July 1925, the last of the extraordinary taxes on income and property created during and immediately after WWI was abolished, and Italy's tax system was simplified to a few key taxes and rates, reducing the tax burden on the

<sup>28</sup>See Cohen (1972) and James and O'Rourke (2013).

<sup>29</sup>Zamagni (1993).

**Figure 5.8. Italy's Primary Balance during the Interwar Period (Percentage of GDP)**

Sources: Mauro and others (2013); author's calculations.

wealthy imposed during WWI.<sup>30</sup> The resulting budget surpluses also meant that the government could begin reducing the money in circulation, thereby dampening inflationary expectations.

To achieve a balanced budget, the government also embarked on a privatization policy between 1922 and 1925.<sup>31</sup> State monopolies on matches and life insurance were privatized, and state-owned telephone networks were sold to private firms. This policy was part of the government's strategy to build confidence among the industrialists and build support for the fascist party.

Fiscal policies adopted in support of the *quota novanta* exchange rate policy were entwined with the political economy and consolidation of power in Italy.<sup>32</sup> The middle class, the most important constituency of the fascist regime, was severely hit by postwar inflation. It favored measures to increase the internal, as well as the external, value of the currency. The industrialists, especially those in the export sectors, argued against the *quota novanta*. But they were partially compensated by large cuts in wages and taxes. Taxes and transport costs were lowered for

<sup>30</sup>The budget for 1923–24 simplified direct taxation: 13 schedules for income taxation were reduced to three: land, factories, and movable property. In 1925, the supertax on incomes above 10,000 lira was amalgamated with the supertax on movable wealth. The fascist government also made significant efforts to suppress tax evasion in the early 1920s.

<sup>31</sup>Bel (2011).

<sup>32</sup>The seminal paper by Alesina and Drazen (1991) draws on the model of a “war of attrition” between different socioeconomic groups to show that macroeconomic stabilization occurs only when one group concedes and is forced to bear a disproportionate share of the burden of fiscal adjustment. This framework can shed some light on the timing of the stabilization and fiscal retrenchment in Italy.



domestic industry, larger depreciation and amortization allowances were permitted, and preference was given to domestic producers for government contracts.<sup>33</sup>

Policies implemented in the mid-1920s yielded some success. The expenditure cuts and tax increases implemented by the government during this period arrested the growth of public debt. High economic growth, particularly over 1922–25, also helped to reduce the debt-to-GDP ratio.<sup>34</sup> However, it was clear that additional efforts were needed to curb public debt in Italy. To this end, external and domestic debt consolidation were key elements of the government's stabilization strategy.

## Tackling War Debts through “Sound Money” Policies

The question of how war debts were to be settled occupied the minds of the Italian policymakers in the early 1920s. From the outset, Mussolini's government understood the gravity of the debt issue in facilitating any future relationship with international financiers, in particular, the American bankers. This was quite different from the preceding Giolitti government, which was hesitant to formally declare its willingness to recognize war debts because of “(public) conviction that sums spent for common cause do not count as actual debts” (Migone 2015, 95).

Mussolini's government also addressed the American press and business community more than Italy's previous governments had done. Chernow (1990, 281) documents how Thomas Lamont of the House of Morgan was helpful in deflecting attention in the US from Mussolini's politics to his economic record: “Mussolini spouted the predictable litany of promises—balanced budgets, low inflation, and sound money—that bankers adored.”<sup>35</sup> Similar sentiments were expressed in Finance Minister Alberto De Stefani's economic program of 1922–25, which made continuous references to the need for a stable currency and a balanced budget.<sup>36</sup> Foreign public debt also became inextricably linked to the war reparations, as was evident from Finance Minister De Stefani's speech in May 1923 (League of Nations 1923, 99):

The settlement of Italy's international debt will constitute, when reached, a new factor in the stabilization of economic relations with foreign countries and consequently of the internal economic life. For the first time the Italian Government

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<sup>33</sup>See Cohen (1972) for details. After the UK went off the gold standard in 1931, the industrialists also benefited from the introduction of import duties.

<sup>34</sup>Between 1922 (the year the highest prewar GDP level was regained) and 1929, Italy's annual growth rate was around 4.0 percent, and 6.1 percent in 1922–25 (Toniolo 2013).

<sup>35</sup>Gasio Caetani, who was the Italian Ambassador to the US in the early 1920s, marketed Mussolini and the fascist government to the American public: “Gelasio Caetani, Italian Ambassador to the U.S., who is returning home next month, stoutly defended the Fascist regime in Italy. He spoke of what had been accomplished: balanced budgets, reduction of internal indebtedness, prosperous industries, etc., and said that the Government was arranging to redeem \$15,000,000 worth of bonds falling due in the U. S. in 1925. Said he: ‘We—that is, Mussolini and his faithful followers, including the most patriotic elements of Italy—are going to see that this work of reconstruction is carried out to a finish’” (*Time Magazine*, November 24, 1924).

<sup>36</sup>De Stefani is cited in Bank of Italy (1924, 10): “The surplus which will be attained in future budgets must be considered as a sacred patrimony for the reconstruction. It must be our *masse de manoeuvre* together with in the balance of our international payments.”

succeeded, during the conference in London, in linking the problem of German reparations with that of inter-Allied indebtedness.<sup>37</sup> These two problems now appear more and more to be interdependent. It is obvious that Italy can only lighten the burden of Germany in the proportion in which her burden is, in turn, lightened by her creditors. Italy expects from a general European settlement the settlement of her debt to Great Britain. With regard to the United States, Italy declares emphatically that she intends to honor her obligations; she only asks that the powerful American Republic will grant her facilities proportionate to those granted to Great Britain, taking into account the great difference between the economic and financial positions of the two countries and bearing in mind the important contribution made by Italy towards the common victory.

It was well recognized that settlement of war debts would place considerable strain on Italy's budget, balance of international payments, domestic production, external trade, and ultimately, the exchange rate. Nevertheless, the problem of the settlement of Italy's war debts remained unresolved until June 1925. The US Secretary of State Frank Kellogg made it clear that no further loans would be extended to Italy unless Rome settled more than \$2 billion in war debts with Washington.<sup>38</sup> In October 1925, Mussolini sent a mission to Washington, headed by his new finance minister, Count Giuseppe Volpi, to negotiate Italy's debt.<sup>39</sup> The Italian government reached agreements with the UK and the US in December 1925 and January 1926, respectively. This development removed the legal obstacles to international loans and was followed by large inflows of foreign capital that strengthened the lira. In both cases, the debt settlement was extremely favorable.

As part of its postwar debt restructuring efforts and following agreements with the both the UK and the US, an autonomous amortization fund—the *Cassa Autonoma di Ammortamento dei Debiti di Guerra*—was created in 1926 to repay outstanding war debts to Italy's two largest debtors. The creation of this fund can be viewed as a precommitment device on the part of the government.<sup>40</sup> As an autonomous entity, the fund was administered outside of the state budget and accounts.

The details on the structure of this amortization fund are presented in Figure 5.9. The repayment extended over a 62-year period on a predetermined schedule and was financed by reparation receipts from Germany and other defeated powers, as well as through government bond issuance. Although there was no reduction in the principal, the interest rate was reduced to a low of 0.4 percent (as compared to a 3.3 percent interest rate for the UK and 1.6 percent for France).

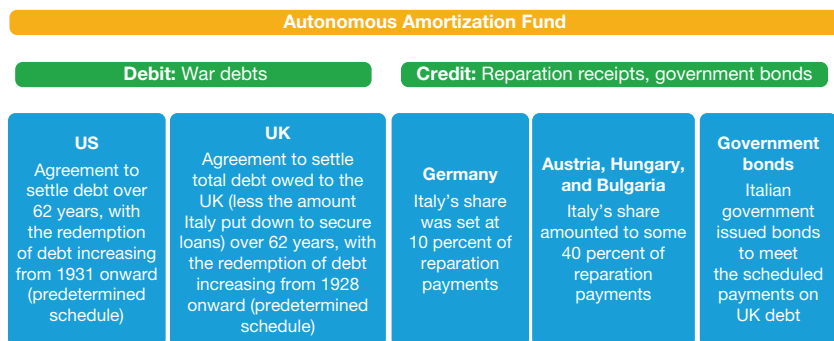
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<sup>37</sup>This was a reference to the Interallied Conference on Reparations and Interallied Debts, held in London in December 1922.

<sup>38</sup>Chernow (1990).

<sup>39</sup>The period from 1922–25 was characterized by the laissez-faire economic policy under the liberal finance minister De Stefani. De Stefani reduced taxes while broadening the tax base, regulations, and trade restrictions and allowed businesses to compete with one another. However, he also opposed protectionism and business subsidies, which alienated industrial leaders and ultimately led to his resignation. De Stefani was succeeded by Volpi, a businessman.

<sup>40</sup>This is consistent with the sovereign debt literature, as in Aguiar, Amador, and Gopinath (2009) and Aguiar and Amador (2011), who show that governments have an incentive to front-load payments to foreign lenders to reduce the temptation to expropriate foreign funds.

**Figure 5.9. The Structure of Italy's Autonomous Amortization Fund for War Debts**

Sources: Interwar Debt Database; Mergent Archives Online; Zamagni (1993).

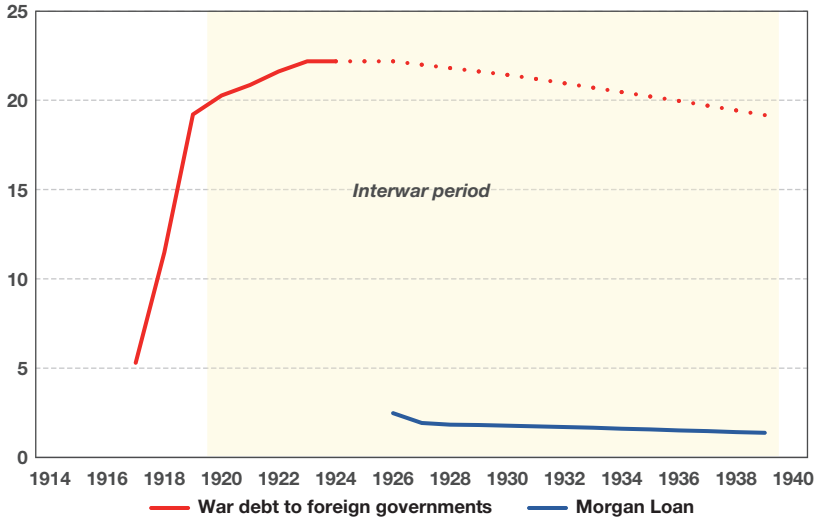
Zamagni (1993) notes that the war reparations that Germany was to pay Italy were more than sufficient to cover the payment of war debt to the UK and the US until about 1931, the year that Germany's economy collapsed.

Another significant component of Italy's foreign loan portfolio during the interwar period was the stabilization loan secured with the United States government in 1925, brokered by J.P. Morgan & Co.—the so-called “Morgan Loan.” Having successfully concluded the amortization agreement with the US on the country's bilateral government debt, Italy was able to secure a stabilization loan of \$100 million to protect the value of the lira. The detailed statements of public debt published by the League of Nations exclude the foreign war debt transferred to the autonomous amortization fund. However, the publications include supplementary information on this debt for 1917–24. Together with the information on the amortization schedule presented in *Moody's Analyses of Investment, Governments, and Municipalities* publications (Mergent Archives Online), an estimate of the trajectory for this debt can be obtained (Figure 5.10). This estimate implies a gradual decline in the stock of this debt during the interbellum period, but more gradually after 1928 due to rising scheduled amortization payments.

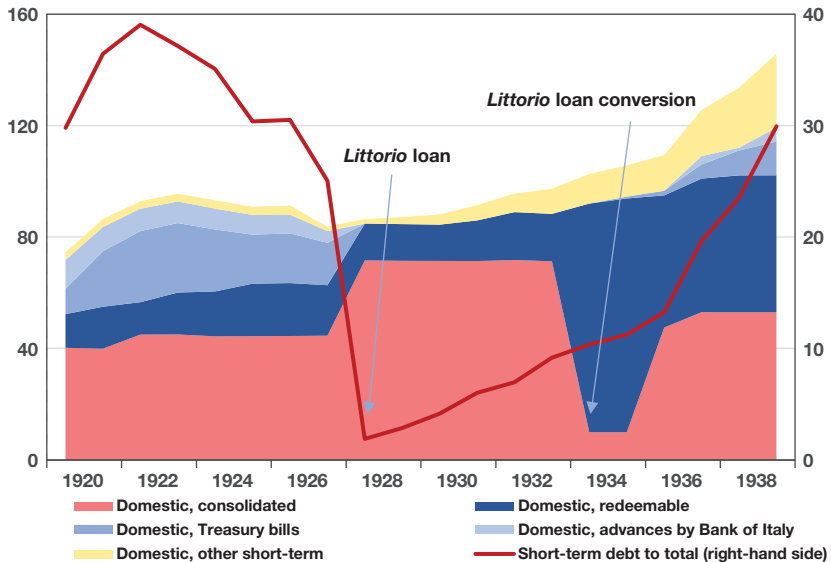
By 1931, Italy had repaid some £24 million of the total £277 million pounds sterling outstanding to the UK. Only \$41 million of some \$2 billion of war debt outstanding to the US had been repaid by 1932. Italy stopped making payments on its war debts to the UK in 1931, following the international moratorium on war reparation payments. Italy defaulted on its war debts to the US in June 1934.

### Consolidating Domestic Debt through Forced Conversions

By 1923, some 40 percent of domestic debt consisted of short-dated obligations (Figure 5.11), resulting in the decision of the Italian government to more actively pursue policies to lengthen the maturity of debt. The government engineered a decline in Treasury bill holdings in 1924 and 1925. In 1925, there was also a partial conversion of Treasury bills into longer-term Treasury bonds (seven and nine years). Monetary stabilization policies were pursued even more vigorously in 1926, as the continuous rollover of considerable short-term debt was

**Figure 5.10. Italy's Foreign Debt: 1914–40 (Billions of Lira)**

Sources: Interwar Debt Database; author's estimates (dashed line).

**Figure 5.11. Composition of Italy's Domestic Debt: 1920–39 (Billions of Lira)**

Source: Interwar Debt Database.

perceived as a threat to exchange rate stability. After achieving the goal of a single bank of issue in 1926 in the form of the Bank of Italy, the government began to pursue a policy of deflation to gradually strengthen the lira.<sup>41</sup> Part of the measures

<sup>41</sup>Market turmoil was in part due to a stock market crash and speculative currency movements. In 1925, restrictions on brokers were imposed, a 25 percent margin requirement on securities

implemented included reducing the amount of state debt to the Bank of Italy by means of the stabilization-related Morgan Loan of \$100 million.<sup>42</sup>

The Italian government was seeking to reduce the level of domestic debt, as well as to change its composition to longer-term debt. By mid-1926, despite the stabilization efforts and a decline in notes issued by the Bank of Italy, market interest rates rose sharply, and funding pressures emerged. Of the 7.5 billion lira of short-term debt that matured in mid-1926, slightly over 60 percent was renewed, and an additional 10 billion lira had to be rolled over by year end.<sup>43</sup> Monetizing the debt was not an option in light of Mussolini's *quota novanta* policy.

Having little success up to that point with voluntary conversions, the government decided on a mandatory conversion (*conversione forzosa*) in the form of the Littorio loan in November 1926. The operation involved a compulsory conversion of all Treasury bills and five- and seven-year Treasury bonds, and a voluntary conversion of nine-year Treasury bonds into perpetual debt.<sup>44</sup> It also involved obligatory subscription by certain credit institutions—Bank of Italy subscribed 50 million lira from its own resources—and optional subscription by the public. All government bonds with a maturity shorter than seven years were mandatorily converted into nine-year bonds at an interest rate of 5 percent (the Littorio loan). Within a year, all floating debt was virtually eliminated.

This forced conversion represented a partial default. Entrepreneurs who had owned short-term government securities for liquidity management purposes now had to sell the consolidated debt into which they were forced. By some estimates, the owners of the converted bills lost around 5 billion lira.<sup>45</sup> Credit institutions, especially savings and loans associations, which held substantial amounts of short-term government paper, also experienced losses. Secondary market price of government debt plummeted by about 30 percent (even though it later recovered, as investors benefitted from price deflation).<sup>46</sup> According to Alesina (1988), the cost of the policy of forced conversions was a loss of reputation. In the decade or so following this conversion, the government found it increasingly difficult and costly to borrow on a short-term basis. As a result, the government resorted to other forms of borrowing, as discussed in the next section.<sup>47</sup>

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purchased was established, and the banks of issue progressively raised the discount rate from 5.5 percent in February to 7 percent in June of the year (Makinen and Woodward 1989). Interest rates on Treasury bills were also raised to tighten credit.

<sup>42</sup>To assist with the stabilization efforts, the Bank of Italy took over the operations of the two smaller banks of issue (see also next section); \$90 million of the Morgan Loan was transferred from the Treasury to its accounts for this purpose, and short-term debt was reduced by that amount.

<sup>43</sup>Makinen and Woodward (1989).

<sup>44</sup>The conversion resulted in additional costs of about 3 billion lira arising from the difference between the face value of the converted Treasury bills and bonds and the face value of the Littorio loan (Bank of Italy 1926, 10).

<sup>45</sup>de Cecco (1990).

<sup>46</sup>See Confalonieri and Gatti (1986).

<sup>47</sup>In 1931 and 1932, for instance, there were moderate increases in redeemable debt—bonds that can be redeemed (paid off) by the issuer prior to the maturity date of the bonds.

The onset of the worldwide depression, together with the protectionist measures adopted by several countries, the adherence to Mussolini's *quota novanta* policy, and the deflationary policies it implied, severely impacted the Italian economy. To improve competitiveness, the regime enforced cuts in nominal wages in 1930. In September 1931, as the pound went off the gold standard, a 15 percent import duty was imposed. It soon became clear, however, that further deflation would have excessive economic and political costs. Despite the wage cuts, the sharp fall in producer prices during the late 1920s and early 1930s meant that many firms were unable to reduce their production costs, even as the burden of their debt increased in real terms. Sluggish growth and deflationary pressures, in turn, pushed up the real burden of long-term government debt.<sup>48</sup>

As a result, although reputationally costly, the policy of forced conversions continued in the early 1930s. In an attempt to benefit from the reduction in interest rates in 1933, the government decided in 1934 to convert its 5 percent consolidated debt into 3.5 percent bonds redeemable within 40 years (the *Littorio* conversion). Because the government had guaranteed not to convert the consolidated debt until 1936, it offered advance payments of the difference in interest (1.5 percent) for three years.<sup>49</sup> The *Littorio* conversion was not considered successful; many investors attempted to cash in their bonds rather than get redeemable bonds. Alesina (1988) notes that the Treasury refused to satisfy the investors' requests, making this a *de facto* mandatory conversion, further negatively impacting public appetite for holding government debt.

## FINANCIAL ENCOURAGEMENT AND REPRESSION

The fascist government implemented different mechanisms of financial repression to lower financing costs and exert greater control over the economy. These included keeping nominal interest rates lower than they otherwise would have been, creating demand for public debt, and directly accessing private savings. State control over interest rates facilitated issuance of government bonds on more favorable terms, while control over credit allocation in various sectors of the economy directed investment to preferred sectors of the economy. In this sense, repression was also a source of revenue: by forcing banks and other financial institutions to hold debt at low interest rates, the government lowered the cost of issuing government debt.

The rampant use of financial repression methods is consistent with the theoretical framework developed in Chari, DAVIS, and Kehoe (2018), which suggests that forcing banks to hold more government debt may be optimal if the government cannot commit to repaying its debt—borne out by the *Littorio* loans in Italy's case. The fact that domestic banks and other financial institutions overload on domestic

<sup>48</sup>Between 1929 and 1939, growth in Italy averaged about 1 percent a year (Toniolo 2013).

<sup>49</sup>The cost of this conversion was around 3.5 billion lira, almost all of which was related to advance interest payments.

government debt increases the economic costs of a government default.<sup>50</sup> This prospect reduces the government's temptation to default.<sup>51</sup> In other words, financial repression is more likely in the absence of commitment when fiscal needs are very high, which was the case in interwar Italy. Indeed, financial repression policies played a key role in Italy in directing savings at low cost to the government, particularly in the run-up to WWII when spending needs escalated and the government was unable to easily place debt with the public.

## The Role of Special Credit Institutions

Italy's fragile capital markets hampered the steady flow of investment to the industrial sector to support economic development after unification and postwar reconstruction. This limitation was largely due to the difficulties in asset-liability management that banks faced following a banking crisis in the early 1900s.<sup>52</sup> As a consequence, special credit institutions were created, including those to relieve Italy's banks of their illiquid credits and provide finance for industry. The heavy state involvement related to these institutions substituted for financial intermediaries, as private savings were channeled to public bonds.

In the 1920s, key mechanisms were established to channel private savings and foreign capital to public works and public utilities in Italy. Such mechanisms were embodied by public credit institutes, such as CREDIOP (Istituto di Credito per le Opere Pubbliche) and ICIUP (Istituto di Credito per le Imprese di Pubblica Utilita). These institutions collected private savings for investments through the placement of state-guaranteed bonds, providing Italian savers with an opportunity to invest their financial wealth.<sup>53</sup> Another benefit of these institutions was that they matched assets and liabilities—funds secured through the issuance of bonds on the liability side were translated into long-term loans on the asset side (Figure 5.12). The securities were issued regularly between 1920 and 1933, had similar characteristics to government bonds, and offered competitive yields (Figure 5.12). The fiscal agents for the securities placed on the New York Stock Exchange on behalf of these special credit institutions were J.P. Morgan & Co. and Chase National Bank, which were channeling American savings to international investments. The successful placement of these bonds in the mid-1920s largely reflected the government's strong relationship with the American banks. After 1927, the legal stabilization of the lira played a positive role in the ability of the Italian government to issue securities in the American market.

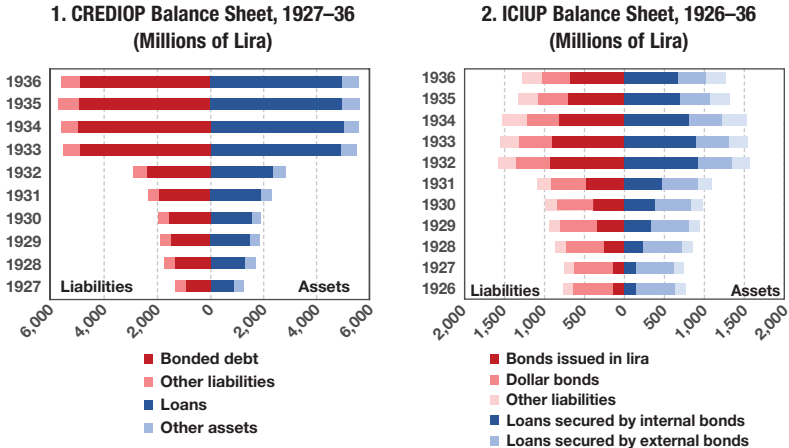
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<sup>50</sup>Gennaioli, Martin, and Rossi (2014) develop a model of how government defaults hurt balance sheets, driving down private credit.

<sup>51</sup>In the Chari, DAVIS, and Kehoe (2018) framework, this result follows because bailing out bank debt means that the government can only reduce distortionary taxes by a smaller amount than when all debt is held by households.

<sup>52</sup>See Spinelli and Fratianni (1991).

<sup>53</sup>Storaci and Tattara (2001).

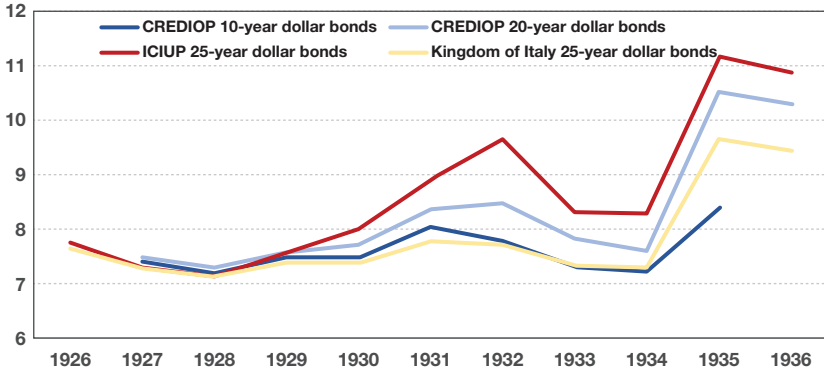
**Figure 5.12. Balance Sheets of Special Credit Institutions in Italy**

Source: Mergent Archives Online.

Note: CREDIOP = Istituto di Credito per le Opere Pubbliche.

Source: Mergent Archives Online.

Note: ICIUP = Istituto di Credito per le Imprese di Pubblica Utilità.

**3. Yield to Maturity on Dollar Bonds Issued by CREDIOP and ICIUP**  
(Percent)

Sources: Mergent Archives Online; author's calculations.

## Role of the Banking Sector and Other Sources of Financial Repression

In response to a series of banking crises in the early 1920s, the Banking Act of 1926 had revoked the note-issuing powers of two banks—Banco di Napoli and Banco di Sicilia—putting this power exclusively in the hands of Bank of Italy and transforming these banks into public institutes of credit.<sup>54</sup> The main concern of

<sup>54</sup>The Banking Act also introduced capital requirements for the establishment of banks, capital-deposit ratios, and limits on credit granted to individual borrowers to avoid excessive concentration of risk. The Bank of Italy was entrusted with supervision of the banking system.

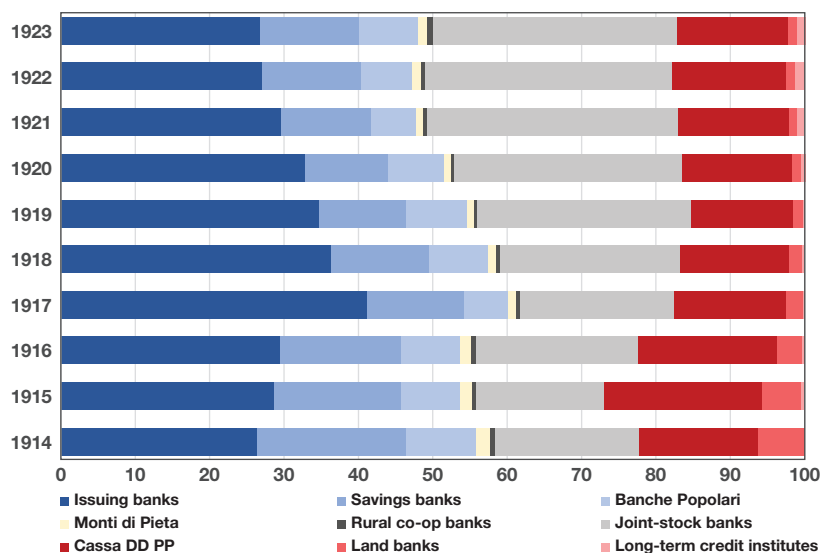


policymakers was the potential impact of the banking crises on monetary and exchange rate stability.<sup>55</sup> The government also increasingly relied on the Cassa DD PP (the Deposit and Loan Institute), which raised funds through post office savings banks. These funds were used to support local finance and invest in government bonds. Cassa DD PP had been instrumental in the war mobilization efforts during WWI (particularly 1915 and 1916), when state control of the banking sector had been comparatively low (Figure 5.13).

The balance sheet of the state-owned Cassa DD PP reveals the rising tendency of extending loans to both the central and local governments in the interwar period, in addition to security holdings that included government bonds (Figure 5.14). Most short-term debt in the 1930s entailed borrowing from the Cassa DD PP (see also Figure 5.6). The balance sheet of Cassa DD PP was artificially propped up by legislating it to use the official reference price, instead of the market-to-market price, as the relevant book value for sovereign debt instruments. Together with other institutions, the Cassa DD PP evolved with the intention of increasing state intervention in the Italian economy, becoming an alternative source of funds for the Treasury and Italian banks.

At the start of the interwar period, state-owned banks had a relatively low market share of about 20 percent of total loans in 1919. However, this share grew at a steady

**Figure 5.13. Total Assets in Italy's Banking System, by Type of Bank, 1914–23 (Percentage of Total)**

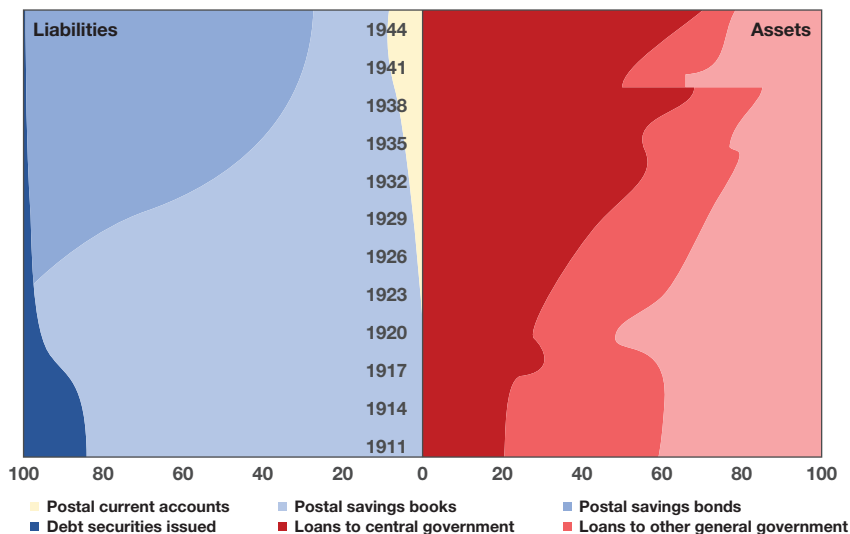


Source: Zamagni (1993).

Note: Banks in control of the state include savings banks, Monti di Pietà, and Cassa DD PP.

<sup>55</sup>Commentators have argued that the excessive bank exposure toward a limited number of large firms and the ensuing concentration of credit in few sectors was the culprit behind the crisis (Battilossi, Gigliobianco, and Marinelli 2013).

**Figure 5.14. Cassa DD PP: Liabilities and Assets, 1911–45**  
(Share of Total Liabilities and Total Assets)



Sources: De Bonis, Farabullini, and Rocchelli (2012); author's calculations.

pace during the interwar period and exceeded 80 percent in 1936 (Figure 5.15). This growth was attributable to the growing share of loans made by special credit institutions and, to a lesser extent, by the public law banks. The appreciation of the lira following the quota novanta exchange rate policy, the forced loan conversions, and the onset of the worldwide depression had adverse repercussions for the banking sector. Mixed banks found themselves with a large share of industrial securities in their portfolios of which they could not easily dispose.<sup>56</sup> The result was a liquidity and solvency crisis in 1930–31 and costly bank bailouts, which highlighted the close links between banks and firms and the underdevelopment of Italy's capital markets.<sup>57</sup>

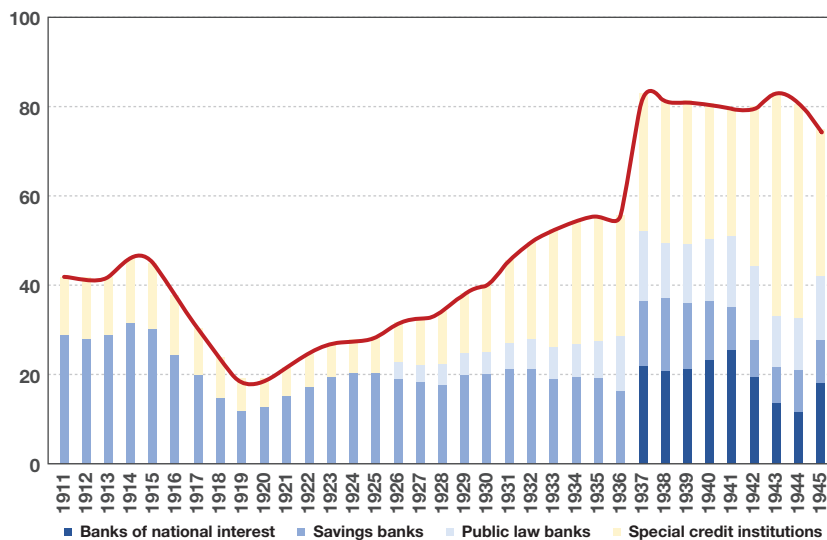
The 1936 Banking Law Act nationalized three of the largest mixed banks and created a state-holding company, the Istituto per Ricostruzione Industriale (Institute for Industrial Reconstruction [IRI]).<sup>58</sup> The IRI acquired all of the shares held by banks in industrial, agricultural, and real estate enterprises. The Istituto Mobiliare (Land Institute), created in 1931, was charged with the provision of long-term industrial finance. The 1936 Banking Law established a functional separation between banking and investment activity, akin to the Glass-Seagal Act of 1933 in the US. Commercial banking activity was circumscribed to short-term

<sup>56</sup>The banks had a complex ownership structure, whereby large borrowers were also controlling stockholders. During the 1920s, mixed banks functioned as holding companies, directing an increasing share of their resources toward long-term loans and corporate equity stakes in connected firms (Battilossi, Gigliobianco, and Marinelli 2013).

<sup>57</sup>See Ciocca and Toniolo (1999) for details.

<sup>58</sup>The IRI was tasked with placing the industrial portfolio of the former three mixed banks on the market and financing the industrial firms under its control.

**Figure 5.15. Evolution of the Market Share for Italy's State-Owned Banks, 1911–45 (Share of Total Loans)**



Sources: De Bonis, Farabullini, and Rocchelli (2012); author's calculations.

operations; medium- and long-term credit was to be allocated by credit institutions. The Bank of Italy was vested with the powers to regulate interest rates and banking fees. In marked contrast to the US, however, the state continued to play a dominant role in financial intermediation.<sup>59</sup>

To finance widening fiscal deficits in the second half of the 1930s and in the run-up to World War II (WWII), the government relied on money printing and bond issuance. The resulting inflationary pressures were limited by the government's reliance on a process called *circuito dei capitali*. Its functioning was based on the premise that inflation would be controlled if the money injected into the economy was channeled back to the government through bond issues. The process required the simultaneous implementation of measures to artificially reduce voluntary consumption, on the one hand, and stimulate the demand for government bonds, on the other hand. The Italian government eventually gained control of all prices and wages, firms in any industry could be coerced into cartels, and land was controlled by the state to secure its power over the agricultural sector.

By the 1930s, the banking sector was firmly under state control, which led to the government setting up public works programs and taking control of building and expanding factories. In 1939, the IRI controlled 20 percent of all industry in Italy. The banking system was sheltered from foreign competition, and capital controls were strictly controlled. The banks had to comply with high reserve requirements, and the composition of such reserves served as a policy instrument in the hands of the regulators.

<sup>59</sup>Kindleberger (1987).

The institutionalization of measures constraining investor behavior is perhaps most demonstrable at the outbreak of WWII. The objectives of *circuito dei capitali* were facilitated through the implementation of policies that diminished the attractiveness of any investments other than government bonds. The bulk of the measures targeted financial markets, especially the stock market, and effectively translated into a rapid disintermediation of the stock exchange. Capital gains were taxed at 50 percent; dividends were limited in size and taxed at 25 percent. A required deposit of 50 percent of the value of short sales on stock was established; an additional 5 percent tax was imposed on each transaction involving stocks.

Various measures implemented to favor government bonds constrained investor behavior and shaped bond markets in the run-up to WWII. Financial repression particularly affected the choice of portfolio allocation as scarce funds were diverted from private investment to government debt. In the absence of arbitrage opportunities offered by international financial markets, domestic residents were forced to hold portfolios with low returns. Investors' risk-return profiles became less relevant as the demand for government bonds was kept artificially high, despite high inflation and impending war. Indeed, government interventions favored government bonds so much that they rapidly became the most traded asset in Italy during WWII.

## **CONCLUSION: HOW EFFECTIVE WERE POLICIES IMPLEMENTED IN INTERWAR ITALY?**

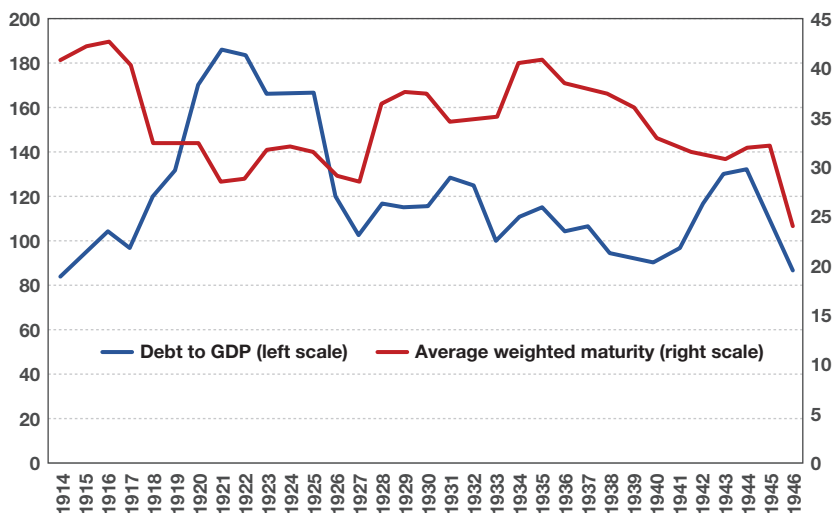
How effective was the policy mix in reducing the debt-to-GDP ratio in Italy? The mountain of debt that the country faced after WWI was only significantly reduced in 1926 with the revaluation of the lira (Figure 5.16). This was the same year that the maturity structure of debt improved because of the first mandatory conversion, as well as the restructuring of Italy's foreign obligations to the UK and the US. Although Italy's debt reached more manageable levels after 1927, the government was unable to reduce it below 90 percent of GDP over the remainder of the interwar period.

The quota novanta policy mix hampered growth and fueled deflationary pressures, keeping the debt burden high in the mid-1930s. Fiscal austerity was abandoned with the invasion of Ethiopia in 1935. Rising war-related spending amid weak revenue mobilization resulted in a resurgence of pressures to finance budget deficits through debt accumulation.

The maturity structure of debt also worsened somewhat in the 1930s, as the government found it difficult to place bonds on the market after the second mandatory conversion in 1934. The resulting reputational losses meant that the government had to resort to issuing shorter-term instruments to finance its growing expenditures, including those to finance Italy's involvement in WWII, relying increasingly on its state-controlled financial system.

Did financial repression play a quantitatively significant role in limiting interest payments and reducing Italy's debt burden? Debt service on domestic debt persisted at around 5 percent of GDP over the interwar period, despite a prolonged bout of deflation in the mid-1920s (Figure 5.17). In the 1930s, controlled

**Figure 5.16. Italy's Public Debt and Maturity, 1914–46**  
(Percentage and Years, Respectively)



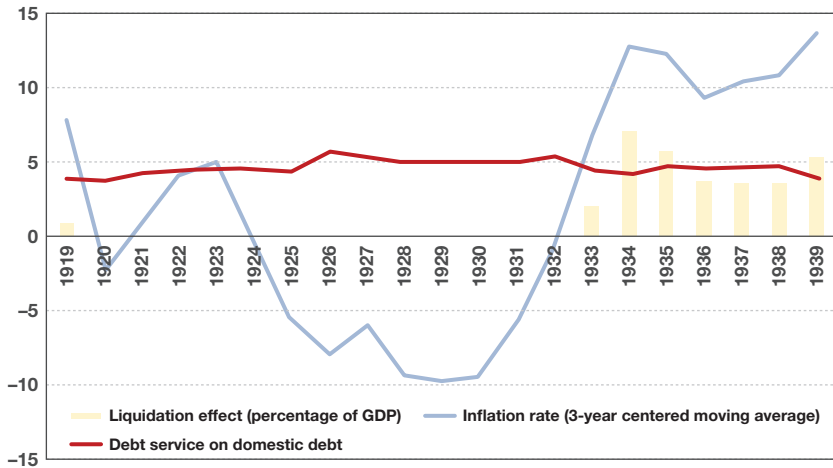
Source: Interwar Debt Database.

nominal interest rates, coupled with inflation, resulted in negative real interest rates and provided an opportunity for the government to benefit from a reduction in the stock of outstanding debt—the so-called *liquidation effect* (see Annex 5.1 for the conceptual framework). However, even in years when real interest rates were positive, to the extent that these were kept lower than they otherwise would be via interest rate ceilings, large-scale official intervention, or other regulations and policies, there was a saving in interest expense to the government—the financial repression tax. This was especially the case after 1933 when various financial repression mechanisms were simultaneously enacted and inflation rose.

Quantifying the amount of revenue earned through the repression tax is challenging because the interest rate that would prevail in the absence of repression—the “shadow interest rate”—is not directly observable. Using granular data on Italy’s public debt portfolio, including the actual shares of debts across the different spectra of maturities, as well as the shares of marketable versus nonmarketable debt, only a rough estimate of the size of the financial repression tax can be obtained.<sup>60</sup> The ex post contractual interest rate was compared with a hypothetical

<sup>60</sup>Using an accounting scheme derived from a decomposition of the government’s period-by-period budget constraint, Hall and Sargent (2011) obtain estimates of returns on the US federal government debt. In the case of Italy, comprehensive data on prices of all marketable nominal bonds held by the public are not easily available. Therefore, as in Reinhart and Sbrancia (2015), the “aggregate” nominal interest rate for a given year is calculated as the coupon rate on a particular type of debt instrument weighted by that instrument’s share in the total stock of debt. The weights represent the amount outstanding of that security relative to the total outstanding of all securities. The calculation relies on detailed data on the composition of debt, including maturity, coupon rate, and outstanding amounts by instrument.

**Figure 5.17. Debt Service, Inflation, and the Liquidation Effect, 1914–39**  
(Debt Service and Liquidation Tax in Percentage of GDP; Inflation in Percent)



Sources: Interwar Debt Database; United Nations (1948); author's calculations.

market real rate of 3 percent, consistent with common assumptions and estimates of preference parameters.<sup>61</sup> This calculation suggests that annual interest expense savings to the Italian government between 1933 and 1939 averaged about 7 percent of GDP, which could explain the slight decline in the debt-to-GDP ratio observed during this period (see Figure 5.17), likely a lower bound given the extensive nature of financial repression methods deployed by the government. The average annual liquidation effect (debt reduction during years of negative interest rates) averaged around 4 percent of GDP (see Figure 5.17).<sup>62</sup>

Despite the apparent effectiveness of financial repression during the second half of the interwar period, the savings to the government came at a high price. In addition to creating distortions in the financial system and industrial structure of the economy and crowding out private investment, low returns to savings over the long term can reduce the accumulation of income-producing (and, thus, taxable) private assets. According to Drazen (1989), this effect has a negative impact on the regular tax base over time. A trade-off can thus exist in the intertemporal budget constraint between high revenues from seigniorage and financial repression in the short run and lower revenue from regular taxes in the future. In the case of Italy, mobilizing revenues efficiently remained a challenge for the next few decades, compounded by a weak tax base, overreliance on indirect taxes, and large-scale tax evasion.

<sup>61</sup>Interest saving is the difference between the hypothetical market rate and the observed real rate on the debt. The tax base is the level of domestic debt. This calculation does not distinguish between the relative contributions of inflation surprises and financial repression (see Annex 5.1).

<sup>62</sup>The liquidation effect is calculated as the negative real interest rate times the stock of domestic government debt outstanding, expressed as percent of GDP. The calculations apply to domestic debt only.

## ANNEX 5.1. THE LIQUIDATION OF GOVERNMENT DEBT: A CONCEPTUAL FRAMEWORK

### Theoretical Framework

This section uses Reinhart and Sbrancia (2015, 24–28) to illustrate how financial repression can reduce the burden of debt. The consolidated budget for the government is obtained by combining the budget constraints of the fiscal and monetary authorities. This budget constraint makes explicit the link between monetary and fiscal policy. In real terms, it is given by:

$$g_t + \left( \frac{1+i_{t-1}}{1+\pi_t} \right) b_{t-1} = \tau_t + b_t + \left( h_t - \frac{h_{t-1}}{1+\pi_t} \right) \quad (5.1.1)$$

The left-hand side of equation (5.1.1) shows the outlays in a given year: real government spending ( $g_t$ ) and the real interest payments on the real stock of debt, which depends on the nominal interest rate set in the previous period ( $i_{t-1}$ ), the inflation rate in the current period ( $\pi_t$ ), and the real debt stock from the previous period ( $b_{t-1}$ ). The real interest rate paid on the stock of debt issued in the previous period is an ex post real interest rate, since it is determined by the realized rate of inflation. The right-hand side of equation (5.1.1) shows the sources of income: tax revenues ( $\tau_t$ ), newly issued real debt ( $b_t$ ), and the seigniorage revenues from printing money, where  $h_t$  is high-powered money (real monetary base). Although inflation affects seigniorage revenues as well as other items of the budget constraint, we ignore those effects to focus on the government's real debt payments.

The budget constraint can be rewritten in terms of the ex post real interest rate ( $r_t^P$ ) as:

$$\text{Ex post real interest rate: } 1+r_t^P = \frac{1+i_{t-1}}{1+\pi_t} \quad (5.1.2)$$

$$\text{Ex ante real interest rate: } 1+r_t^A = \frac{1+i_{t-1}}{1+\pi_t^e} \quad (5.1.3)$$

$$\text{Ex ante free market real interest rate: } 1+r_t^F = \frac{1+i_{t-1}^F}{1+\pi_t^e} \quad (5.1.4)$$

Incorporating these terms into the government budget constraint, we can estimate the sources of interest payment savings for the government at face value from the following expression:

$$\begin{aligned} g_t + (1+r_t^F)b_{t-1} - (1+r_t^A) \left( \frac{\pi_t - \pi_t^e}{1+\pi_t^e} \right) b_{t-1} - \left( \frac{i_{t-1}^F - i_{t-1}}{1+\pi_t^e} \right) b_{t-1} \\ = \tau_t + b_t + \left( h_t - \frac{h_{t-1}}{1+\pi_t} \right) \end{aligned} \quad (5.1.5)$$

In equation (5.1.5), the “unanticipated inflation effect” is the difference between realized and expected inflation multiplied by the real cost of previous period stock of debt; the “financial repression effect” is the difference between the free market and actual nominal interest rate multiplied by the real stock of debt from the previous period.<sup>63</sup> The last two terms on the left side would be equal to zero when there are no regulatory restrictions and official interventions that cause  $i_{t-1}$  to be different from  $i_{t-1}^F$  and if actual inflation was equal to expected inflation. The ex ante and ex post real interest rate would be identical in this case, resulting in no savings in interest payments for the government.

The unanticipated inflation effect is positive whenever the actual inflation rate is above the expected inflation rate, and the government will save on interest payments.<sup>64</sup> The financial repression effect is positive and represents savings for the government when the nominal interest rate does not reflect the true cost of borrowing for the government (that is, the actual nominal interest rate is below the free market interest rate). We can distinguish between two cases. If the observed interest rate is below the free or market rate, this constitutes “saving” to the government. The second is a special case of the first, when the real interest rate is negative, such that it is a tax on the bondholder. Reinhart and Sbrancia (2015) call this the *liquidation case*, where the real value of government debt is reduced.<sup>65</sup>

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<sup>63</sup>Equation 5.1.5 identifies the different elements required to estimate the sources of interest payment savings for the government at face value. A key challenge with empirical estimates is that it is not possible to directly observe inflation expectations and free market interest rates, particularly for the historical period under consideration. To get around this problem, when debt is at face value,  $r_t^p < 0$ , the sum of the unanticipated inflation effect and the financial repression effect is large enough to outweigh the free market interest payments. Given that government debt is liquidated in any year where real interest payments are negative, those years can be defined as liquidation years. The saving (or revenue) to the government or the liquidation effect is the (negative) real interest rate times the “tax base,” which is the stock of domestic government debt outstanding.

<sup>64</sup>The opposite is true when expected inflation is higher than the actual inflation rate.

<sup>65</sup>Both effects can be present at the same time. In this case, financial repression can have an indirect effect on the size of the unanticipated inflation effect.



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## CHAPTER 6

# Germany in the Interbellum: Camouflaging Sovereign Debt

MARK DE BROECK AND HAROLD JAMES

*It is a truth universally acknowledged, that a sovereign borrower in possession of an uncomfortably large stock of debt must be in want of camouflage.*

Buchheit and Gulati (2014)

*It is possible that no bank of issue in peace times has carried on such a daring credit policy as has the Reichsbank since the seizure of power by National Socialism. With the aid of this credit policy, however, Germany has created an armament second to none.*

Hjalmar Schacht (1938)<sup>1</sup>

At the end of World War I (WWI), Germany faced a mountain of domestic debt, as well as substantial and uncertain external reparations. It chose to let hyperinflation wipe out the value of its domestic debt; arrangements to compensate bondholders lacked transparency and were bitterly contested. In the 1930s, a banking crisis amid worldwide economic turbulence triggered the materialization of significant contingent liabilities that were met through extrabudgetary means. The sovereign also sought recourse to “hidden” budgetary financing to fund a massive rearmament program in the run-up to World War II (WWII). On the external front, the country disputed its reparation obligations for most of the interwar period. In 1929, the Young Plan and associated external loan temporarily settled matters. But a partial moratorium on private debt service was introduced as part of exchange control measures in July 1933, and extended into a full moratorium on the transfer of foreign currency in 1934. Bilateral trade negotiations were then used to play out creditors against each other.

This chapter describes how the German government consistently avoided calls for clarity of its overall fiscal and debt position in an attempt to “violate” the intertemporal budget constraint.<sup>2</sup> Supporting economy recovery in the wake of

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<sup>1</sup>Excerpt from a public speech delivered on November 29, 1938, which was quoted at the Nuremberg Trial; see <http://avalon.law.yale.edu/imt/05-03-46.asp>.

<sup>2</sup>The government budget constraint links the monetary authority’s choices of money growth and the fiscal authority’s choices of spending, taxation, and borrowing. Whenever borrowing is the source of fiscal financing, the government budget constraint also serves to link current monetary and fiscal choices to expected future monetary and fiscal policy variables.

the worldwide depression and funding rearmament efforts required large-scale budgetary financing. But the government was concerned that voters and taxpayers would recoil from the implicit future liabilities. What started as an effort to conceal the true size of the sovereign's obligations by "forgetting" to report part of the debt during the Weimar Republic developed into widespread deceptive budget practices under the Nazi regime.<sup>3</sup> Creative efforts to introduce new borrowing mechanisms that would not stoke inflation or reveal the true scale of rearmament were put in place, drawing on the ideas of "financial wizard" Hjalmar Schacht, governor of the Reichsbank (the central bank).<sup>4</sup> This was part of the Nazi regime's broader efforts to manipulate public opinion through its strict control over economic information, newspapers, and other media.<sup>5</sup> At the same time, the government misled foreign governments and foreign investors on its true intentions to service the country's external loans.

Germany in the interwar period, both as a republic and, after 1933, a dictatorship, consistently sought camouflage, making a real accounting of the interaction between domestic and external debt and between sovereign debt, monetary policy, and the fiscal accounts challenging. This chapter describes the government's efforts to conceal the extent of its financing needs and level of sovereign indebtedness during the interwar period.

## SETTING THE STAGE

### The 1923 Hyperinflation and Stabilization: A Brief Reprise

WWI was pivotal in changing the size and maturity structure of the country's sovereign debt. More than 50 billion marks of non-interest-bearing short-term Treasury bills were issued during the war.<sup>6</sup> At the end of March 1914, sovereign debt amounted to less than 10 percent of GDP; more than 90 percent of it was in the form of long-term loans. By 1919, war-related debt represented more than 50 percent of GDP; almost 40 percent of it was short-term. Interest payments on the debt in financial year 1918 (April 1918–March 1919) absorbed almost 80 percent of regular tax receipts. Treasury bills held by the Reichsbank accounted for nearly two-thirds of the Reichsbank's assets, assuming a value larger than that of its notes in circulation.

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<sup>3</sup>James (1989) provides an analysis of government financing policies under the Nazi regime from the perspective of Keynesian economic thinking, and James (1999) puts the role of the Reichsbank in this period in its broader historical context.

<sup>4</sup>Schacht (1956) wrote an autobiography, entitled *Confessions of an Old Wizard*. An earlier biography calls him a "magician" (Mühlen 1938), albeit with a more negative connotation.

<sup>5</sup>Hollyer, Rosendorff, and Vreeland (2018) offer a general analysis of the incentives for autocratic regimes to be transparent and provide economic information.

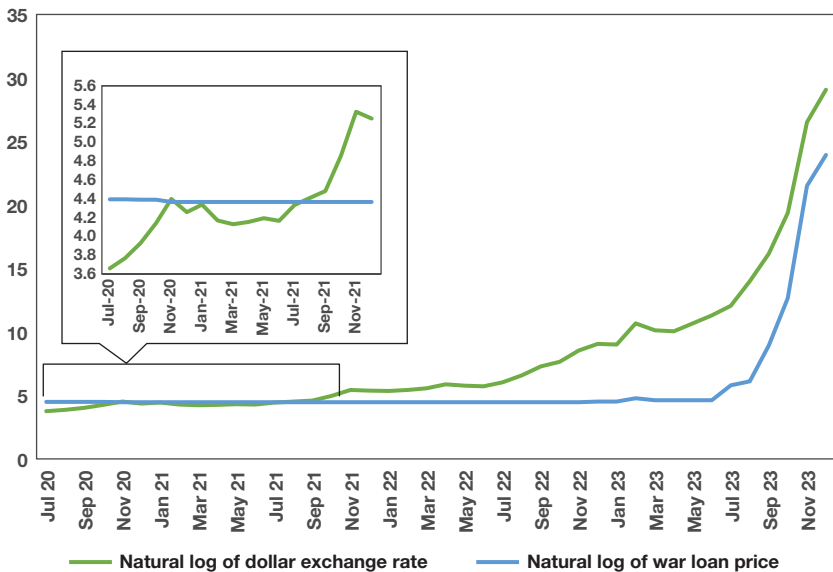
<sup>6</sup>From September 1914 to October 1918, more than 80 billion marks of medium- and long-term war bonds were sold, mainly to domestic investors. Nine loan series all carried a 5 percent coupon and could be redeemed from October 1, 1924, at the earliest. Two war bonds issued in 1914–15 carried a 5 percent coupon and were redeemable in five to six years. The war bonds sold in 1916–18 had a 4.5 percent coupon and a much longer redemption period (up to 50 years).

Efforts to put public finances in order and establish a well-functioning domestic market for long-term government debt proved fleeting in the aftermath of the war. As spending pressures built, the widening fiscal deficits were covered by ever-increasing amounts of short-term paper, setting the stage for the 1923 hyperinflation.<sup>7</sup> With limited access to external and domestic long-term financing, issuance of short-term Treasury bills ratcheted up. At the end of 1922, the Treasury bill stock approached 1,500 billion marks, an almost fivefold increase in six months. Secondary market prices of government bonds were no longer responsive to financial conditions (Figure 6.1).

The January 1923 occupation of the Ruhr region by French and Belgium troops (see Chapter 2 on the UK and Chapter 4 on France) further eroded confidence in the currency. In the first half of 1923, the mark exchange rate collapsed. As tax collection evaporated, the issuance of Treasury bills accelerated, nominally covering an ever-increasing share of spending. Following unsuccessful attempts to stabilize the exchange rate, the Reichsbank depleted its gold and foreign exchange reserves by mid-1923. Using the mark/US dollar exchange rate as deflator, the Treasury bills stock at that time is estimated to have been worth less than one-third of its value at the beginning of the year in real terms, despite massive nominal issuance (Figure 6.2).

In mid-November 1923, the government issued a new currency, the Rentenmark, and established a new financial institution, the Rentenbank, to issue

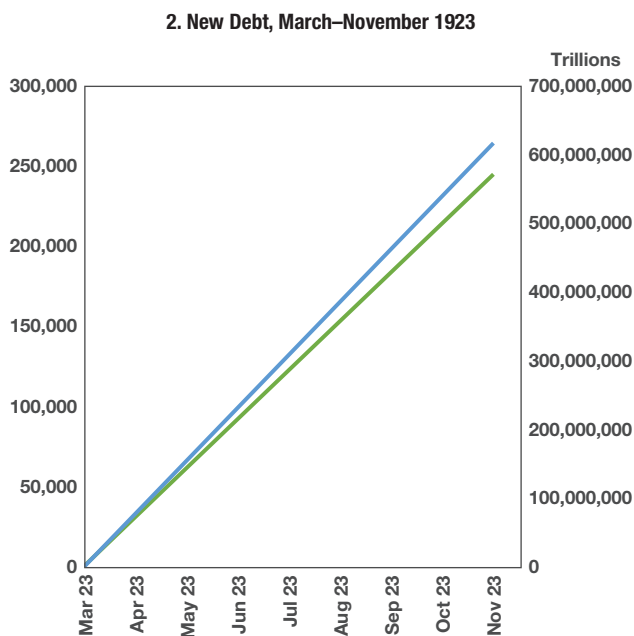
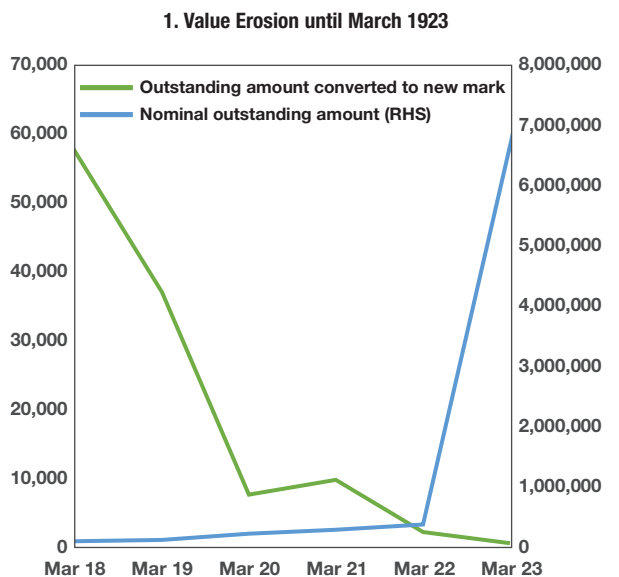
**Figure 6.1. German War Loan Prices and US Dollar Exchange Rate, 1920–23 (in Percentage of Face Value)**



Source: Kritzler (1927).

<sup>7</sup>See Sargent (1982) for a compelling account of the hyperinflation and subsequent stabilization.

**Figure 6.2. Value of German Domestic Reich Debt, 1923  
(in Millions of Reichsmarks)**



Source: Interwar Debt Database.  
Note: RHS = right-hand side.

notes denominated in this currency.<sup>8</sup> As a private financial institution, the Rentenbank could extend loans to the government and the private sector within strict quantitative ceilings. In parallel, the government adopted major economic reforms to stabilize the economy.<sup>9</sup> Government spending was slashed, commercial lending standards were tightened, and Reichsbank independence was codified in legislation. In autumn 1924, a new currency, the Reichsmark (RM), was introduced with a 1-to-1 ratio with the Rentenmark (a 1-to-trillion ratio with the mark), and Rentenbank notes were gradually withdrawn from circulation.

In tandem with the reforms to create an independent central bank, treasury and debt management functions were strengthened and data and information on sovereign debt regularly published. A Reich Treasury was established as a separate agency. The debt agency from early 1924 operated as a collegiate body largely independent from the Treasury and under the oversight of a new Debt Council composed of members of Parliament.<sup>10</sup> The Debt Council had the authority to approve borrowing in accordance with existing legislation. Daily bond price quotations, weekly Reichsbank statements with claims on the government, and monthly government debt statements were published. As an important source of external monitoring of government debt, the Agent General for Reparation Payments also presented detailed government debt data and discussed debt policies in its regular reports issued during 1925–30.<sup>11</sup>

## Hyperinflation and the Issuance of Indexed Debt

In one of the first documented instances in history, the German sovereign issued domestic debt indexed to gold and the US dollar amid the economic crisis. Indexed debt offered holders protection against hyperinflation without creating future claims on the country's gold and foreign exchange reserves. Three main issuances over this period added considerably to the sovereign's debt servicing burden without clear long-term benefits. They represented the sunk costs of hyperinflation from the fiscal perspective:

- In early 1923, the government borrowed \$50 million for a three-year period as an external loan to help stabilize the exchange rate versus the US dollar. The proceeds of the loan were used for foreign exchange market intervention. However, the failure to contain budget deficits resulted in domestic liquidity creation. This fueled additional demand for foreign exchange, draining the country's already scarce gold and foreign exchange reserves. The

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<sup>8</sup>To facilitate its acceptance as the reference unit of account, the value of the Rentenmark was determined relative to gold and set equal to the gold value of the prewar mark.

<sup>9</sup>Sargent (1982) emphasizes the importance of the change in fiscal policy regime and monetary and fiscal policy coordination for the successful ending of the German hyperinflation.

<sup>10</sup>Schultzstein (1930). For a broader discussion of the role of the debt agency against the background of Germany's fiscal framework under the Weimar regime, see Neumark (1929).

<sup>11</sup>When Germany formally joined the League of Nations in September 1926, it provided economic and financial data, including government debt data, to the League's economic services.



Reichsbank, which had taken over the servicing of the loan, eventually had to abandon efforts to stabilize the mark exchange rate.

- In August 1923, a 500 million domestic gold mark loan with a 12-year maturity was issued. The loan was serviced in marks indexed to the value of the US dollar at the prewar gold parity (4.2 marks to the US dollar).<sup>12</sup> Denominations as small as one-tenth of a US dollar were made available to facilitate circulation. Treasury bills with a real value protection thereby assumed the function of currency.
- Approximately 400 million in domestic gold mark loans were issued in late 1923 to secure emergency currency from government bodies (Figure 6.3). The Reichsbank issued “Zwischensheine” that could circulate as currency. Treasury bills from then on served as credible backing for currency through an indexation mechanism. The private sector also issued a variety of emergency currencies backed by gold mark loans. These loans were again serviced in marks indexed to the value of the US dollar at the prewar gold parity.

The August 1923 indexed loan was meant to provide backing for a medium of exchange for the general population. Subscribers could use the loan certificates as a method of payment effectively linked to the US dollar. Small denominations of the certificates, which entitled the holder to a repayment premium at maturity, circulated directly as currency. Larger denominations of the certificates, which carried an annual interest coupon, served as collateral for inflation-protected emergency money issued by subnational governments and companies.<sup>13</sup> The government used the loan proceeds to cover part of its deficit, but it assumed an

**Figure 6.3. Small-Denomination Treasury Bill Indexed to US Dollar, October 1923**



Source: Spink.

<sup>12</sup>The prewar gold parity against the US dollar also served as the benchmark for the issuance of the Rentenmark in 1923.

<sup>13</sup>For details on how *Notgeld* backed by US dollar-linked Treasury bills functioned, see Keller (1954), Wilhelmly (1962), and Rowley (1994).

additional cost to ensure that the loan certificates would be widely accepted as a method of payment.

Indexed loans supported the introduction of emergency currencies, but they could not halt the hyperinflation, the ensuing collapse of the mark exchange rate, and the flight from traditional currency. The emergency currencies were withdrawn in 1924 following monetary stabilization, but the government continued to service the indexed loans that backed them, incurring an additional sunk cost of hyperinflation.

## An Early Response to Hyperinflation: Compensating Losers

With the introduction of the RM as the new currency, domestic currency debt was serviced following the “mark equals mark” legal principle. One RM could discharge one trillion marks of service on paper mark debt, essentially leaving holders with worthless RM claims. The administrative cost of servicing the paper mark sovereign debt in RM vastly exceeded the value of the actual payments, but early redemption options for RM-denominated debt were limited.

Mortgage holders, however, successfully challenged the “mark equals mark” principle in court. A November 1923 Supreme Court judgment endorsed revaluation of mark mortgage contracts, triggering political momentum to revalue other similar debt. A February 1924 government decree—a cabinet decision approved using emergency powers—organized revaluation for private contracts. The decree failed to settle the issue politically, and revaluation was a prominent theme in the 1924 parliamentary elections.

Yielding to pressures from various stakeholders, the government eventually reached a compromise on partial revaluation of public debt.<sup>14</sup> There was limited budgetary room to service revalued sovereign debt, a new and unplanned spending item. At the same time, the government had to weigh the distributional and social considerations. The result was a convoluted arrangement, formalized in the July 1925 Loan Liquidation Act. At the end of 1925, approximately 73 billion of mark Reich debt, legally worth a little more than seven RM pfennig, qualified for conversion to approximately 1.8 billion RM loan liquidation debt.

- The act swapped paper mark debt into new RM debt at a predetermined conversion rate. The new debt carried a coupon rate of 4½ percent per annum from January 1, 1926.
- The conversion rate was set at 40-to-1 of the face value of mark debt, with higher conversion rates for debt issued during 1919–23. This was more generous than the 1 trillion-to-1 conversion rate implied by the “mark equals mark” principle.
- The arrangement did not apply to most short-term Reich debt.

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<sup>14</sup>For a detailed discussion, including the political economy aspects, see Hughes (1988).

The law introduced preferential treatment for holders who had acquired mark debt before July 1, 1920, reflecting concerns about possible speculative activities during the hyperinflation.<sup>15</sup> These holders could participate in annual amortization drawings of loan liquidation debt over a 30-year period. Drawn debt received a premium of four times its nominal value, as well as the 4½ percent coupon payments. Following completion of a complicated registration process, an approximately 1 billion RM loan liquidation debt was registered by “old holders.”

Motivated by distributional considerations, the law further introduced special categories of large and small pre-July 1920 holders. Large holders’ amortization rights were reduced to less than one-for-one for holdings above 12,500 RM. Very small holders, with holdings of less than 500 RM, could opt to receive a lump sum payment instead of drawing rights. The law offered individuals with an annual income below a poverty threshold of 1,000 RM the option to convert drawing rights into annuities, including an annuity bonus for those age 60 years and older at the time of conversion.

By the end of 1928, almost 4 million holdership declarations were received, including more than 100,000 from abroad (see also Chapter 1 on the US).<sup>16</sup> Most declarations were from smaller holders, including almost 700,000 declarations below the 500 RM threshold for cash compensation. Many declared holders were not satisfied with the compensation offered and continued agitating for additional benefits, including through organized political opposition.

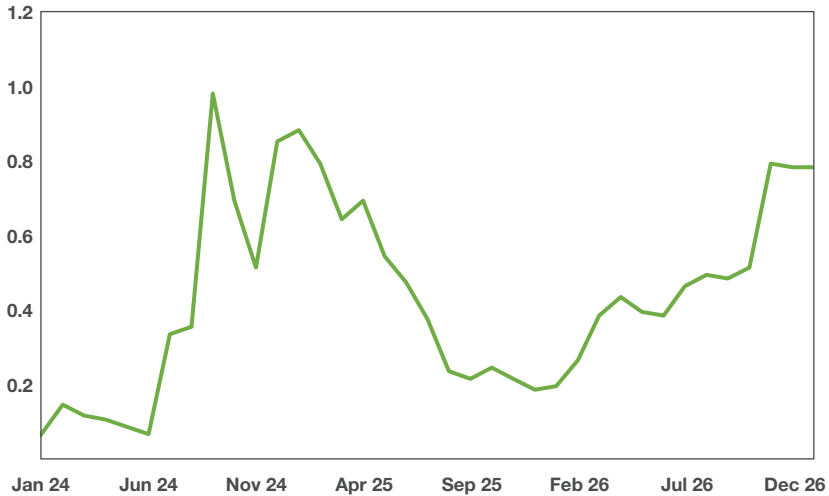
The revaluation controversies drove long-term government debt prices. Mark debt was quoted on the Berlin Stock Exchange even after the hyperinflation, with prices in the 1 to 2 percent of par range. Because this debt would have been worthless without revaluation prospects, prices clearly reflected investors’ expectations of partial compensation. Prices, however, dropped in the second quarter of 1925, when the compromise legislation was underway, suggesting that it was less generous than investors anticipated (Figure 6.4).

German nationals whose property was lost or damaged during WWI also received compensation. The March 30, 1928, War Damage Liquidation Law again differentiated between claimants based on the size of the entitlement. Claimants with damages of less than 20,000 RM were paid in cash; individuals with larger damages received debt certificates denominated in RM but with the gold value guaranteed. The certificates were redeemable over a period of 20 years, with smaller holders scheduled to be redeemed first. The complexity of the arrangement once more reflected the difficult political economy trade-offs.

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<sup>15</sup>July 1, 1920, was set as the date dividing “old” from “new” holders because old holders carried proof of having registered their security holdings under the October 1919 regulations against capital flight. New holders could swap mark debt for loan liquidation debt but were not entitled to drawing rights (see Neufeld 1926, for a detailed description).

<sup>16</sup>Reichsministerium der Finanzen (1928).

**Figure 6.4. War Loan Prices, 1924–26 (in Percentage of Par Value)**

Sources: Berliner Börse, Abteilung Wertpapierbörse (various issues).

### Challenges with Relaunching the Market for Long-Term Debt

In the initial post-stabilization years, reestablishing the market for new long-term sovereign debt was not a priority. With the Treasury cash position in surplus, there were no immediate market funding pressures. Moreover, investors had experienced how hyperinflation could wipe out the value of bonds without explicit inflation protection and continued to view nominal bonds as very risky. The complexity of the 1925 revaluation exercise further undermined confidence in the sovereign's ability to service the nation's long-term debt.

The first post-stabilization long-term domestic loan was issued in February 1927. The government wanted to take advantage of the prevailing favorable money market conditions and the reduction of the Reichsbank discount rate to 5 percent. Facing an untested market for new long-term debt, the government issued the loan significantly below par, at 92 percent, and with restricted initial tradability.<sup>17</sup> With the lifting of tradability restrictions approaching in mid-1927 and the tightening of general financial market conditions, the market price of the bonds fell to less than 86 percent of the issuance price. Concerned that investors “who are under an obligation to draw up balance sheets have been obliged to show considerable losses on this account,”<sup>18</sup> the new rate applied until July 1934,

<sup>17</sup>At an issuance price of 92, the bonds carried an initial yield of 5½ percent (assuming no early redemption). Out of the 500 million RM offered, only 300 million RM were sold publicly. The residual 200 million RM were privately placed with public sector institutions and not tradable for nine months.

<sup>18</sup>Commissioner of the Reichsbank (December 1927).

when the first drawings of bonds under the sinking fund were scheduled. Although the coupon adjustment helped ease pressures, it also created a bad precedent for the issuance of new long-term loans.<sup>19</sup>

An attempt was made to launch a new domestic long-term loan to individual investors in May 1929, using a range of tax incentives. Compared with the previous loan, the new loan targeted a smaller amount (300 million RM), carried a much higher coupon (7 versus 5 percent), and had a shorter maturity. Final subscriptions fell substantially short of the target. The loan was considered a failure, and the sale of interest-bearing Treasury certificates to financial institutions began to gather steam. The certificates had a maturity of up to one year and could be traded among financial institutions. Their issuance marked the beginning of a trend to direct placement with the financial sector instead of sales to the public. By the end of 1929, more than 10 years after the end of WWI and more than six years after the end of hyperinflation, Germany continued to face challenges in issuing new long-term domestic sovereign debt.

When the worldwide depression hit Germany in the first half of 1930, Parliament rejected the austerity measures proposed by the then Chancellor Brüning, leaving the government without the authority to borrow. In response, the Chancellor dissolved the Parliament and used the emergency provisions of Article 48 of the Weimar Constitution to govern by special decree. The first special decree, from July 26, 1930, authorized the Finance Minister to borrow up to 500 million RM on behalf of the Treasury.<sup>20</sup> The Debt Council objected to the arrangement on the grounds that the Weimar Constitution gave Parliament the exclusive right to authorize sovereign borrowing. The government resorted to temporary decrees for fiscal financing, but no further efforts to place long-term debt were made.

## THE 1931 BANKING CRISIS

As the Great Depression intensified, the German banking and economic system was shaken by a severe crisis in the summer of 1931. Creditanstalt, Austria's largest financial institution and the main regional bank for central Europe, failed on May 11, 1931, triggering a bank run and contagion to Germany. Germany now faced a simultaneous banking, currency, and fiscal crisis.

A critical part of the problem was government debt management. The central government faced rising deficits, largely driven by automatic social expenditure as a consequence of the gathering depression. The instability increased after the

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<sup>19</sup>The placement of new mortgage bonds denominated in gold mark offering inflation protection continued. Re-introduction of the exemption of foreign bond flotations from capital yield taxation, however, helped German borrowers float large quantities of bonds abroad (Balderston 1993).

<sup>20</sup>*Notverordnung* from July 26, 1930 (Reichsgesetzblatt 1930 I, S. 311).

political shock of the high Nazi vote in the September 1930 parliamentary elections. The leading official in the Finance Ministry, State Secretary Hans Schäffer, noted: "If only a few big firms get unto difficulties or internal troubles lead to the calling of short-term credit, there is an acute danger that treasury bills cannot be accommodated. Especially from the viewpoint of foreign policy, such a situation is intolerable" (James 1985, 120).

In response, the government turned to the international market for a two-year \$125 million bridging loan, in a syndicated credit of 22 American, 1 Canadian, 23 German, and 3 Swedish banks, coordinated by the Boston bank Lee Higginson and concluded on October 12, 1930. Diplomatic historian Edward Bennett concludes his account: "This was the last great foreign credit that the Weimar Republic was to receive, and those who lent the money soon regretted their action" (Bennett 1962, 20).

The loan agreement was predicated on implementing an ambitious domestic austerity program, increasing contributions to unemployment insurance, and reducing central government subsidies to state and local governments. It carried a peculiar escape clause: "If the financial or economic situation in Germany between the date of execution of this Agreement and the putting into effect of the legislation referred to in Article I thereof should be adversely affected in such a manner that the granting of the credit by banks may not reasonably be asked for, or if such legislation referred to in Article I is not enacted with the concurrence of the Reichstag, the Reich and the Bankers will reconsider whether and in what form the credit can be carried through." In fact, the legislation was not passed through a parliamentary vote but through an emergency decree.

At the end of December 1930, the government arranged to issue more short-term government securities. Because longer-term funding schemes had not come to fruition, the government was dependent on selling short-term debt to the German banking system.<sup>21</sup> After May 1931, as the German banking system lost deposits in a banking run, the banks could no longer absorb short-term government debt. In May 1931, German banks lost 2.6 percent of their deposits (337 million RM), and the bank run accelerated. On June 5, 1931, a new emergency decree imposed new fiscal austerity, cutting civil service pay and increasing the sales tax. The April and May fiscal yield was less than expected, and the government needed to sell an additional \$125 million of Treasury bills. On June 20, the international moratorium on US debts declared by President Hoover (see Chapter 1) brought some temporary relief, but the problem returned; the schedule of central government payments, with a large sum due on July 15, provided what constituted a countdown to banking disaster.

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<sup>21</sup>Reiter (1967) includes an historical overview of the role of German commercial banks in lending to government, including during this financial crisis episode.

The central bank extended an emergency line of credit on July 9 but—partly because of foreign pressure—ensured that it was not renewable beyond July 16. Relatively small government deficits were impossible to finance by a banking system under strain, and the prospect of the government not being able to pay increased the sense that the banks were vulnerable. This argument was at the heart of US consular reports; one from May 1931 stated: “The consistent uncertainty and insecurity with regard to the Reich’s finances during the past year seems to have been one of the main reasons for the severity of the economic depression” (quoted in James 1986, 305). This entailed a doom loop between banks and government debt.

The government faced an initial cost of banking sector support of around 914 million RM, around 1 percent of 1931 GDP.<sup>22</sup> Of this amount, approximately 650 million RM were spent on three large commercial banks (Danatbank and Dresdner Bank, which were merged under the name of the Dresdner, and Commerzbank) and approximately 150 million RM on the agricultural credit cooperatives. In addition, the sovereign in 1931–32 issued 347.2 million RM special Treasury notes to support the balance sheet of banks,<sup>23</sup> and in 1931, it injected 20 million RM in the Akzept und Garantiebank established under the umbrella of the Reichsbank.<sup>24</sup> The Reichsbank used the affiliated Gold Discount Bank to recapitalize the merged Dresdner bank (91 percent stake), the Commerzbank (69 percent stake), and the Deutsche Bank (35 percent stake).<sup>25</sup>

The state eventually reprivatized the merged Dresdner Bank and the Commerzbank in 1936–37, generating around 250 million RM in cash for the Nazi regime. The reprivatization proceeds, however, fell far short of the total cost of state support to these banks, leaving the state with a net loss of approximately 615 million RM on account of them.<sup>26</sup> When unrecovered support to the rest of the financial sector is added, by 1938, the government was facing a documented

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<sup>22</sup>Contemporaneous estimate from Benjamin (1934).

<sup>23</sup>As the Debt Council continued to oppose government borrowing that was not approved by Parliament and Chancellor Brüning lost political support in Spring 1932, the government cancelled plans to issue another special decree with an authorization to borrow. Instead, it asked Parliament by law to authorize the Finance Ministry to borrow up to 600 million RM, in line with Article 87 of the Weimar Constitution. The use of special decrees, however, had eroded the principle that the budgetary powers of Parliament were constitutionally protected. When Chancellor Brüning resigned at the end of May 1932, the new Chancellor, Von Papen, again resorted to special decrees under Article 48 of the Constitution to conduct fiscal policy and borrow.

<sup>24</sup>Pontzen (2009). The Akzept und Garantiebank was founded on July 28, 1931. Its aim was to maintain or reopen access to central bank credit for financial institutions facing difficulties. It provided credit through the acceptance and discounting of bills of exchange and was not allowed to provide direct loans.

<sup>25</sup>For additional information on this recapitalization, see Balderston (1991) and Born (1967).

<sup>26</sup>Ziegler (2011) assesses total state support for Danat/Dresdner at 753.4 million RM and for Commerzbank at 112.7 million RM.

permanent loss of approximately 875 million RM from the 1931 crisis, less than 1 percent of German GDP that year.<sup>27</sup> No data were published on possible calls on Reich guarantees granted to the two bad asset companies.

## FINANCING PUBLIC WORKS AND REARMAMENT: CAMOUFLAGE THROUGH NEW FINANCIAL INSTRUMENTS

### The 1932–35 New Domestic Financing Strategy

In the midst of collapsing domestic economic activity and accelerating unemployment, the authorities embarked on an ambitious fiscal expansion to support economic recovery. Because it was not feasible to finance the deficit through long-term domestic or external borrowing, new financial instruments were introduced. These provided tax relief without raising the cash deficit or relaxing legal limits on central bank financing.

The first category of one-off instruments, *tax remission certificates*, was introduced in September 1932. These certificates shared many of the characteristics of tradable government debt but did not involve cash payment of interest or principal. Taxpayers received certificates in proportion to payments on selected taxes during October 1932–September 1933 and for hiring new workers during that period. The certificates carried a 4 percent annual coupon and could be used for payment of federal taxes (other than corporate and income taxes) in the fiscal years 1934–35 to 1938–39 at an annual rate of 20 percent of the total value, including accumulated interest. The certificates could be sold freely on the stock exchange or to a consortium of banks, used as collateral against loans for up to 75 percent of their market value, and offered for rediscount at the Reichsbank. Secondary market prices at the Berlin Stock Exchange were close to discounted par values, suggesting that the 4 percent coupon rate was set in line with market conditions.<sup>28</sup>

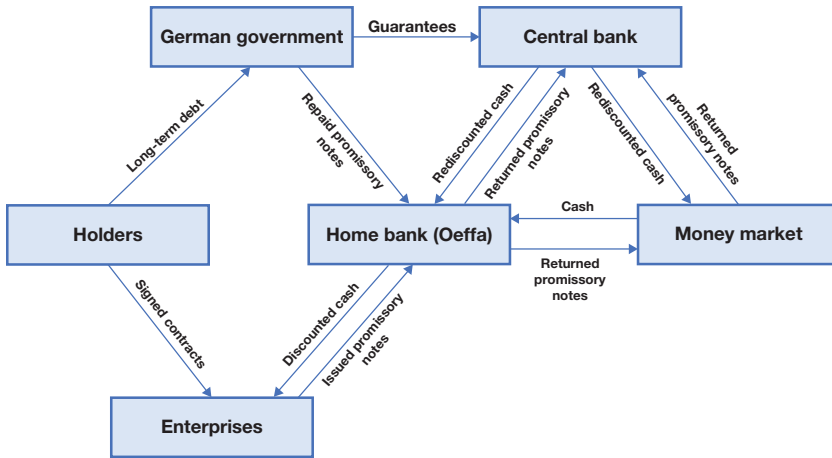
Another category of one-off financing instruments, *employment creation bills*, was issued in early 1933 (Figure 6.5). These bills were the first example of complex financial engineering of its kind. They were designed to have the characteristics of regular commercial bills of exchange but could only be used to finance

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<sup>27</sup>The financial sector redeemed according to schedule the special Treasury notes received in 1931–32 and repaid the Akzept und Garantiebank.

<sup>28</sup>An estimated 263 million RM in tax remission certificates in October–December 1932 and an additional 952 million RM in 1933. More than half of outstanding certificates were redeemed by April 1939; see Golla (2008) and Oshima (2006).



**Figure 6.5. Mechanism of Employment Creation Bills**

Source: Teutul (1962, 72).

public works. The bills were drawn for three months and made renewable (up to 19 times) while carrying the same maturity as regular commercial bills to accommodate public works projects with a medium-term horizon. The government provided special guarantees in the form of tax remission certificates or employment creation debentures, paid the interest, and redeemed the bills. After endorsement by an ordering agency, contractors could present the bills to specialized, publicly owned financial institutions. The bills could then be (re)discounted by commercial banks or the Reichsbank. Through this mechanism, the bills gained the character of medium-term (up to five years) discountable paper.

Although employment creation bills did not generate interest savings for the budget,<sup>29</sup> they were a more attractive investment for commercial banks than regular medium-term Treasury certificates, which were not discountable and, hence, less liquid.<sup>30</sup> In tandem, steps were taken to make alternative investments less attractive. For instance, new legislation on the distribution of profits by corporations capped cash dividends at 6 percent of the par value of the stock. Any excess cash dividend was to be paid to the Gold Discount Bank and invested in government bonds on behalf of the shareholders.

Despite these measures, market conditions did not support new sovereign bond sales. Secondary market prices at the Berlin Stock Exchange suggest that the

<sup>29</sup>The bills carried the same rate as medium-term Treasury certificates, the 4 percent Reichsbank discount rate.

<sup>30</sup>An estimated 1 billion RM employment creation bills were issued in 1933 and an additional 1.5 billion RM in 1934; see Golla (2008).

government would have had to offer a coupon of at least 6 percent on new debt. The government instead opted for a comprehensive conversion operation to bring down all long-term interest rates to a maximum of 4½ percent.<sup>31</sup> Recognizing that the 4½ percent coupon fell short of prevailing market conditions, the government placed the loan with the publicly owned Union of Savings Banks and the Clearing Bank Association. Formally, the loan conversion was voluntary. Investors could refuse to participate and continue to receive the original higher interest rate. However, they could no longer trade nonconverted securities on the stock exchange or have them accepted as collateral by the Reichsbank. Investors also faced considerable political and social pressures to convert. In the end, very few refused to do so.

The conversion marked the end of efforts to establish well-functioning primary and secondary markets for domestic long-term government debt. The government continued to fully service converted bonds and new domestic sovereign debt until the end of WWII. This was in line with policies to have Germany's foreign currency debt serviced in domestic currency equivalent, a tactic that protected domestic holders of foreign currency debt (see later in this chapter).

## Transitional Financing: More Creative Financial Engineering

In March 1935, the Nazi regime declared rearmament to be the country's top priority. Existing programs to stimulate employment were folded into the armament program, with Hjalmar Schacht, the Reichsbank governor, at the helm of a new financing strategy. This had to cover the regime's planned massive increase in military spending without creating inflationary pressures.<sup>32</sup> A key component of Schacht's strategy was to expand the use of Mefo bills, which had been introduced in the context of the employment creation program, for armament financing. Mefo bills were drawn by armament contractors and accepted by a limited liability company, the Metallurgische Forschungsgesellschaft, m.b.H. (MEFO), set up solely for financing purposes. The drawer could present Mefo bills to any qualifying German bank for discount. The banks, in turn, could rediscount the bills at the Reichsbank at any

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<sup>31</sup>The February 27, 1935, Conversion Law reduced the coupon on outstanding Reich bonds to 4½ percent and extended the new coupon ceiling to all other public sector long-term issues. Outstanding employment creation bills were also consolidated through a 28-year loan floated at 4½ percent. In combination with the Conversion Law of January 24, 1935, which imposed a 4½ percent coupon ceiling on private sector long-term debt, the February law eliminated any scope for a higher coupon on alternative investments than on converted Reich bonds.

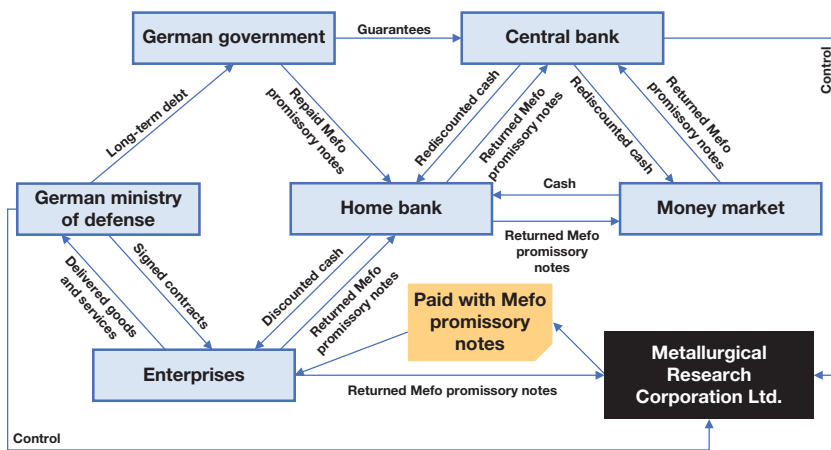
<sup>32</sup>In a May 3, 1935, memorandum to Hitler on the financing of armament, Schacht took the planned increase as a given, noting that "accomplishment of the armament program in regard to speed and extent, is the task of German policy, and that therefore everything else must be subordinated to this aim" (reported in the *Nuremberg Trial Documents, Nazi Conspiracy and Aggression*, Volume 2, Chapter XVI, Part 12).

point within the last three months of their earliest maturity. The bills essentially added a shadow company to the financing scheme conceived for the public works program (Figure 6.6).

Mefo bills served as a key financing source for the armament program, covering more than one-third of German military spending during April 1935–March 1938.<sup>33</sup> The stock of Mefo bills increased sixfold over this period, and by March 1938, the bills had grown into the largest component of total (reported and unreported) debt. Mefo bills, however, were not included in official debt statistics. Reporting on government spending and its components was already discontinued as early as 1935. Published financial sector balance sheets that could have identified holdings of these bills were also carefully sanitized.<sup>34</sup>

Mefo bills circulated widely outside the Reichsbank among companies and financial institutions. They carried a government guarantee, had an attractive 4 percent interest rate, and could be discounted (and rediscounted). The Reichsbank anticipated that until the economy had reached full employment, the pace of rediscounting the bills would be in line with the rebound in economic activity and hence would not be a source of excessive money creation.<sup>35</sup> By early

**Figure 6.6. The Design of Mefo Bills**



Source: Golla (2008, 181).

<sup>33</sup>See Ritschl (2002).

<sup>34</sup>Teutl (1962).

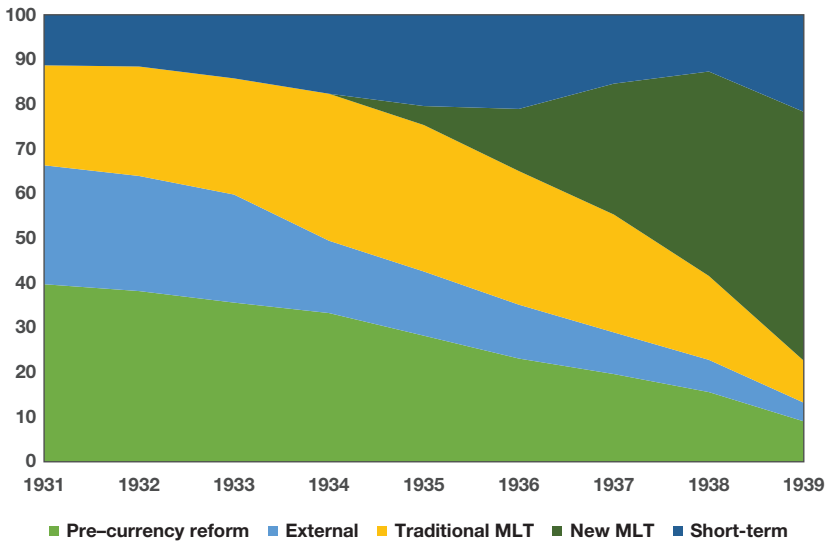
<sup>35</sup>The stock of rediscounted Mefo bills at the Reichsbank rose by an estimated 4 billion RM during 1934–37, but currency in circulation increased by less than 1.8 billion RM, growing broadly in line with real economic activity.

1938, once the economy had reached full employment, issuance of Mefo bills was discontinued. Reliance on institutional savers to place medium- and long-term debt now gained importance (Figure 6.7).

To complement the existing range of short-term and long-term instruments, the government also introduced a new medium-term instrument. The new security was a 4½ redeemable Treasury note with a maturity of 10 years. The security was quoted on the stock exchange, and its liquidity was ensured by inclusion in the list of securities qualifying for Reichsbank open market operations. The rate of issuance of medium- and long-term loans progressively increased as loans were offered in larger sizes and floated at closer intervals.

The new financing instruments and mechanisms shifted the pattern of government borrowing. By the late 1930s, however, the sharp increase in overall government borrowing and the accumulation of Reichsbank claims on the state could no longer be concealed. Other sectors of the economy were increasingly crowded out (Figure 6.8).

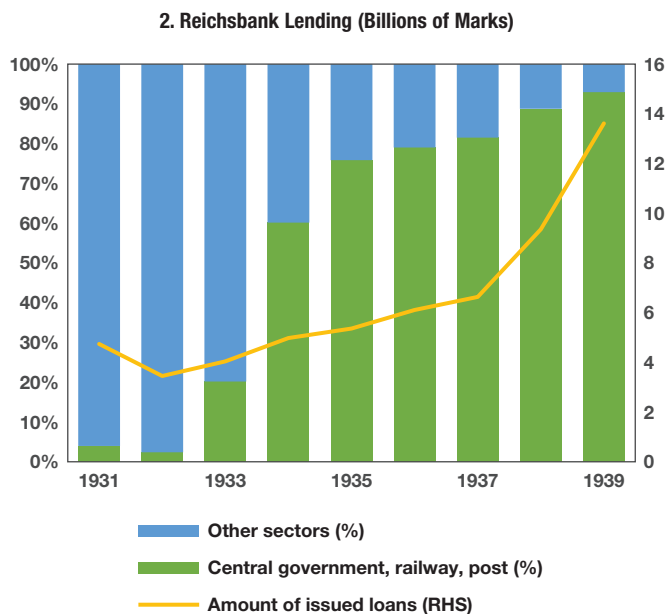
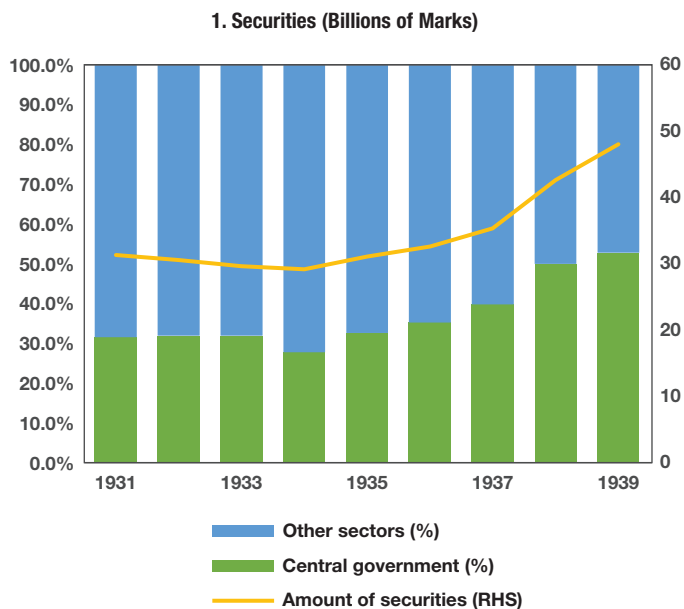
**Figure 6.7. Debt Composition: Use of New Instruments, 1931–1939 (in Percent)**



Source: Interwar Debt Database.

Note: MLT = medium- and long-term.

**Figure 6.8. Securities and Lending by Borrower, 1931–39**



Sources: National sources; authors' calculations.  
 Note: RHS = right-hand side.

## Data Obfuscation and Fiscal Non-transparency under the Nazi Regime

The Nazi regime allowed for regular publication of the country's debt data until well into WWII. But information available within the public domain was increasingly restricted. For instance, the Debt Council no longer issued public reports. The government also discontinued the publication of data on government spending or the fiscal deficit and its financing. In the absence of public information on debt management and fiscal policies, the Nazi regime could allow for the statistical release of Reich debt data in the Weimar format, suggesting an illusory transparency.<sup>36</sup>

The Nazi regime also went to great lengths to legitimize its financial practices. It left the fiscal and debt management legislation from the Weimar period largely in place, but budgetary powers were transferred from Parliament to the Cabinet.<sup>37</sup> An amendment to the Weimar Constitution approved on March 23, 1933, gave the Cabinet legislative powers with respect to constitutional provisions regarding budgetary and sovereign loan authorizations.<sup>38</sup> The Finance Ministry continued to prepare an annual budget proposal and budgetary accounts but no longer submitted them to Parliament. In February 1935, the ceiling on borrowing authorizations was removed. From this point, the government could borrow any amount authorized by the Chancellor upon request, but the public was left in the dark on the amount actually approved.

The inflationary effects of rapidly increasing government spending under the Nazi regime were also masked. From 1934, price controls were imposed. One consequence was covert inflation, in which prices remained fixed but the quality of goods deteriorated. This was especially true of textiles and shoes, but it also applied to some foodstuffs, where the use of substitute (*ersatz*) materials for expensive imported goods was a consequence of exchange control legislation.<sup>39</sup>

The regime issued exhortatory statements about fiscal restraint intended to reassure Germans who were worried about the possibilities of a new bout of inflation. In 1933, the periodical *Währung und Wirtschaft* explained that the government needed to avoid “any threat to the currency” by “resisting the endless

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<sup>36</sup>The German Finance Ministry prepared debt reports for internal use that documented many of the camouflaging practices—see Archiv des Ehemaligen Reichsfinanzministerium (1949). These reports served as the basis for several studies of German financial policies under the Nazi regime initiated after WWII—see, for instance, Dieben (1949) and Löbke (1948).

<sup>37</sup>The main exception was military spending, which by an April 4, 1933, Cabinet decision was exempted from standard budget rules and brought under the direct control of Nazi leadership; see Oshima (1980).

<sup>38</sup>One week later, the Cabinet authorized sovereign borrowing of up to 600 million RM. *Gesetz über Erteilung von Kreditermächtigungen* approved by the Cabinet on March 30, 1933 (Reichsgesetzblatt 1933 I., S. 151), which effectively replaced the *Gesetz über Schuldentilgung und Kreditermächtigungen* approved by Parliament less than one year before.

<sup>39</sup>Steiner (2003 and 2005) presents a detailed discussion of the price controls introduced under the Nazi regime and the distortions in the reported price indices.

demands made at all times on public funds” (James 1986, 379). Hitler boasted: “I had to also make it clear to Schacht that the first cause of our currency stability is the concentration camp: the currency is stable when anyone who demands more is dealt with” (Jochmann 1980, 88).

## New Financing Strategy and War Financing

By early 1938, fearing the inflationary consequences of increasing military spending, Schacht presented a new financing strategy designed to eliminate the issuance of special bills, raise additional tax revenue, and place long-term loans. The Reichsbank issued new certificates in exchange for large blocks of maturing special bills. New Treasury delivery bills were introduced, which entailed exchanging short-term debt for liquid central bank liabilities. The bills could only be issued by the Treasury for six months and in amounts that could be fully repaid at maturity out of the proceeds of long-term loans.<sup>40</sup>

Schacht’s new financing strategy was not effective. The annexation of Austria and the military campaign against Czechoslovakia created substantial unplanned additional spending needs. The Treasury was forced to place more delivery bills than planned; in early 1939, it stopped issuing new ones. In September, formal independence of the Reichsbank was revoked by the Cabinet.

Direct placement with the financial sector increased, and issuance of non-interest-bearing debt surged. New short- and medium-term certificates that could be used to pay future taxes and customs were issued (Figure 6.9). These certificates served as both a forced loan and a transaction medium, but they did not circulate beyond suppliers and contractors.<sup>41</sup> Tax credits and other incentives (for example, deductible depreciation allowance) were provided to induce holding. During April–October 1939, the government issued almost 5 billion RM in tax certificates, accounting for approximately 40 percent of its total net borrowing.

In marked contrast to the large and well-publicized war loans sold to the public during WWI, the government opted for “silent financing” during WWII (see also Chapter 5 on Italy). The composition of debt shifted to medium- and long-term instruments placed with savings banks and insurance companies (Figure 6.10). High taxation of income, rationing of consumer goods, and control of private investment strictly limited household and corporate discretionary spending. As in Italy, households and corporates had no outlet other than

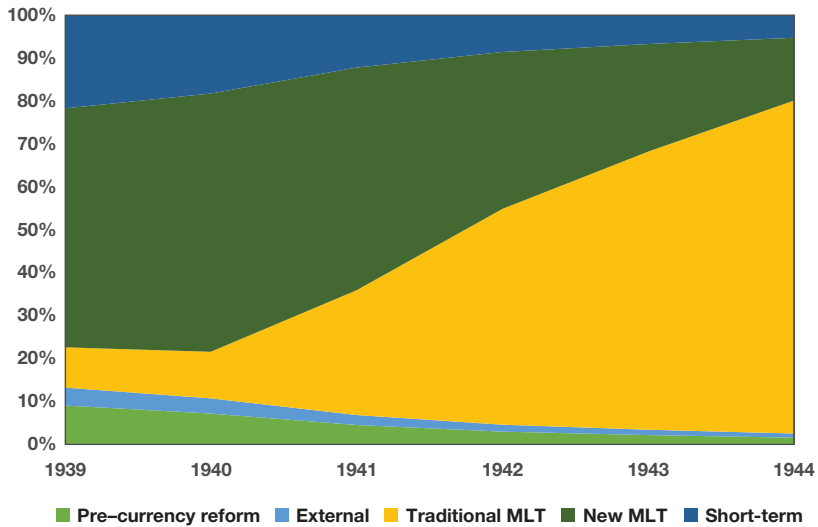
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<sup>40</sup>Unlike special bills, the new bills were not eligible for rediscount at the Reichsbank. They still had most of the features of commercial bills, carried 3 percent interest, could be discounted at commercial banks, and were eligible as collateral for Reichsbank advances at up to 75 percent of their value.

<sup>41</sup>Government bodies and public sector companies had to use the certificates to pay for 40 percent of orders above 500 RM and purchase them for cash from the Reich Treasury, giving the Reich access to their liquidity. Suppliers and contractors had to accept the certificates in payment from government and public sector companies and from other suppliers and contractors for 40 percent of any amount due for goods delivered or services performed.

**Figure 6.9. Short-Term Tax Credit Certificate, 1939 Series**

Source: Spink.

**Figure 6.10. Debt Composition, 1939–1944**

Source: Interwar Debt Database.

Note: MLT = medium- and long-term.

savings products offered by the financial sector. Savings banks and insurance companies, in turn, systematically channeled all available financial resources to the government.

As war financing needs increased, financial repression escalated. Maturities of Treasury certificates were lengthened.<sup>42</sup> Interest rates on medium- and long-term

<sup>42</sup>Initial war issues of the certificates in March and May 1940 were expected to mature after 5 and 10 years, respectively; later issues from September 1940 had a maturity of 21 years.



debt were reduced: Treasury certificates issued before 1941 paid 4 percent interest, and later issuances paid only 3½ percent. The interest rate on liquidity bonds was initially set at 4½ percent but eventually was reduced to 3½ percent. Reliance on central bank financing also ramped up. The last published Reichsbank balance sheet (from March 7, 1945) shows that the 70.2 billion RM of Treasury bills and certificates held by the Reichsbank had almost completely crowded out the asset side of its balance sheet. Upon surrendering in May 1945, the Reich ceased servicing the country's domestic sovereign debt.

## GERMANY'S EXTERNAL DEBT OBLIGATIONS: PERMANENT RENEGOTIATION

### Commercializing Reparation Obligations: The Dawes Loan

Following extensive intergovernmental and commercial negotiations under the auspices of the Dawes Plan, Germany tapped private international financing in 1924. The objective was to reduce and partially commercialize its reparation obligations. For the international community, turning part of Germany's reparation obligations into loans sold to private investors was expected to move the problem from the political to the commercial sphere (see Chapter 1 on the US).

International bankers recommended giving the loan seniority over all other claims on Germany, including reparation payments, and issuing the bulk of it in New York and London through a joint Anglo-American effort.<sup>43</sup> The bankers emphasized the need to ensure that Germany was fully committed to the Dawes Plan and had the capacity to service the loan: "Our markets will need to be assured not only that the loan is a first lien on Germany's assets and revenues, but also that it is the obligation of a solvent Government and a solvent country."<sup>44</sup> The loan was eventually floated after the servicing of the Dawes loan was granted seniority over all reparation payments. Service of the Dawes loan was further protected by a first charge on German customs duties; taxes on tobacco, beer, and sugar; and the net revenues of the alcohol monopoly.

The Dawes loan was issued in October 1924 with a 25-year maturity period, with J.P. Morgan & Co. acting as syndicate manager. Tailored to the individual preferences of national investors, the loan was issued in nine different tranches and denominated in five different currencies. To provide an attractive yield, the coupon rate was set at 7 percent and the issuance price at 92 percent of face value. The US tranche of \$110 million was issued in New York and accounted for one-half of the total planned issuance. Tranches denominated in sterling were issued

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<sup>43</sup>de Cecco (1985) calls this period "the high-noon of politicized international finance." See also Burk (1991).

<sup>44</sup>Cable message cited in Clarke (1967).

in the City of London (\$50 million) and in Belgium, France, Germany, the Netherlands, and Switzerland (sterling component of the Swiss tranche), for a combined equivalent of around \$40 million. The rest of the loan was placed in domestic currency in Italy, Sweden, and Switzerland (domestic currency component of the Swiss tranche).

For the US dollar tranche only, the loan promised a redemption bonus of 5 percent of face value and included a gold clause. The tranche's yield, at close to 8 percent, was about double that of long-term US government bonds. In the end, the US dollar tranche was oversubscribed nearly 10 times over and sold in 15 minutes. In initial trading, its price quickly rose to a premium. Selling the continental European tranches, however, proved more difficult. The banking syndicate sought a broad constituency for the loan, including investors in countries affected by the war. However, they did not anticipate the intensity of public resistance to lending to Germany.<sup>45</sup> Both the Morgan bankers, in their capacity of syndicate managers, and the national authorities had to make considerable efforts to engage local banks and issuing houses in the underwriting.

## The Young Plan

The Dawes Plan left open the question of Germany's reparation liabilities. In September 1928, a new committee of financial experts was set up to draw up proposals for a complete and final settlement of the reparation problem. The Young Plan reduced Germany's annual reparation charges; set an end date for the scheme; and introduced a new transfer mechanism. The responsibility for the collection and transfer of reparation payments was given to a new international institution, the Bank for International Settlements (BIS). The BIS, which was owned by the main European central banks, was also named Fiscal Agent of the Trustees of the Dawes Loan, assuming responsibility for the distribution of interest and amortization payments on the loan.

The Young Plan also encouraged partial commercialization of Germany's reparation obligations.<sup>46</sup> The Young Plan entered into force on May 17, 1930, retroactively replacing the Dawes Plan from September 1, 1929. In addition to the direct benefit of receiving \$100 million dollars from the loan proceeds, Germany stood to gain from improved credit conditions domestically and abroad. The Allied countries were to receive \$200 million as first installment of the revised reparation obligations.

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<sup>45</sup>Most of the Continental bankers preferred their tranches be issued in sterling. The British authorities were agreeable to this, subject to the understanding that for two years such bonds could be offered on the British market only with the consent of the Bank of England.

<sup>46</sup>According to the Dawes Plan, only about one-third of each annuity (approximately 660 million RM, or \$165 million) was "unconditionally" payable (could not be postponed), and only this portion of the debt could be commercialized.

Once again, international bankers negotiated the detailed terms of the international loan, reaching an agreement in June 1930. The loan was issued with tranches placed in nine different markets, including a German tranche, and denominated in nine different currencies. Two-thirds of loan servicing costs were covered from reparation annuities, backed by a collateral guarantee on specific tax revenues; the remaining costs were covered from general government revenues. The loan carried a 5½ percent annual coupon and was intended to be redeemed gradually through a sinking fund over a 35-year period, with final maturity in 1965. In contrast to the Dawes loan, which only carried a gold clause for the dollar tranche, the Young loan included gold clause guarantees for all tranches. As additional protection, holders had the option to collect payment of interest and principal in any foreign market where loans were quoted in the currency of that market.

In the US, 36 financing houses participated in the distribution of the \$98.25 million tranche under a syndicate led by J.P. Morgan & Co. Bankers set the issuance price at 90 percent of par to attract investors but found it challenging to sell the bonds even at that price. The deteriorating international economic environment and concerns about the sustainability of Germany's large external obligations discouraged investors. Following the offering in June 1930, the loan saw its price quickly drop in secondary markets to around 70 percent of par at the end of 1930.<sup>47</sup>

In June 1932, Allied countries, joined by British Commonwealth members and smaller European countries, signed an agreement to suspend German current reparation payments and replace them with a new schedule of reduced obligations. The Lausanne Agreement explicitly safeguarded the service on Dawes and Young loans. In Article 7, the signatory governments declared that “nothing in the present Agreement diminishes or varies or shall be deemed to diminish or vary the rights of the bondholders of the German External Loan, 1924, or of the German Government International 5½ percent Loan, 1930.”<sup>48</sup>

In December 1932, the US Congress adopted a resolution that no foreign debt owed to the US government should be reduced or cancelled (see Chapter 1 on the US). The German government did not make further reparation payments, and the Nazi regime abandoned the Versailles Treaty in 1933, repudiating the reparation obligations under the treaty. Despite the growing internal opposition, continued service of the Dawes and Young loans initially was not in doubt. It was well understood that these loans were “the touchstone of German credit” and that

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<sup>47</sup>Commercial and Financial Chronicle (1930).

<sup>48</sup>Article 7 also specified the conditions for “any necessary adaptation of the machinery relating to the manner in which the obligations of the German government with respect to two loans would be discharged.” Any change would be subject to mutual arrangement between the German government and the BIS. On this basis, the BIS sought an amendment to the Young Loan Trust agreement, including to clarify the status of the collateral guarantees securing the service of the Young loan, but without success; see text of the Final Act of the Lausanne Conference, as reported in *Federal Reserve Bulletin*, August 1932, 497–502.

Germany had taken on a special commitment to pay.<sup>49</sup> However, this resolve was not to last long.

## Toward Full Control of Foreign Trade and Foreign Exchange

In the 1930s, the German government moved in three stages to fully control foreign trade and foreign exchange transactions. Initially, the government wanted to safeguard its scarce foreign exchange reserves but understood that it was not in its best interest to default on all its foreign debt. Combining debt management and trade and exchange control policies, it continued servicing its foreign debt in domestic currency equivalent. However, the protective provisions of the Dawes and Young loans were suspended, including the gold protection and *pari passu* clauses, and the BIS was sidelined.

Eventually, the foreign debt issue was turned into a transfer problem. The government used bilateral trade concessions to play creditor countries against one another, differentiating between debt instruments, while recognizing the special status of the Dawes and Young loans. In doing so, it avoided any formal default sanctions. The German strategy was supported by the broader international trend toward protectionism, bilateralism, and foreign exchange controls.

### *Step One: The 1931 Exchange Controls*

To provide protection against the international financial crisis and limit capital flight, the German authorities introduced exchange controls in mid-1931 through a series of emergency decrees.<sup>50</sup> A standstill agreement for short-term foreign currency debt froze the redemption of such debt but allowed for interest payments in foreign exchange. Interest and amortization on long-term foreign currency debt remained convertible in principle but had to be channeled through the Reichsbank and was subject to foreign exchange transfer restrictions.

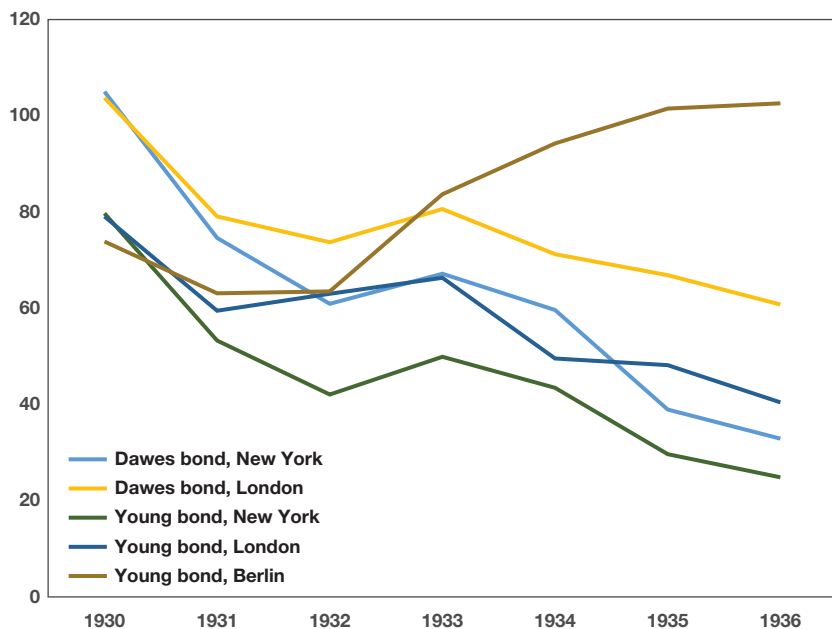
The transfer restrictions on servicing long-term foreign currency debt depressed prices in foreign secondary markets relative to those in the German markets.<sup>51</sup> Servicing of the Dawes and Young loans was not subject to transfer restrictions, but their secondary market prices abroad dropped in tandem with those of Germany's other long-term foreign currency debt, reflecting investor concern about possible future restrictions. Prices of the US dollar and pound sterling tranches of the Dawes and Young loans in different national markets started to diverge (Figure 6.11). Recognizing that price differentials between foreign and domestic markets could be exploited as a tool for export promotion, the government created legal schemes for encouraging repatriation of German bonds (Box 6.1).

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<sup>49</sup>Clement (2004).

<sup>50</sup>For an economic and institutional analysis of the role of the German exchange rate restrictions, see Banken (2006), and Child (1958).

<sup>51</sup>Papadia and Schioppa (2015).

**Figure 6.11. Secondary Market Prices of Dawes and Young Loans in Different Markets, 1931–38 (100 = Par)**

Source: Moody's Analyses of Investments, various issues.

### *Step Two: The 1933 and 1934 Transfer Moratoriums*

Once in power, the Nazi regime sought to reduce service on the Dawes and Young loans to preserve scarce foreign exchange reserves for public works and rearmament. The government imposed a moratorium on the servicing of all long-term foreign debt, initially continuing to exclude the Dawes and Young loans. German debtors were instructed to make all foreign debt service payments in domestic currency at the official exchange rate to the newly established Conversion Bank for Foreign Debt.

Foreign creditors received a corresponding claim on the Conversion Bank for Foreign Debt, but the payment in foreign exchange was left to the Reichsbank's discretion. The Reichsbank paid foreign creditors one-half of the interest claim in foreign exchange; the rest was paid in RM-denominated scrip<sup>52</sup>. The foreign exchange portion was eventually reduced to 30 percent. Payments on the Dawes loan were serviced in foreign currency, as protected by an explicit transfer guarantee. Interest payments, but not amortization, were paid on the Young loan.

In tandem with the 1933 transfer moratorium, preferential treatment was offered to holders of German securities abroad in exchange for specific trade concessions. Agreements were reached with the Netherlands and Switzerland,

<sup>52</sup>Scrip could be used to support exports under the "additional exports" arrangement; see Box 6.1.

### Box 6.1: Repatriating German Bonds

Initially, German exporters could only use export proceeds to repatriate their own debt. The 1932 regulations expanded this scheme. German exporters, irrespective of whether they had debt outstanding abroad, could repatriate German bonds to generate “additional exports.” Against the background of widespread currency devaluations, exporters had to demonstrate that they needed special incentives to compete with foreign competitors. Subject to this condition being met, a permit was granted to use a portion of export proceeds to purchase German bonds abroad and sell them domestically. This portion was calibrated to offset the estimated profit on the bond repatriation against losses accruing from the unfavorable official exchange rate.

Any German bank authorized to deal in foreign exchange could act as an intermediary in the repatriation. Exporters could sell to the banks a portion of the export proceeds authorized for bond repatriation, called export valuta. A market for export valuta developed, carrying a premium over the official rate of exchange. This depended upon the discrepancy between the prices for German securities in foreign markets and in Germany. The exchange control authorities maintained strict control over the repatriation scheme, in part to prevent speculation.

**Premium Quotations for Export Valuta, August 1933–August 1934**

1933	Percent	1934	Percent
August	22.0	January	48.5
September	24.8	February	49.5
October	25.0	March	53.0
November	20.5	April	58.5
December	29.5	May	56.5
		June	100.0
		July	115.0
		August	150.0

Source: Hamburger Welt-Wirtschafts-Archiv, various issues.

Note: The quotations are end of month values.

In July 1933, the government introduced an alternative export support scheme. Foreigners could convert blocked foreign exchange balances into scrip. This, in turn, could be sold at 50 percent of its official foreign exchange face value. German exporters could buy scrip at 55 percent of RM face value and redeem it for foreign exchange at full RM face value from a dedicated government agency. The scheme was essentially an export subsidy funded by the discount at which foreigners liquidated blocked foreign exchange balances. As the new scheme developed, export support through repatriation of German bonds at a discount lost importance, and the exchange control authorities issued permits for bond repatriation in fewer cases.

The repatriation of bonds with export proceeds was eventually abolished in 1934. Exporters were subsequently required to hand over all proceeds to the Reichsbank. The latter could, however, release a portion of the foreign exchange for the repatriation of bonds if the exchange control authorities recommended doing so. The foreign exchange released could no longer be sold to others as export valuta, and the export valuta market shut down.

granting foreign holders in these countries the right to convert scrip in foreign exchange at no discount. In return, trade concessions were provided to help maintain Germany’s trade surplus with these countries. Other creditor countries, the US most vocally, rejected preferential holder treatment and insisted on equal treatment of all holders. The US, however, was unable to convince the Netherlands and Switzerland to maintain a unified creditor country front.

In June 1934, the German government suspended transfer of interest payments on all foreign debt, including the Dawes and Young loans. For these two loans, the RM equivalent of interest payments was to be paid into a Reichsbank account, effectively eliminating their special status. By this time, almost one-half of the US tranche of the Dawes loan had been repaid, but other tranches had not been redeemed. Most of the Young loan, however, was still outstanding.<sup>53</sup> The government also wanted to replace the collective transfer mechanism, another key provision of the Dawes and Young loans, with separate bilateral payment mechanisms. The German Clearing Office or the Reichsbank was to make interest payments directly to the lead issuing banks in each of the countries where the tranches had been sold.<sup>54</sup>

Interest payments on the two loans essentially became a function of place and currency of issue, and of residence and nationality of the bondholders.<sup>55</sup> Reflecting Germany's negotiation power, the arrangements were detailed and complex, carefully tailored to individual country conditions (Table 6.1). Most creditor countries negotiated comprehensive clearing arrangements (including Belgium, France, Italy, the Netherlands, Sweden, and Switzerland). Residence mattered in the arrangements with Belgium, Italy, the Netherlands, and Sweden. But both residence and nationality were considered in the agreements with France and Switzerland. Germany and the UK concluded mutual transfer and payments agreements that did not introduce full clearing but entitled residents in the UK and British subjects of the British Empire to full payment of Dawes and Young coupons through other elaborate mechanisms.<sup>56</sup>

### *Step Three: The 1934 "New Plan"*

The September 1934 "New Plan" marked the final step to full government control of Germany's external economic and financial transactions. Under the plan, the government determined what could be imported and exported, in what quantities, for what means of payment, at what prices, and from and to what countries. The plan merged external debt and foreign currency management with trade planning to restrict and direct demand for foreign currency. This included severe restrictions on the servicing of Germany's foreign debt.

<sup>53</sup>Creditor countries used the *pari passu* provisions to protest against unequal treatment once bilateral arrangements were in place. They did not see the provisions as a legal tool to block payments in other countries with a more favorable treatment; see Kim (2014).

<sup>54</sup>With the exception of the US, arrangements were concluded with the UK (July 4, 1934), Switzerland (July 26, 1934), France (July 28, 1934), Belgium (September 5, 1934), Sweden (October 5, 1934), the Netherlands (October 13, 1934), and Italy (April 16, 1935).

<sup>55</sup>Accominotti, Kessler, and Oosterlinck (2017), BIS (annual issues), and Clement (2004) describe the individual arrangements in more detail. In addition, Accominotti and others show how the prices of 1924 sterling Dawes loan traded in different markets reflected market valuation of the settlements with different creditor countries. See also Papadia and Schioppa (2015) on these price differentials.

<sup>56</sup>The US was the only creditor country not to engage in any negotiations with Germany following the 1934 transfer moratorium. As a result, holders of the Dawes and Young loans issued in the US received the least favorable treatment.

**Table 6.1. Excerpts of Trade and Transfer Arrangements by Creditor Country, 1934**

	Belgium-Luxembourg	UK	France	Italy	Netherlands	Sweden	Switzerland-Liechtenstein	
Related (Included) Payments	<b>Transportation of Goods</b>	Goods from Belgium, Luxembourg, the Belgian colonies, and mandated territories; that is, goods that were produced or substantially transformed in one of these regions	Goods certified by the British Chamber of Commerce	French goods and goods from the French colonies, protectorates, and mandated regions	Italian goods; 1 additionally, raw and processed sponges from Italian colonies	Dutch goods and goods from Dutch overseas territories.	Swedish goods	Swiss and Liechtenstein goods
	<b>Additional Costs Associated with Transportation of Goods between the Countries</b>	No, as long as it is not included in sales price	Freight costs of the above-mentioned goods	Incoming special regulation with preferred payments of transportation costs, customs and harbor costs; different from provisions; see SDMEF 176/34 Currency Control Office Act/35/34 Supervisory Board Article X	Yes, but not for freight and other additional costs of water transport	Yes, freight is regulated by special agreement	Yes, including freight, but not transport insurance premiums and freight	Yes, but not transport insurance premiums and freight
	<b>Miscellaneous Costs of Trade</b>	Processing fees due after April 30, 1935; otherwise none	None	Assembly costs, reimbursement, discounts, collection costs, special regulation similar to transportation costs. Finishing and clearing transactions	Transit fees, balances of post accounts (management); patent payments and similar; all through the account "Various transfers." Clearing and business expenses through collective account; latter also through travel accounts (see Travels)	Contract processing fees; internal water transport, balances of post account (management); patent fees, license fees, and so on after verification	Construction management and assembly fees, patent fees, licenses, balances of post accounts (management) according to special arrangements; other expenses of German-Swedish trade; no business trips	Transaction fees; various works and fixtures; delivery of electricity; licenses and other nonmaterial services (and those due August 1, 1934); additional costs of transit; income; wages; management allowances

*(Continued)*



	Belgium-Luxembourg	UK	France	Italy	Netherlands	Sweden	Switzerland-Liechtenstein
<b>Other Payments</b>	None	None	None	Miscellaneous payments should be negotiated with settlement agencies	In case of accidents insurance payments, pension payments, and so on	In case of accidents insurance payments, pension payments, heritage	All other payments, except for small border transport, interest on Swiss debt denominated in francs, insurance services; social transfers, pensions, capital payments in hardship through travel accounts
<b>Travels</b>	None	None	None	Special agreement; see paragraphs 3 and 4 in preliminary remarks for IV 52 of DCC	Special agreement; see paragraphs 3 and 4 in preliminary remarks for IV 52 of DCC	None	Special agreement; see paragraphs 3 and 4 in preliminary remarks for IV 52 of DCC
<b>Special Regulations for Other Payments</b> <b>Service of Debt under the Transfer Ban</b>	Special transfer agreement; see paragraph 11 and following in Article 3 of LREPO. Transfers of Imperial loans and private external obligations up to 4.5 percent in accordance to the amounts in belgas accumulated in the special account	Special transfer agreement for imperial loans. For private external obligations, general regulation is applied with known exceptions (4 percent interest on funded bonds; denominated in British pounds); see paragraph 11 and following in Article 3 of LREPO	Special transfer agreements for imperial loans	Special transfer agreements for imperial loans	Special transfer agreement; see paragraph 11 and following in Article 3 of LREPO. Transfers of imperial loans and private external obligations up to 3.5 percent from proceeds of certain export transactions; furthermore, an extra 2 percent in funded bonds (subject to 4 percent; denominated in guilders) or in German marks	Special transfer agreement for Imperial loans (including Kreuger loan) and private external obligations; see paragraph 11 and following in Article 3 of LREPO. Transfers of Dawes and Young, Kreuger, and private loans up to 4.5 percent from the balances of clearing agreement	Special transfer agreement; see paragraph 11 and following in Article 3 of LREPO. In the first place, funded bonds (4 percent; denominated in Swiss francs). Partial payments from special transfer fund to cover interest and proceeds from imperial loans and private external obligations up to 4.5 percent

<b>Old Trade Obligations</b>	<b>Capital Repayments</b>	None	None	None	None	None	None	In case of hardship through travel accounts
	<b>Old Trade Obligations</b>	Partially by payments to the special account, partially from the special account designated by the clearing agreement; see paragraph 12 in Article II of preliminary remarks for IV 1 of DCC	Special regulation; see paragraph 13 in Article II of preliminary remarks for IV 1 of DCC	Processing through a French trustee's account; see paragraph 15 in Article II of preliminary remarks for IV 1 of DCC	None	Processing through a Dutch trustee's account; see paragraph 16 in Article II of preliminary remarks for IV 1 of DCC	Processing of clearing transactions; see paragraph 18 in Article II of preliminary remarks for IV 1 of DCC	For old obligatory expenses of non-Swiss goods, coverage is provided through a Swiss trustee's account; see paragraph 19 in Article II of preliminary remarks for IV 1 of DCC

Source: Hartenstein (1935).

Note: US had no agreements at the time.

DCC = Directives for Currency Control (February 4, 1935); Richtlinien für die Devisenbewirtschaftung vom 4.

Februar 1935 (RGBl. I G. 119); LREPO = Law Regulating External Payment Obligations (June 9, 1933); Gesetz über Zahlungsverbindlichkeiten gegenüber dem Ausland vom 9. Juni 1933 (RGBl. I G. 349);

SDMEF = State Decree of Minister of Economic Affairs; Bunderlaß des Reichswirtschaftsminister.

Belgas = New currency put into circulation by Belgium from 1926 until 1946

A June 1936 law declared that any gold clause in foreign debt contracts was not applicable, “where devaluation has occurred in the foreign currency in terms in which a loan raised abroad is payable—with or without a gold clause—such devalued currency shall be the standard of payment of the debtor’s obligation.”<sup>57</sup> German debtors were, however, taxed at a 75 percent rate on any profits obtained from discharging foreign currency obligations at a devalued exchange rate. Subsequent legislation clarified that German debtors could fully discharge all interest and principal on foreign currency loans in RM and would owe no more than 4 percent interest on any outstanding RM obligations.

Germany continued to use bilateral negotiations with individual countries to service Dawes and Young loans. For instance, the November 1934 Anglo-German Payments Agreement gave residents in the UK and subjects of the British Empire preferential coupon payments on both loans until the beginning of WWII. At the end of 1935, the German authorities unilaterally reduced the coupons on the US dollar loan tranches held in the US, from 7 percent to 5 percent on the Dawes loan and from 5½ percent to 4 percent on the Young loan.

Even during WWII, Germany continued to tailor interest payments on the two loans. Notably, they paid partial interest on the Swedish and Swiss tranches throughout the war as part of broader efforts to maintain trade ties with the two neutral countries. Interest payments were suspended to countries that were considered hostile or that were occupied: in 1939 for British and French bondholders, from 1940 for Dutch and Belgian bondholders, from 1941 for US bondholders, and from 1942 for Italian bondholders. Technically, this policy was another violation of a provision in the Dawes and Young loans that guaranteed payment in times of war and to subjects of hostile states.

## CONCLUSION

Throughout the interwar period, the German sovereign attempted to obfuscate the extent of its financing needs and level of indebtedness. Efforts to camouflage the true size of its obligations, however, took a more ominous turn under the Nazi regime. The regime decided to circumvent the formal budgetary safeguards from the Weimar Republic, including suspending the publication and discussion in Parliament of annual budgets fiscal accounts and having the Executive grant itself the authorization to borrow. It introduced new domestic financing instruments and mechanisms that deliberately misrepresented the government’s financial position and the use of debt to fund rearmament efforts. It manipulated price indices to keep the population misinformed about the underlying inflationary pressures from rearmament. It misled foreign creditors on its intentions to service the Dawes and Young loans. Until 1939, the regime maintained illusory formal Reichsbank independence to avoid any popular discontent about a possible return to the financing practices of the early 1920s.

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<sup>57</sup>Gesetz über Fremdwährungs-Schuldverschreibungen, June 26, 1936 (Reichsgesetzblatt 1936 I., S. 515).

The Nazi regime episode unfortunately further illustrates that a lack of honesty in fiscal matters can be part of a broader pattern of a lack of integrity in other matters—with dire consequences. The German bureaucracy, which condoned fiscal manipulations, conditioned themselves to accept larger and more blatant manipulation, deceit, and intimidation.<sup>58</sup> Fiscal non-transparency was only one part of a policy that extended more generally into more perilous realms.

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<sup>58</sup>The Finance Ministry in 2009 asked an independent commission to investigate the ministry’s role during the Nazi regime; taking a thematic approach, commission members have published three studies to date, including one on tax policies under the Nazi regime—see <http://www.reichsfinanzministerium-geschichte.de/>.

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## CHAPTER 7

# Japan during the Interwar Period: From Monetary Restraint to Fiscal Abandon

NICOLAS END<sup>1</sup>

*Shakkin nakereba kiken nashi.*  
[With no debt, there is no danger.]

Japanese proverb

This chapter draws on Japan's historical experiences during the interwar period to highlight the implications of monetary-fiscal interactions for debt management and economic outcomes. For the half century preceding the Great Depression, the country had followed relatively sound economic and debt management policies, while finding its place in the international financial system. Debate on the timing and conditions under which Japan should return to prewar gold parity dominated domestic debate in the immediate aftermath of World War I (WWI). The return to gold was crucial to raise foreign financing and essential to Japan's internationalization efforts. As such, adherence to the monetary rule was "a good housekeeping seal of approval", which signaled to international capital markets that the country was committed to prudent fiscal and monetary policies.<sup>2</sup> Confidence that the value of the currency would be stable and that debt would not be inflated away in the future provided assurances to Japan's domestic and external creditors alike.

Fiscal activism increased when the gold standard was abandoned in the wake of the worldwide financial turmoil and crippling domestic deflation and depression. Between 1931 and 1933, the government switched to Keynesian policies, well ahead of other Western countries, to boost aggregate demand. Currency depreciation, fiscal stimulus, and easy monetary conditions helped Japan to recover from the worldwide depression earlier than most countries in Europe and North America.

Mounting militarism and the country's subsequent inward turn in the mid-1930s, however, represented a regime shift for fiscal policy. Fiscal stimulus was

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<sup>1</sup>The author would like to thank Professors Shizume (Waseda University) and Tomita (Chūō University and Nomura Research Institute) for their kind assistance.

<sup>2</sup>Bordo and Rockoff (1996).



directed to rearmament for war, and monetary policy assumed the role of financing this effort. The government increasingly relied on easy credit from the central bank and on financial repression to finance growing deficits amid capital controls and limited access to international markets. The political rhetoric and policy actions shifted from fiscal moderation to fiscal dominance as the country hurtled toward hyperinflation in the run-up to World War II (WWII). The result was a significant debt overhang and one of the longest quasi-sovereign default episodes in history (1947–52).

Theory suggests that whether fiscal or monetary policies are dominant or the extent to which they act in concert can have important consequences for macroeconomic performance.<sup>3</sup> This chapter describes how Japan switched from monetary to fiscal dominance over a relatively short time during the interwar period, highlighting the fact that no middle ground was possible given the constellation of policies adopted.

The next sections shed light on the policies and transformation of the interwar period on the eve of WWI and describe the monetary dominance regime in the immediate aftermath of the war; the short-lived monetary subordination *and* cooperation regime between 1931 and 1933; and the fiscal dominance regime that became increasingly entrenched from 1933 to WWII.

## PROLOGUE: JAPAN IN THE WAKE OF WORLD WAR I

### The Meiji Era

To understand the history of Japanese public debt during the interwar period, it is necessary to go further back. Although a detailed review of the Meiji period (1868–1912) is beyond the scope of this chapter, early 20th-century Japan has interesting parallels with today's emerging economies.<sup>4</sup> The period also provides an important backdrop for the subsequent evolution of sovereign debt.

When the Tokugawa Shogunate ended in 1868, Japan progressively enforced a new constitutional monarchy regime, dubbed the *Meiji restoration*. Meiji restorers set out a determined reform program and coined a forceful slogan: “Rich Country, Strong Army” [*Fukoku Kyōhei*]. The engines of this sweeping rebirth were threefold: the concerns over the increasingly intrusive proximity of Western powers; the ambition to become an internationally recognized power; and the need to forge a new national identity after centuries of feudal, fragmented rule.

One crucial aspect of the Meiji architects' plan was to catch up with the rest of the world after two and a half centuries of isolation. Such convergence required modern infrastructure and state-of-the-art industries. As a result, the government acquired machinery abroad for domestic industrial development and invested

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<sup>3</sup>Seminal contributions include the dichotomy between dominant fiscal or monetary regimes in Sargent and Wallace (1981), polar Ricardian and non-Ricardian regimes in Aiyagari and Gertler (1985), and Leeper's (1991) characterization of active and passive fiscal and monetary policies.

<sup>4</sup>Mitchener, Shizume, and Weidenmier (2010).

heavily in railroads and other network infrastructures. Large business conglomerates (*zaibatsu*) and state-owned enterprises played instrumental roles in implementing this industrial policy.

Building a strong military was considered essential for pursuing Japan's strategic interests. The country was regularly involved in overseas wars and territorial disputes, pursuing expansionist policies within the framework of its alliance with the UK and pecking for territories in China, Korea, and Siberia. Nationalism intensified after the war against Russia in 1904–5, triggering a new phase of continental expansion. Extending colonization was also a way to ensure captive demand and a supply of cheap commodities.

The modernization push extended to experimentation with new monetary and financial institutions that could foster growth and economic stability. The yen was created to replace feudal monies in 1871. The US model of a national banking system was imported shortly thereafter, and the Bank of Japan (BoJ) was founded in 1882 along the lines of the Belgian model. The Deposit Bureau was established in 1885 to help channel domestic resources using postal savings, mimicking the French *Caisse des Dépôts*. Investment was channeled to specialized public banks—namely, the National Hypothec Bank and the National Industrial Bank, also inspired by French models. In 1897, after 11 years on the silver standard, the country joined the gold standard.<sup>5</sup>

Japan actively encouraged national savings to support capital accumulation. At the beginning of the 20th century, nationwide savings campaigns were launched, promoting postal saving and disseminating the doctrine of building national strength through popular sacrifice (the Imperial Rescript on Diligence and Thrift, or Boshin Rescript). At the base of this pyramid headed by the Deposit Bureau, was an intricate network of postmasters, local notables, and priests that revolved around village “moral requital societies,” which were at once religious confraternities, tontines, savings groups, and neighborhood societies.<sup>6</sup> The propaganda even included a “saving song”:

Yet if you compare those figures to England or America,  
Or to Germany, Belgium, or Holland—  
The civilized countries, that is—  
We're way behind,  
And we've got to keep going—no slacking off.  
If we really work at saving,  
We'll catch up,  
And the day'll come when we'll surpass them all.<sup>7</sup>

Household savings in the form of postal and bank deposits were funneled into government securities through government financial institutions and private banks.

<sup>5</sup>Itō (1992).

<sup>6</sup>See Wilson (2013) for details.

<sup>7</sup>Central Savings Promotion Committee (1993).

Meiji leaders also harbored ambitions for the country to feature prominently in the international financial network. They understood that, to gain such influence, the yen needed to become an international currency. Policies were implemented to actively to promote yen internationalization. As early as 1879, the National Bank Act had established the Yokohama Specie Bank (YSB), a public bank under the government's direct control, which served as the main tool to promote and support the yen. The establishment of the YSB was a direct government response to the monopolistic role that Western exchange banks played in financing Japanese trade. The Ministry of Finance assembled a network of correspondent banks led by the YSB around the world. Bilateral banks, such as the *Nitchi-Futsu Ginkō* (also known in Paris as *Banque Franco-Japonaise*), were established in various countries. The YSB also sponsored Japanese government and corporate securities overseas through bank syndicates. Instead of public offerings on foreign stock exchanges, the government hired foreign and national banks to place foreign bonds (Annex Table 7.1.1).

These developments illustrate three aspects of public finance in interwar Japan. First, fiscal and debt policies were inextricably tied to costly reforms and wars, as tax capacity was in its infancy. The Tokugawa regime largely depended on taxes on land and harvest, customs fees, and loans from wealthy peasants and urban merchants—in other words, relatively inelastic and low-yielding taxes (Figure 7.1). In 1887, a progressive global income tax was introduced, modernizing the tax base.<sup>8</sup> Nevertheless, the government had to borrow to service war expenditures and modernization efforts. By 1918, debt was approximately seven times the annual tax revenue, and interest payments represented one-fourth of tax income. Bonds dedicated to railways or new colonies accounted for one-half of outstanding debt instruments.<sup>9</sup>

Second, successive governments faced complicated trade-offs among militarist, industrialist, and internationalist ambitions. Imperial Japan was led by several competing forces, in addition to the government and the parliament (the Diet). The military and the navy constituted somewhat relatively independent institutions—reporting directly to the emperor and his privy council. At odds with Montesquieu's recommended separation of powers, these competing entities were all simultaneous decision makers for budgetary and debt policies.<sup>10</sup>

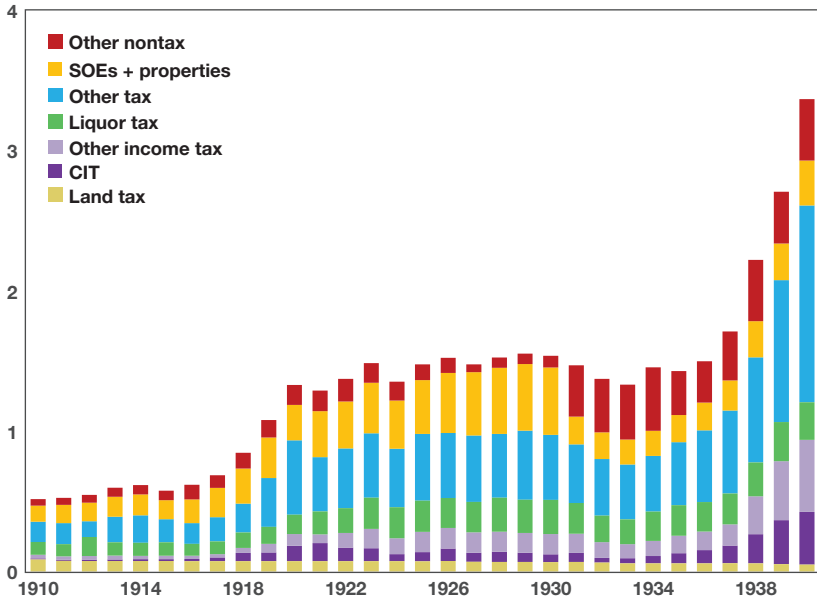
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<sup>8</sup>Kaneko (2009) and Shiomi (1935) describe the tax system.

<sup>9</sup>Japan's first national loan, a 9 percent sovereign bond issued in London in 1870, financed railway construction.

<sup>10</sup>The 1889 Meiji Constitution still granted a real political role to the emperor, who could appoint a cabinet that did not represent the Diet's majority. In practice, the emperor delegated his policymaking powers to its privy council and a group of extraconstitutional elder statesmen (Bower 1932).

**Figure 7.1. Government's General Account Revenues, 1910–40**  
(in Japanese Yen Billions)



Sources: Bank of Japan (1966); author's calculations.

Note: CIT = corporate income tax; SOE = state owned enterprises. The figures in the chapter use the following convention: the fiscal year that ends in March  $t$  is labeled  $t$ .

Foreign engagement and international influence were the motto of leaders and elites during the Meiji and Taishō eras.<sup>11</sup> Yet, views on the modalities of engagement differed.<sup>12</sup> Some sought to develop diplomatic, constructive relations with the West and its bankers to transform Tōkyō into a financial capital (Annex 7.2). Other political participants, however, made it a priority to block the imperialistic expansion of Western powers in East Asia.

Third, 200 years of seclusion had left a legacy of general wariness to international dependency. Meiji leaders had observed how Europeans would intervene and sometimes occupy insolvent nations (for instance, China, Egypt, and Mexico). These supersanctions, spanning gunboat diplomacy to fiscal wardship, arguably represented a much costlier sanction for defaulting than in present times. The oligarch Toshimichi wrote in 1873: “If our country becomes involved in an unexpected misfortune . . . our inability to repay our debts to England will become

<sup>11</sup>Meiji (enlightened government) and Taishō (great righteousness) were the names two successive emperors chose for the period they would reign, and as well the name they would receive posthumously. In Western dating, the Meiji and Taishō eras were 1868–1912 and 1912–26, respectively.

<sup>12</sup>Ravina (2017).

England's pretext for interfering in our internal affairs which would lead to baneful consequences beyond description".<sup>13</sup> This denigration of foreign financing was sometimes described as a "peacetime economic warfare" with Western powers.

Japan also shared many of the characteristics of today's emerging markets: a small open economy with an expanding trade sector, insufficient domestic revenue mobilization, and need for international capital to finance economic development and wars. The decision to adopt the gold standard reflected these considerations.<sup>14</sup> Shizume (2011), for instance, notes that adherence to the gold standard enabled Japan to finance the 1904–5 Russo-Japanese War by borrowing from London and New York.

Participation in international financial markets was also consistent with other foreign policy goals, particularly in the context of the Anglo-American alliance. In 1902, the British Foreign Office sent a letter to Rothschilds London stating, "His Majesty's Government regard it as a matter of political necessity that Japan should be able to raise in this country, rather than elsewhere, the money which she requires, and they hope that she will obtain a loan in London on reasonable terms" (September 22, 1902). At the same time, Japanese leaders and the Treasury tried to limit external debt, prioritizing it for development and other strategic purposes—prewar external debt was almost exclusively public or publicly guaranteed.

## The First World War: An (Almost) Nonevent for Japan

Japan's entry into WWI was more of an opportunistic maneuver. Having undertaken most of its military scaling-up efforts in the second half of the 19th century, the country's engagement was restricted to war with Germany over Chinese territories and was not very costly.<sup>15</sup> However, WWI enabled the country, as part of the victorious Allies, to expand its influence in Asia and the Pacific. Toward the end of the war, Japan increasingly filled orders for its European allies, fostering the country's industrial diversification and transforming Japan into a net exporter of goods (hence, importer of gold) for the first time (Figure 7.2).

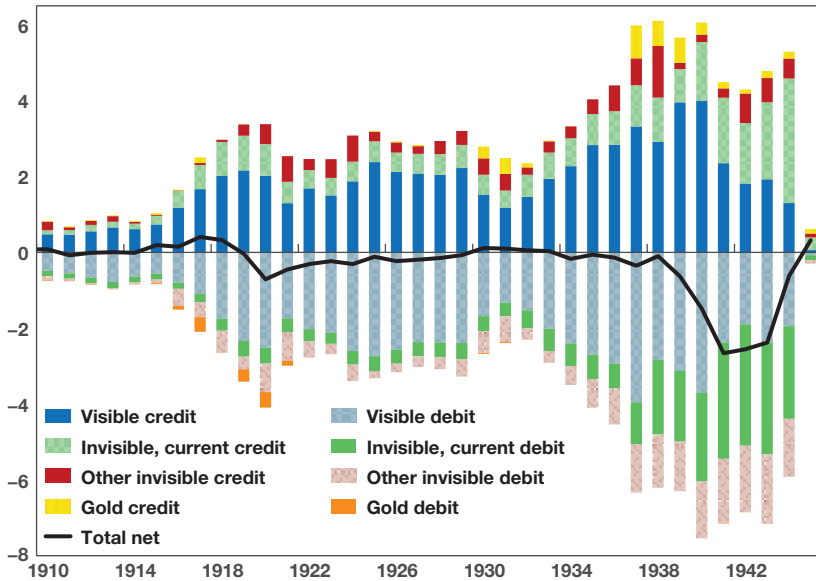
The postwar era also brought Japan unprecedented prosperity in its immediate aftermath. In 1918, Japan was the second largest creditor country in the world, after the US. It attended the 1919 Paris Peace Conference as one of the world's great international military and industrial powers, and it was catapulted into the selective group of permanent members of the League of Nations Council. Such

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<sup>13</sup>Wilson (2013). The year 1873 was the year of the second loan in pounds, whose terms were extremely unfavorable to Japan, and marked the beginning of 25 years of abstinence from foreign capital (Tomita 2005b).

<sup>14</sup>Mitchener, Shizume, and Weidenmier (2010) describe the political economy of gold standard adoption in Japan. Evidence from the legislative debates of the 1890s suggests that policymakers believed gold standard adoption could impact borrowing costs, debt issuance, domestic investment, and trade.

<sup>15</sup>Metzler (2006).

**Figure 7.2. Balance of Payments, 1904–45 (in Japanese Yen Billions)**

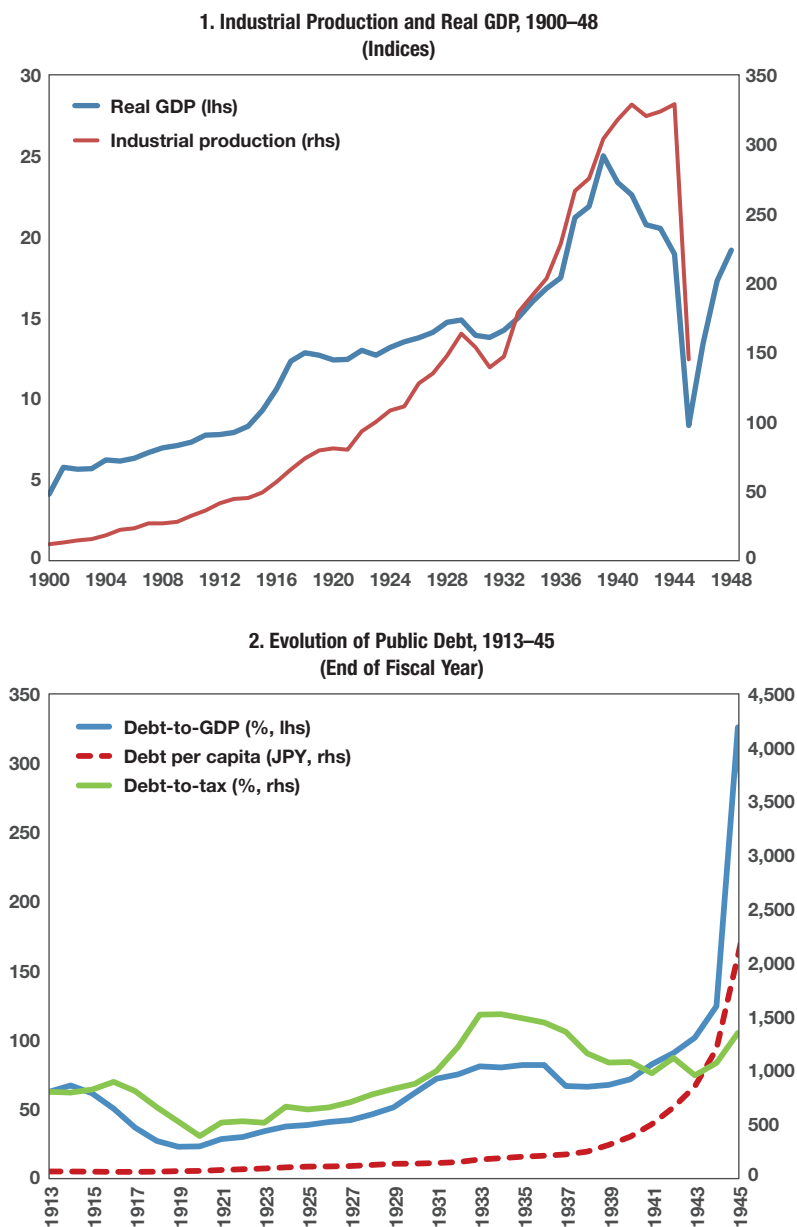
Sources: Bank of Japan (1966); author's calculations.

recognition brought substantial economic benefits. Panel 1 of Figure 7.3 shows how industrial production and GDP grew rapidly until 1922.

While public debts were skyrocketing in Europe, the debt-to-GDP ratio was halved in Japan between 1913 and 1922 (Figure 7.3, panel 2). Several factors contributed to this outcome. First, as shown in Figure 7.4, although the size of the government increased after WWI, the budget was kept in surplus, reflecting a secular preference for balanced budgets.<sup>16</sup> Second, the economy was booming, which brought in more tax revenues and contributed to reducing the debt ratio from the denominator. Third, the inflation tax played a role. After Japan went off the gold standard by imposing an embargo on gold exports in 1917, domestic prices doubled in less than three years. This helped the government to bring down domestic debt, although this was unlikely by design.<sup>17</sup> Public debt nevertheless fell in 1920 to 20 percent of GDP.

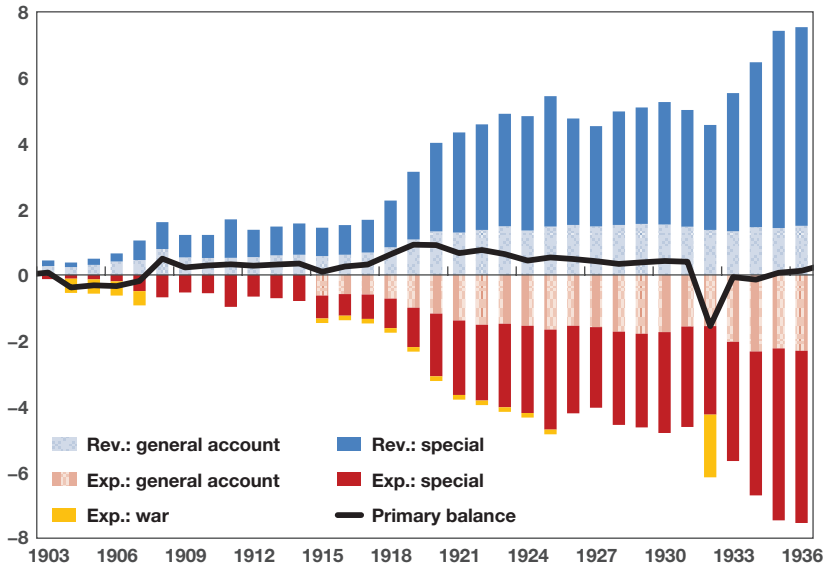
<sup>16</sup>See Savage (2002). The special account dedicated to financing war efforts initially drew on the government's accumulated cash reserves (Sakamoto 2014).

<sup>17</sup>Deliberate resort to seigniorage would entail observable flows in the central bank accounts. However, the BoJ's balance sheet remained broadly stable over this period.

**Figure 7.3. Output and Debt in the Interwar Period**

Sources: Bank of Japan (1966); Interwar Debt Database; League of Nations; Maddison Project Database (version 2013, Bolt and van Zanden 2014); Smits, Woltjer, and Ma (2009).

Note: JPY = Japanese yen; lhs = left-hand side; rhs = right-hand side. The industrial production index is built so that it is 100 on average in 1921–25; data are not available after 1945. Real GDP figures are computed by deflating nominal GDP with consumer price index.

**Figure 7.4. Central Government Budget, 1900–36 (in Japanese Yen Billions)**

Sources: Bank of Japan (1966); Ohkawa (1965); author's calculations.

Note: In official figures, revenue (Rev.) included debt financing and drawdown of cash surpluses, whereas expenditure (Exp.) includes debt amortization. The figure corrects for this using data on outstanding debt instruments and includes a rough estimation of war expenditure. Furthermore, special war accounts, opened for the duration of conflicts, were not part of annual budget reports, so that official budgets appeared misleadingly balanced; this chart attempts to reintegrate these expenditures by assuming a constant disbursement schedule (yellow bars). See Annex Table 7.1.2 for more details.

## MONETARY DOMINANCE REGIME

### The Return to Gold: The Domestic Debate

Following the Meiji restoration, an upsurge of pacifism and liberalism in the early 1920s coincided with the foundation of genuine party politics—a period dubbed the Taishō Democracy.<sup>18</sup> Two main parties alternated power. The conservative *Rikken Seiyūkai* (Constitutional Association of Political Friendship) touted nationalist and expansionist policies; the more liberal *Rikken Minseitō* (Constitutional Democratic Party) preached fiscal retrenchment, military restraint, and international conciliation.<sup>19</sup>

Political debate between the two parties centered on the extent and pace of monetary and fiscal tightening required for a return to prewar gold parity against

<sup>18</sup>In January 1920, Emperor Taishō issued an “imperial ordinance on the restoration of peace,” exhorting citizens to take advantage of peace and move forward in line with the progress of the age. In 1928, Japan ratified the Kellogg-Briand Pact along with Western powers and pledged the renunciation of war.

<sup>19</sup>See Annex Table 7.1.3 for a political chronology.



the backdrop of mild deflation, sluggish growth, and financial system fragility. The “repeal of the gold embargo” was considered an important economic goal in many quarters.<sup>20</sup> Active proponents, which included most academics and public sector elites, outweighed the few opponents from the private sector who feared for their market shares.

The return to gold stalled for most of the 1920s amid a succession of adverse shocks: the collapse of inflated stock and commodity prices in early 1920, a series of domestic banking crises—particularly the 1927 Shōwa financial crisis (Annex 7.3)—and mounting nonperforming liabilities.<sup>21</sup> Policymakers also feared that Japan might be unable to sustain the gold parity after its return to the gold standard. One area of concern was Japan’s persistent trade deficit during the 1920s and declining gold and international reserves—a consequence of waning competitiveness due to the high prices of domestic goods compared to foreign goods. A particular concern was the unfavorable terms of trade with China, which pegged to silver, a commodity whose price plummeted in the mid-1920s. Proponents believed that a return to gold would allow Japan to tap international capital markets at lower costs and lead to lower exchange rate instability.

The domestic debate reached its epitome in the late 1920s. Prime Minister Osachi Hamaguchi and his finance minister, Junnosuke Inoue (a former BoJ governor), actively promoted deflationary policies on assuming office in 1929. A large-scale propaganda campaign was launched in support of the fiscal austerity policies needed for the return to prewar gold parity. Finance Minister Inoue’s thinking revolved around what one today would call a front-loaded adjustment strategy: “Our economy remains very unstable because of the export ban on gold.<sup>22</sup> We must liberalize gold exports as soon as possible. But we cannot liberalize gold exports without preparation. What is required in preparation? The government must tighten the budget. The people must accept this fiscal austerity and they themselves must reduce consumption. If that happens, prices will start to fall, and imports will begin to contract.”<sup>23</sup>

This rhetoric was already widespread in the media. As Nakamura (2005) notes, the influential newspaper *Ōsaka Mainichi* reported as early as 1928: “France realized the repeal of gold embargo: Japan should shame itself . . . why shouldn’t we repent ourselves of being left behind if we think our nation is a civilized and first-rate one?” (June 26, 1928). Slogans such as “Shrink first in order to extend!” (July 16, 1929) or “It may be painful for a while, but it is a hopeful pain” (September 10, 1928) made their way into the broader public discourse.

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<sup>20</sup>Hamada and Noguchi (2005); Fletcher (1991).

<sup>21</sup>The 1927 Shōwa financial crisis originated in a mistaken announcement by the finance minister on the failure of a key bank. A nationwide financial panic was sparked shortly thereafter when financial difficulties between banks and trading companies came to light (see Annex 7.3).

<sup>22</sup>Author note: The yen’s non-convertibility to gold and the resulting exchange rate fluctuation.

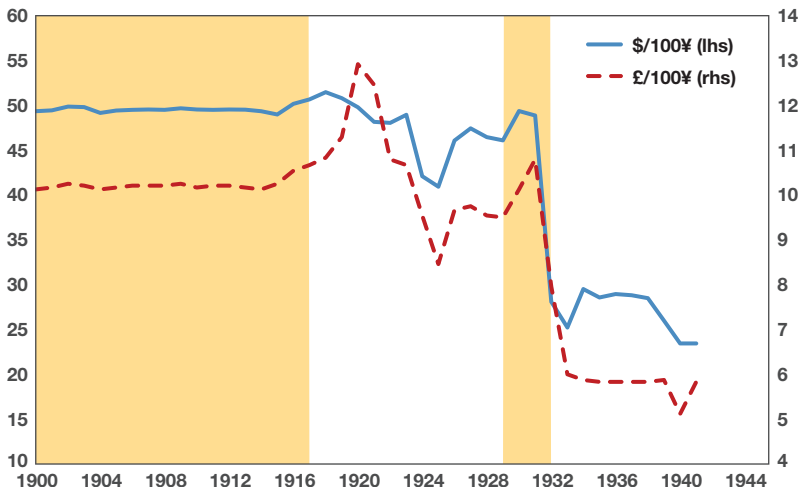
<sup>23</sup>This translation of Junnosuke Inoue’s *Essays* (volume 1, 1935) is from Ohno (2006). A famous anecdote tells that Inoue’s nationalistic rhetoric was so moving that a woman once threw a coin at him from the crowd, a gesture normally reserved for deities in Japanese tradition (Hamada and Noguchi 2005).

The gold embargo was lifted in January 1930 (Figure 7.5). The *Ōsaka Mainichi* headline read, “The day for the repeal of gold embargo has come. Be prepared for the difficulties before us” and underlined the need for further fiscal retrenchment: “In order to win the international economic battle, we must reduce our national debt on the fiscal side” (January 11, 1930).

### The Other Side of the Coin: Foreign Financing

As foreign lending to Japan resumed in the mid-1920s, after a brief hiatus brought on by the post-WWI liquidity drought in Europe, so too did the interest of foreign investors in Japan’s economic policies. Prior to the war, London was the center of Japanese overseas borrowing (see also Chapter 2); 32 out of the 40 Japanese foreign-currency-denominated bonds were traded in London. London was also where Japan’s international trade accounts, even those between Japan and the US, were settled.<sup>24</sup> With the outbreak of the war, much of Japan’s foreign trade began to be settled in New York. After 1924, Japan’s sovereign and quasi-sovereign borrowing increasingly relocated to New York. Foreign financiers, notably American bankers, were particularly keen for Japan to return to the gold standard.

**Figure 7.5. Main Exchange Rates to the Yen, 1900–41**



Sources: Bank of Japan (1966); author’s calculations.

Note: lhs = left-hand side; rhs = right-hand side. Shaded areas depict periods during which Japan was on the gold standard.

<sup>24</sup>The Bank of England had opened accounts for and provided payment facilities to the BoJ and the Japanese sovereign. Historically, these were created for the settlement of China’s reparation payments in 1895 (Bytheway and Metzler 2016).

J.P. Morgan & Co.'s representatives—foremost, their Tōkyō emissary, Thomas W. Lamont—played a key role in underwriting Japan's foreign loans and advising the government on external issuances.<sup>25</sup> In the wake of the 1927 Shōwa financial crisis, J.P. Morgan & Co.'s representatives Lamont and Smith presented a "Memorandum on Japanese Conditions." The memorandum criticized Japanese industrial and financial methods and exhorted the country to deflate back to the gold standard. The Morgans argued that the financial crisis was caused by incomplete restructuring in the business sector and postponement in the disposal of bad loans by financial institutions after the post-WWI economic boom. Deflationary policies were thus also seen as a means of eliminating inefficient industries.

Restoration of the gold standard in Japan was also posited as a precondition to the 1930 refinancing of Russo-Japanese War bonds and Japan's participation in the Bank of International Settlements, which was created in 1930. From the Japanese perspective, particularly pressing were the second series of 4 percent sterling bonds issued in 1905 to help finance the Russo-Japanese War and coming due in January 1931. With Japan's overseas specie holdings dwindling, refinancing the loan was considered a domestic priority. But the American bankers said that Japan had to stabilize the currency first.

In the face of mounting external pressures, Prime Minister Hamaguchi's government took the unprecedented step of unilaterally cutting the 1929 current year budget, which had already been approved by Parliament, and announced further cuts for the following year. Hamaguchi stated that retrenchment was needed to "restore the nation's credit and rescue a position of economic isolation" (Metzler 2006, 202). Commentators have noted that domestic political interests, including the military, were able to achieve consensus on tight fiscal policy as they recognized the importance of public debt credibility for achieving Japan's national interests.<sup>26</sup>

The new cabinet's policies earned the international financier's seal of approval. Despite the New York stock market crash, the American and British consortium of banks consented to grant foreign credit (Annex Table 7.1.1, Figure 7.6). The agreement was announced on November 1929, together with the decree announcing that the gold embargo would be lifted in January 1930.

In the wake of the issuance, J.P. Morgan & Co. praised the Japanese government's actions as "still another evidence of the determination of the Japanese government and people" to conduct their currency and finances "upon the highest bases of soundness and credit" (Metzler 2002, 215).

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<sup>25</sup>The Morgans underwrote several foreign loans, including the first Japanese bond issued in the US market in 1924 (Chernow 2010). In 1927–28, Lamont helped underwrite several bond issuances for various power and light companies. He also organized bridge loans for the government while negotiating the gold bonds that were eventually issued in 1930 after restoration of the yen convertibility to gold (Mitzakis 1939).

<sup>26</sup>Shizume (2011).

**Figure 7.6. Imperial Japanese Government, 5.5 Percent External Loan, 1930**

Source: Spink.

### Implications for Sovereign Debt

Until the gold embargo was lifted in early 1930, the government kept public debt under tight control in the 1920s, despite a destructive earthquake and a series of financial crises and natural disasters (Annex 7.3). The debt-to-GDP ratio remained flat below 50 percent, in part because of the government's commitment to fiscal consolidation. Interest rates on foreign debt increased in the wake of the global financial turbulence, but the overall impact was muted.

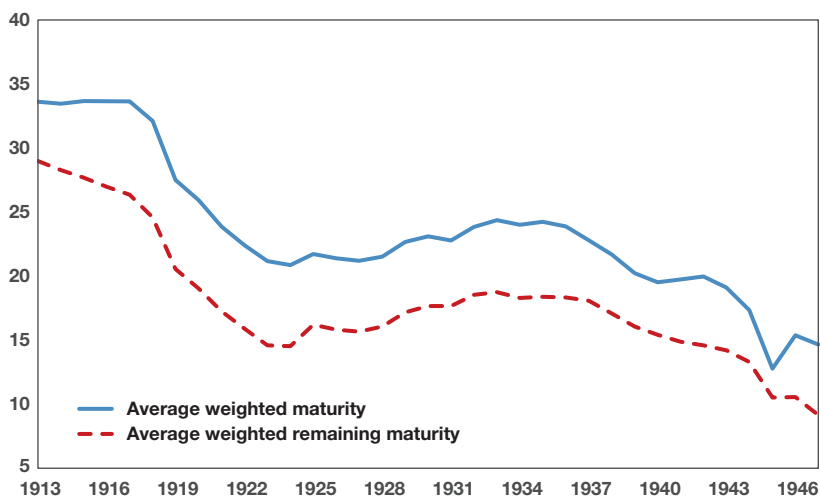
Returning to the gold standard also paid off in international markets: Japan issued foreign bonds in May 1930 in London and New York with a coupon of 5.5 percent, a reduction in servicing costs compared to the 1924 issuances when the country was off the gold standard.<sup>27</sup> The government had also managed to

<sup>27</sup>The 1924 issuances were more expensive, with coupons of 6 percent in London and 6.5 percent in New York. In addition, issue prices were £87.5 for a face value of £100 in London, and \$92.5 for every \$100 in New York, implying a substantial premium (versus £90 and \$90 in 1930). Issuance fees charged by Japan's underwriters were also smaller in 1930, 4 percent instead of 5 and 4.5 percent in 1924 (Metzler 2006).

convert its 4 percent sterling loan issued to finance the Russo-Japanese War ahead of maturity, which helped to restructure its liabilities to longer maturities (Figure 7.7).

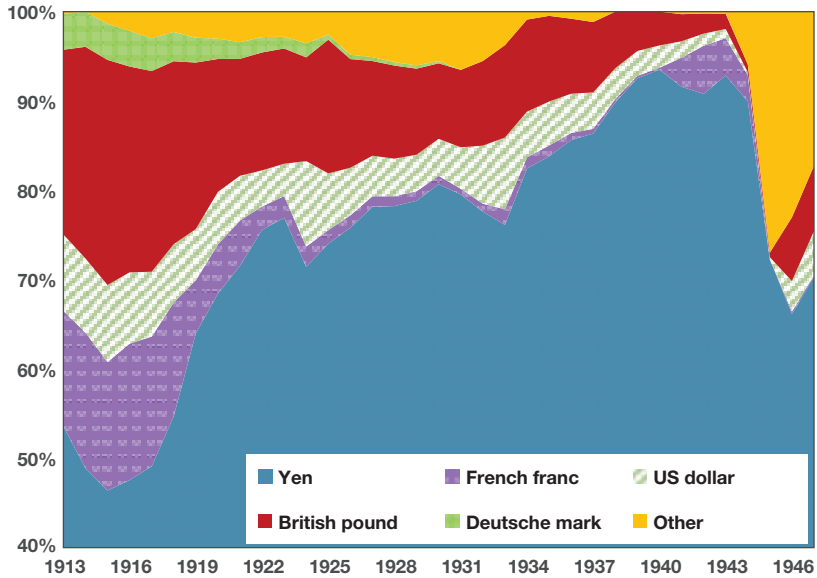
No further major external issuance was required, implying lower reliance on international capital markets. Although foreign currency debt accounted for more than one-half of overall debt outstanding in 1914, this share had fallen to around 25 percent in 1930 (Figure 7.8). From a domestic political economy perspective, however, external pressure to maintain fiscal prudence was attenuated.

**Figure 7.7. Average Maturity of Public Debt, 1913–47  
(In Years)**



Source: Interwar Debt Database.

Note: There are several ways to envisage the maturity of a security  $D$  issued in  $t_0$ . First, the contractual maturity is  $\tau = t_f - t_0$ , where  $t_f$  is the latest payment date (typically, when all the principal has been paid back). This measure underpins the general classification of short-term versus long-term bonds. Second, at any point in time  $t$  it is possible to look at the remaining maturity  $t_f - t$ . Third, the duration is a measure of the average maturity of all future cash flows, weighted by these cash flows. For a bullet bond, duration and maturity are identical. This figure plots the first two of these measures for total public debt. Namely, the maturity of a debt portfolio composed of  $n_t$  instruments  $(D_{it})_{1 \leq i \leq n_t}$  is average weighted by the outstanding amount of each instrument:  $\frac{\sum_i \tau_i D_{it}}{\sum_i D_{it}}$ ; and its remaining maturity is  $\frac{\sum_i (t_f - t) D_{it}}{\sum_i D_{it}}$ .

**Figure 7.8. Currency Composition of Public Debt, 1913–47**

Sources: Interwar Debt Database.

Note: “Other” includes foreign loans whose currency is unknown.

## FISCAL DOMINANCE REGIME

### Getting Off Gold: Combating Deflation

The internal devaluation policies of Prime Minister Hamaguchi and Finance Minister Inoue soon appeared ill-timed. Japan found itself forcefully deflating its economy in the midst of a domestic economic slump and at a time when the crisis that originated in the US would swiftly engulf other countries. Cha (2003) notes that a contemporary industrialist likened this policy decision to “opening the window in the middle of a typhoon.”

The economic consequences of the worldwide depression and the appreciation of the yen associated with the return to the gold standard were significant. A fierce deflation and a sharp contraction of economic activity ensued in 1930 and 1931—the Shōwa Depression. Although the real economic growth rate stayed positive (1.1 percent in 1930 and 0.4 percent in 1931), nominal GDP growth plummeted by almost 10 percent in both years due to rampant deflation.<sup>28</sup> From 1929 to 1931, the wholesale price index fell by more than 30 percent, rice prices by 35 percent, and cotton prices by more than 40 percent.<sup>29</sup>

<sup>28</sup>Kuronuma (2009).

<sup>29</sup>BoJ (1966).

When the UK left the gold standard in September 1931, international investors speculated that Japan would be forced to follow suit.<sup>30</sup> A rush to sell yen and buy US dollars led to massive capital outflows. Finance Minister Inoue announced that the government would stay on the gold standard. The BoJ raised discount rates twice in support of his announced policy, but this action failed to stem the tide. The capital outflow continued and intensified until December 1931. As unemployment rose, the campaign against Prime Minister Hamaguchi's deflationary policy of keeping Japan on gold turned into a movement against party politics. The government eventually fell, and elections ushered the conservative party to power.

The veteran finance minister, Korekiyo Takahashi, was appointed and now stood at the helm of a three-pronged policy package to bolster the economy<sup>31</sup>:

- **Exchange rate policy.** A gold embargo was immediately declared, and the yen was allowed to depreciate. The conservative party had decided the yen should depreciate by 20 percent, but the yen depreciated by 60 percent in effective terms in less than one year (Figure 7.9, panel 1). Starting in spring 1933, a peg to the sterling was ensured via the official foreign exchange bank (the YSB). Capital controls were limited to capital flight prevention measures until 1936.<sup>32</sup>
- **Monetary policy.** Monetary policy was accommodative; the BoJ markedly cut its discount rates and increased its ceiling on bank note issuance (Figure 7.9, panel 2). Although the impact on the bank's balance sheet was limited, these measures conveyed a strong signal to markets and helped reanchor inflation expectations above zero.
- **Fiscal policy.** The government engineered a fiscal stimulus. Spending was increased, income taxes were cut, and transfers to sinking funds for the redemption of bonds were discontinued.<sup>33</sup> The first ever deficit-covering bonds were issued, together with a supplementary budget that increased military expenditures and emergency relief programs for rural areas. The BoJ began underwriting government bonds. To signal fiscal discipline, the government announced a commitment to gradually reduce the outstanding stock of public bonds.

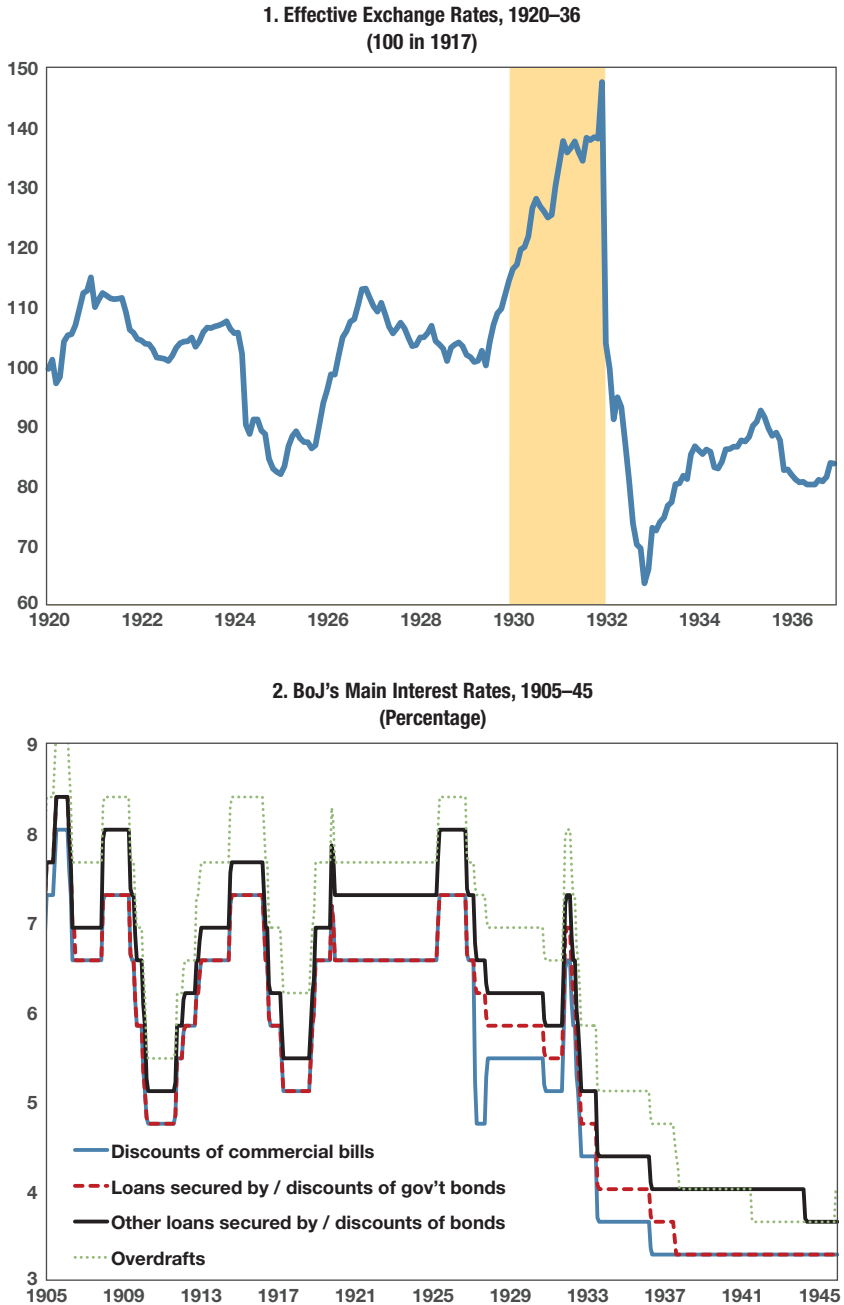
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<sup>30</sup>Asada (2014); Ohno (2006).

<sup>31</sup>Takahashi had long retired, after multiple stays at the Ministry of Finance and the central bank, when he was called back in 1927 with the support of the military to reassure international and domestic markets.

<sup>32</sup>When Japan went off the gold standard, capital flow management measures were motivated by a desire to limit carry-trade opportunities and focus domestic liquidities on domestic bond issuances. These controls would never be lifted.

<sup>33</sup>Tomita (2005a); Shizume (2009).

**Figure 7.9. Indicators of Monetary Conditions**

Sources: Bank of Japan (BoJ) (1966); Shizume (2016); author's calculations.

Note: In panel 1, the shaded area indicates the brief period during which Japan was on the gold standard.



Kindleberger (1986) notes that Takahashi conducted quintessential Keynesian policies to boost aggregate demand.<sup>34</sup> The idea of a fiscal multiplier underpinned Takahashi's own words: "If someone goes to a geisha house and calls a geisha, eats luxurious food, and spends 2,000 yen, we disapprove morally. But if we analyze how that money is used, we find that the part that paid for food helps support the chef's salary, and is used to pay for fish, meat, vegetables, and seasoning, or the costs of transporting it. The farmers, fishermen, and merchants who receive the money then buy clothes, food, and shelter. And the geisha uses the money she receives to buy food, clothes, cosmetics, and to pay taxes" (written in 1929).

Takahashi emphasized the temporary nature of the fiscal stimulus package, justifying debt financing for purposes of intertemporal tax smoothing. "We will finance the whole fiscal gap in 1933 with debt. This is because the primary factors of the increase in expenditures are temporary, too large to finance with an increase in taxes and other revenues, and because an increase in taxes and other revenues would break the budding economy recovery. This is not yet the right time for tax increases" (Shizume 2011, 1136).

The stimulus package proved successful: growth picked up, and deflationary expectations subsided (Figure 7.10, panel 1). The policy mix also helped a small, open economy like Japan to weather the Great Depression. Indeed, currency depreciation, fiscal stimulus, and easy monetary conditions helped Japan recover earlier than most European countries. By 1932, Japan's economic activity had almost returned to its precrisis level, while the US and Western European economies were still 20 to 40 percent below their peak (Figure 7.10, panel 2).<sup>35</sup>

The effect of Takahashi's policies on Japan's public debt was surprisingly muted. On the one hand, the BoJ had incrementally pushed down interest rates, giving the government recourse to relatively cheap domestic financing. On the other hand, the increase in budget spending was costly, and the government was forced to issue deficit-covering bonds for the first time in January 1933. In addition, the yen depreciation affected debt denominated in foreign currencies, leading to a sharp decline in Japanese sovereign bond prices in overseas markets.

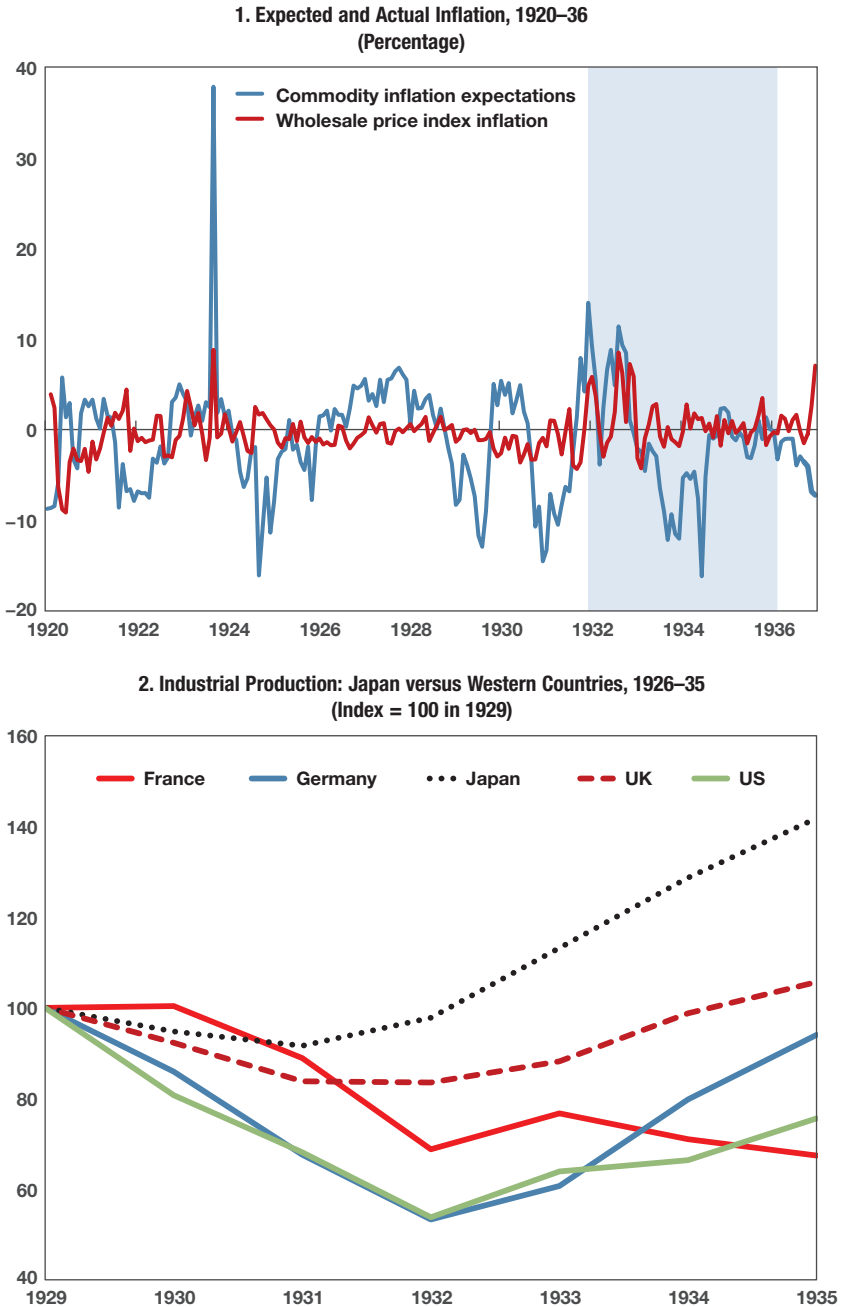
A key reason for the minimal impact on officially reported public debt was the promulgation of the Act on the Calculation of Government Bond Prices (promulgated on July 1, 1932). This law forced Japanese entities to use the official reference price, instead of the mark-to-market price, as the relevant book value for sovereign debt instruments. Ultimately, it attenuated the impact of the exchange rate and other price and valuation changes on reported debt numbers.<sup>36</sup>

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<sup>34</sup>A biography of Takahashi's nicknamed him "Japan's Keynes" (Smethurst 2009). Kindleberger (1986, p. 166) noted that "his writing of the period showed that he already understood the mechanism of the Keynesian multiplier, without any indication of contact with the R. F. Kahn 1931 *Economic Journal* article."

<sup>35</sup>See also Bernanke and James (1991).

<sup>36</sup>Finance Minister Takahashi thought it was also advantageous for bondholders: "[This bill] is a way of stating that one can hold sovereign bonds with confidence. . . . Inevitably, public debt will rise, bondholders will then be tempted to sell; thus, the market price of public bonds will fluctuate intensely. With this bill, since one can value bonds at its acquisition price, one can keep bonds confidence even if market price [goes down]" (June 7, 1932, speech to the Parliamentary Committee; Nagahiro 2013; author's translation).

**Figure 7.10. Inflation and Growth around the Great Depression**

Sources: League of Nations; Shizume (2016); author's calculations.

Note: Inflation expectations are defined as the spread between the one- and seven-year futures on cotton yarn. The shaded area represents Takahashi's time as finance minister in the 1930s.

## From Sound Debt Management to Fiscal Dominance

Prior to Takahashi's fiscal stimulus and the subsequent arms race in the run-up to WWII, Japan had maintained relatively sound domestic debt management policies (Figure 7.11):

- Apart from financing a few war-related financing gaps, and in contrast to many other Western countries, the BoJ did not provide advances until the onset of WWII. Moreover, most issuances were at a coupon rate of 5 percent, with the issuance price adjusted to ensure market clearance.
- Most debt was redeemable, although there were a few sinking funds. The budget included a special account to provide for the settlement of debt obligations. As in other countries, sinking funds were used as a credibility-enhancing tool. For instance, foreign observers praised the government for the new sinking fund that was created in 1925<sup>37</sup>. Similarly, market players saw the 1932 decision to reduce transfers to the sinking fund as a negative signal.
- A large number of domestic debt instruments were issued in the interwar period. Most instruments were intended for a specific purpose, such as railroads, industrial policy instruments, and food certificates (Figure 7.12, Annex Figure 7.1.1). Earmarking bonds to specific policies within a legally binding context contrasted with the widespread use of deficit-covering bonds in other countries.<sup>38</sup> Moreover, also in contrast to many other Western countries, only a handful of foreign loans were issued.
- There were few issuers of public debt other than the central government. In contrast to other countries, state-owned enterprises could not issue quasi-sovereign or implicitly guaranteed paper, a situation that would change once the military assumed control.
- Securities were generally carried on the books until maturity. There was no regular principal repayment unless market conditions made a conversion or refinancing possible; in such cases, the entire stock of initial bonds was redeemed.

The Shōwa Depression and Takahashi's stimulus policies of 1931–32 were a tipping point in terms of debt management policies. By then, the balance sheet of the Deposit Bureau, which had initially helped to channel domestic resources using postal savings, was increasingly encumbered with sovereign and quasi-sovereign paper due to the financial crises of the 1920s (see Annex 7.2).<sup>39</sup> At the same time, institutional investors indicated a growing reluctance to absorb sovereign bonds.

With market conditions for sovereign issuances deteriorating in late 1931, the government resorted to other public underwriters—foremost, the BoJ—to avoid

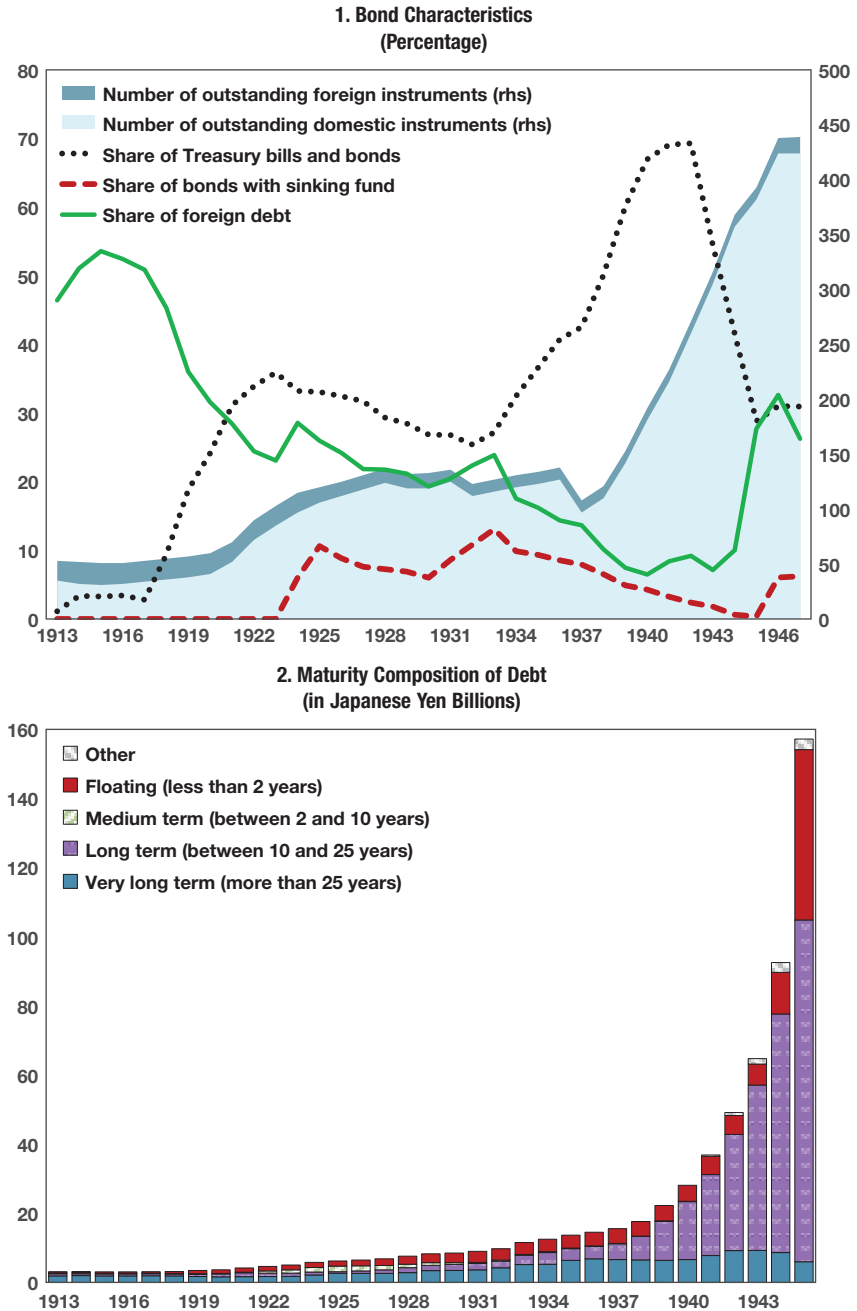
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<sup>37</sup>Lamont and Smith (1927).

<sup>38</sup>In the Imperial Japan budget system, the general account was expected to be balanced through taxes and other current revenues; special accounts were recipients of the proceeds of public debt placements.

<sup>39</sup>In addition to investing in war and development bonds, the Deposit Bureau was used to operate on the secondary market and stabilize prices and to underwrite municipal and industrial bonds.

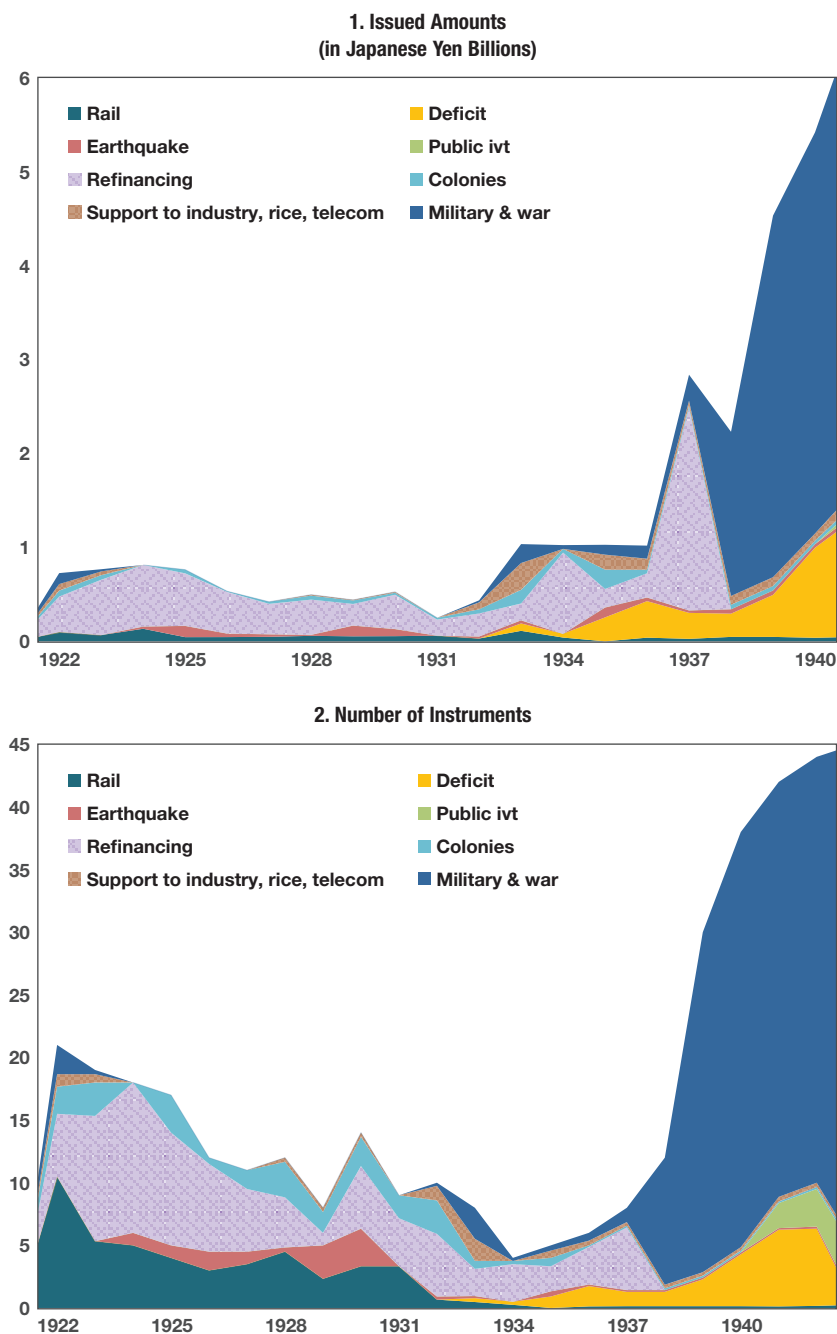
Figure 7.11. Debt Indicators and Maturity, 1913–45



Source: Interwar Debt Database.

Note: rhs = right-hand side; in panel 1, the shares are given as a percent of the total outstanding amount of public debt.

**Figure 7.12. Purposes of Exchequer Bond Issuances, 1913–40/45**



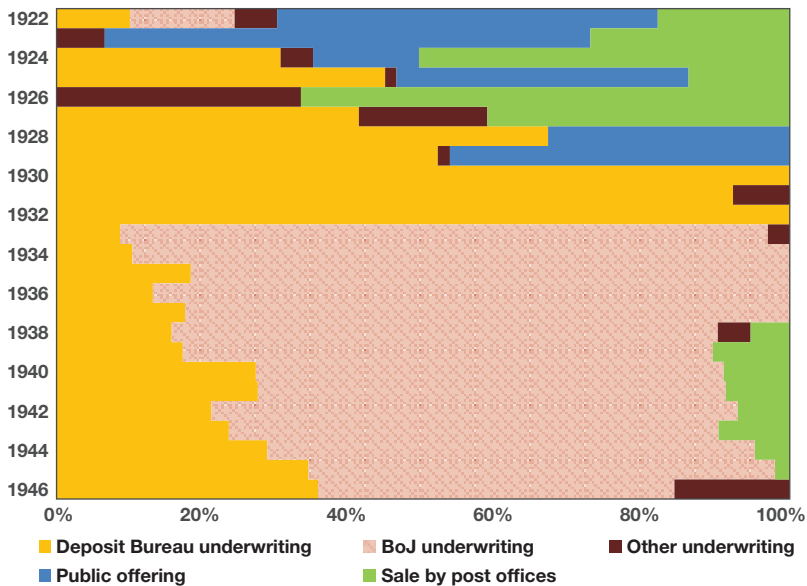
Source: Interwar Debt Database.  
Note: ivt = investment.

public offerings. Finance Minister Takahashi noted: “it has become unavoidable to newly issue revenue supplementing public bonds. . . . These new bonds would be accepted by the Bank of Japan, the Treasury Deposit Bureau of the Ministry of Finance and by using other funds available within the government. It is our policy to avoid the public offering of these new bonds on the general market.”<sup>40</sup> By November 1932, the BoJ had become the government’s main underwriter (Figure 7.13).

While circumspect, the BoJ agreed to this new role, in part because its staff expected seigniorage revenues from this activity.<sup>41</sup> Such a scheme could have been justified in the face of large financing needs (for example, wartime spending) because domestic bond markets were deemed too shallow to supply needed funds. However, no quantity or time limit was set on the BoJ’s underwriting activity. Consequently, price distortions introduced by the underwriting activity became permanent.<sup>42</sup>

At the same time, a conflict of interest arose with the BoJ’s other mandate of regulating domestic liquidity. The discount rate that the BoJ applied for its liquidity

**Figure 7.13. Issuing Method of Government Bonds, 1922–46  
(in Percentage of Annual Domestic Issuances)**



Sources: Ministry of Finance (1954); author’s calculations.

Note: BoJ = Bank of Japan. “Other underwriting” includes bonds underwritten by the Banks of Taiwan and Korea, the Hokkaido Takushoku and Koike Banks, the Simple Life Insurance, and other financial institutions, as well as the Education Reform and Rural Revitalization Fund and the Railway Mutual Aid Association.

<sup>40</sup>Excerpt of the financial address to the 62<sup>nd</sup> Imperial Diet session on June 3, 1932 (Tomita 2005a).

<sup>41</sup>Ide (2003); Tomita (2005a).

<sup>42</sup>Tomita (2005a) comments on the growing spread between Japanese government bonds priced in yen domestically and those traded in London during this period.

facility on government bonds was relaxed in the hope of easing interest rate risks. Furthermore, the Ministry of Finance imposed a standard issue price to be used as book value, resulting in bondholders being able to avoid booking loss provisions in their account ledgers. This policy made it easier both to place bonds and to maintain their price at the expense of market transparency and price discovery mechanisms. Arguably, these measures succeeded in lowering sovereign yields. After 1932, the government could access funds at a 4 and 4.5 percent coupon, compared to 5 percent for most domestic issuances during 1913–31. However, these policies put the BoJ in a clear position of fiscal dominance (Figure 7.14).

## Fiscal and Monetary Discipline Lost

International rebuke for Japan's foray into Manchuria in 1931 and its withdrawal from the League of Nations in March 1933 heralded the ascendance of militarism and the country's mounting international isolation. Implementing sustainable debt policies proved challenging against the backdrop of growing discord between politicians and the military. Although the BoJ had initial success in issuing government paper, private demand for sovereign paper dried up by 1935. As Takahashi noted at a cabinet meeting on June 25, 1935: "When a huge amount of public bonds is issued every year, financial companies that already have a substantially large amount of public bonds feel a sense of unease; if even a small decline in public bond prices is projected, they will not, of course, be willing to increase the amount of public bonds they own and might feel like selling those they already own" (Tomita 2005a).

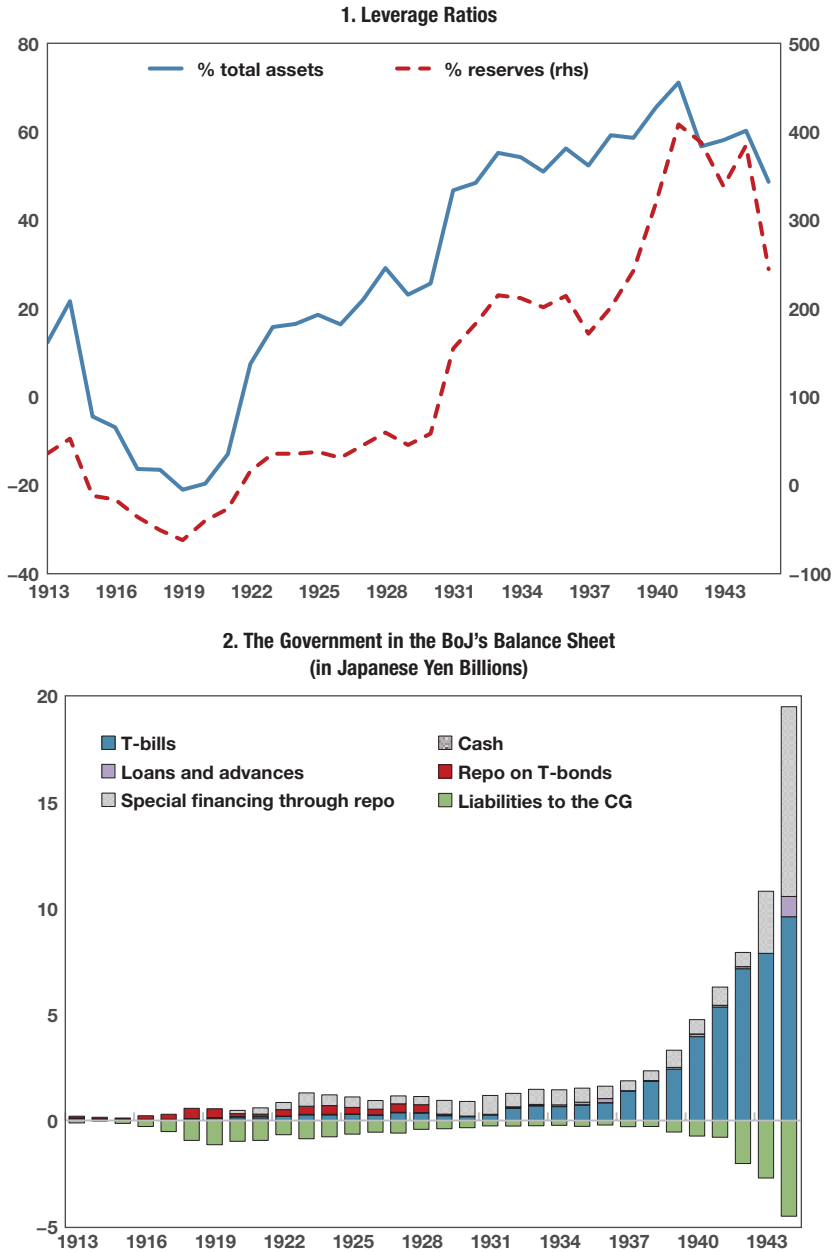
To avoid crowding out effects and dampen inflationary pressures, Takahashi attempted to reduce financing needs by trimming military expenditures. This move antagonized military leaders, who had been subjected to budgetary cut-backs in the past but were now firmly entrenched in positions of power.<sup>43</sup> The various interest groups that framed Japan's politics since the Meiji restoration had finally come to an overt clash. The two independent branches of the military—the navy and the army—and Takahashi's stimulus had to compete for increasingly scarce financial resources.

Following its 1933 withdrawal from the League of Nations on account of the Manchurian Incident, Japan weaned itself off foreign resources and was cut off from international financial markets.<sup>44</sup> On the domestic side, the situation was spinning out of control. In November 1935, during a 36-hour-long cabinet meeting, Takahashi argued that "If we are devoted to national defense only and invite

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<sup>43</sup>The military had never stopped playing a central role within successive governments, weighing in on fiscal decisions and bearing an effective veto on the budget process (Shizume 2011).

<sup>44</sup>Japan continued to extort financing from its colonies. Overseas central banks, such as the Bank of Taiwan, were used in the same vein as the BoJ to underwrite and promote public debt. As the war progressed, the military authorities issued Southern Development Bank Notes to replace local currencies in newly acquired colonies (namely, the Dutch East Indies, Brunei, Burma, Malaya, New Guinea, North Borneo and Sarawak, the Philippines, Singapore, and the Solomon and Gilbert Islands).

**Figure 7.14. Bank of Japan's Net Claims on the Government, 1913–44**

Source: Interwar Debt Database.

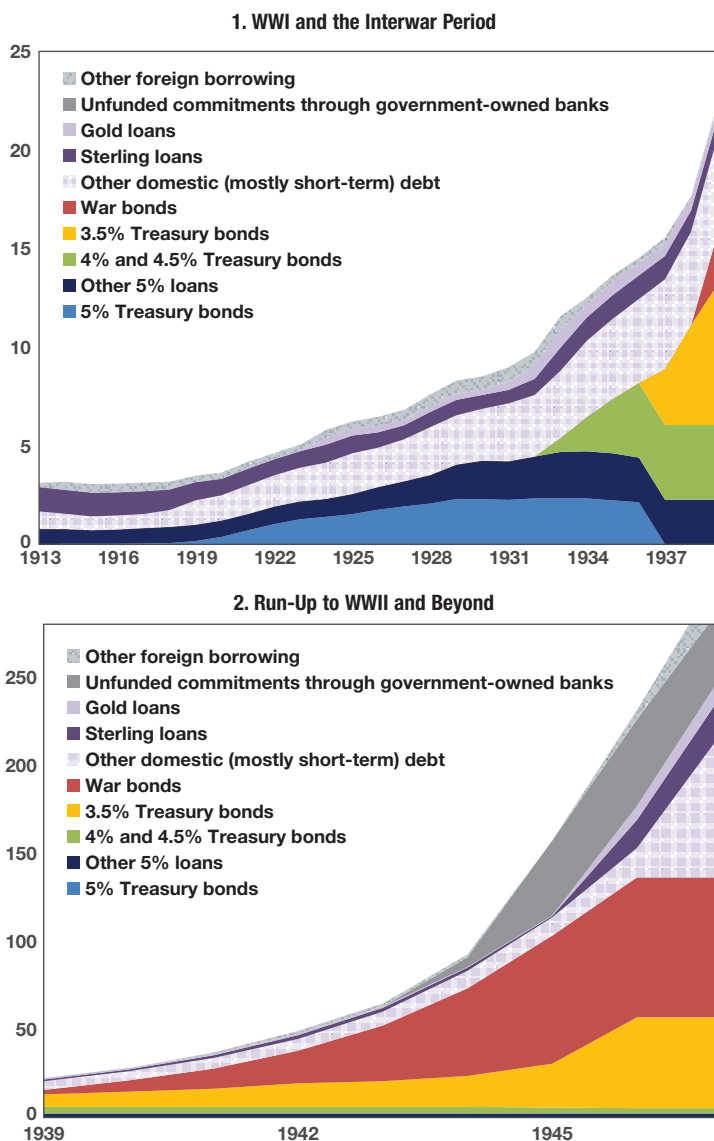
Note: CG = central government; rhs = right-hand side; T-bills = Treasury bills; T-bonds = Treasury bonds. For presentational purposes, 1945 is excluded; this is the year that the Bank of Japan's (BoJ) balance sheet tripled in size. The special advances granted under the government guarantee are considered as an implicit claim on the government.



vicious inflation and if our financial credibility is damaged, national defense as well can by no means be stable and strong.”

After a *coup d'état* attempt in 1936, in which Takahashi was assassinated, the official discount rate was lowered, and new 3.5 percent interest-bearing government bonds were injected into the financial system (Figure 7.15). Takahashi's

**Figure 7.15. Typology of Sovereign Bonds, 1913–46**  
(Outstanding Amount in Japanese Yen Billions)



Source: Interwar Debt Database.

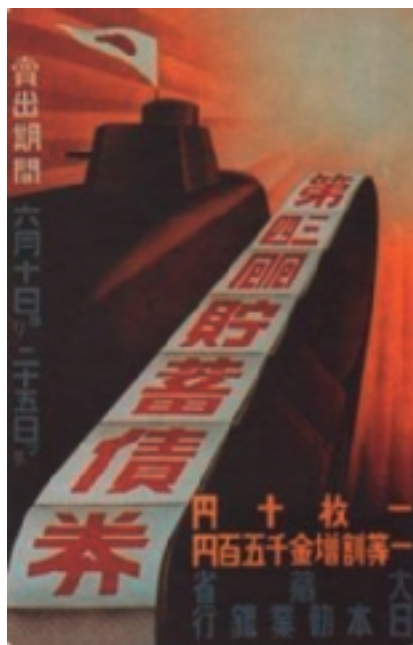
Note: gov't = government; WWI = World War I; WWII = World War II.

commitment to gradually reduce the outstanding stock of public bonds—a fiscal rule ahead of its time—was abandoned, and central bank independence eroded.

With the military machine ramping up, the BoJ adopted an unconditional purchase policy for sovereign bonds.<sup>45</sup> This policy rendered bonds almost as liquid as cash, thereby generating further incentives for banks to hold them. Figures 7.13 and 7.15 illustrate how the BoJ's direct exposure to the government grew exponentially in the mid-1930s. After the failure of the placement of the “Ru” 3.5 percent Treasury bond in 1937, the government relied exclusively on the BoJ for financing.<sup>46</sup>

With the formal outbreak of the Sino-Japanese War in July 1937, Japan formally shifted to a wartime governance mode and widespread financial repression. The government began tapping noninstitutional lenders and expanded bond sales to individuals (Figures 7.13 and 7.16).<sup>47</sup> The National Mobilization Law was enacted in March 1938. The Bank Fund Management Order of October 1940

**Figure 7.16. War Poster**



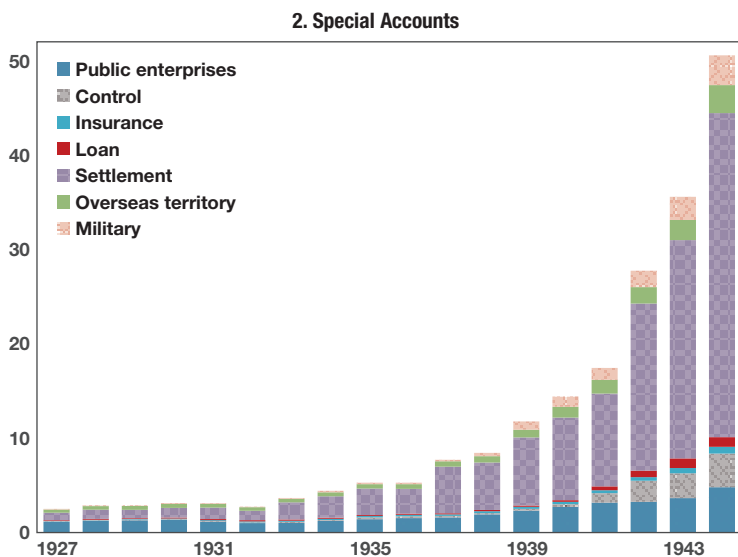
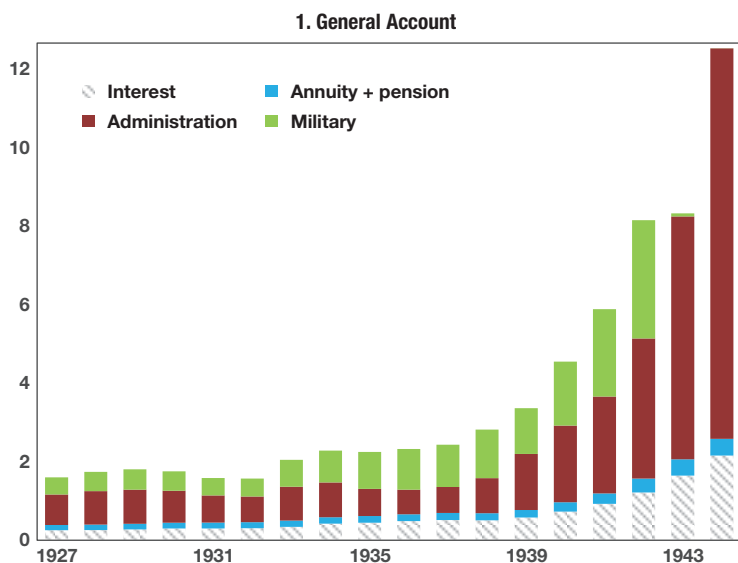
Note: Poster reads: “Third and fourth premium saving bonds—10 yen per piece, premium 1,500 yen Ministry of Finance, Nihon Kangyo Bank—sale period: June 10–25”

<sup>45</sup>Makoto (1967).

<sup>46</sup>The Japanese authorities maintained a system of marks to differentiate the large numbers of Treasury securities on their books. Some bonds were numbered, but most were attributed a symbol in the Japanese syllabary.

<sup>47</sup>For instance, post offices sold the 3.5 percent “Ru” government bonds, underwritten by the BoJ. The government also used public organizations, companies, and stores, as well as investment banks, such as Nomura Securities, as brokers.

**Figure 7.17. Government's Expenditure, 1927–44**  
(in Japanese Yen Billions)



Sources: Bank of Japan (1966); author's calculations.

Note: The special accounts on panel 2 are as follows: Control accounts: price regulation of some commodities (and the exchange rate); insurance accounts: public insurances; loan accounts: on lending to targeted sectors and promotion of Treasury loans; settlement accounts: debt operations and debt consolidation funds. Neither the military section of the general account nor military special accounts include the Special War Expenditure Accounts that were used during wartime and subject to different budgetary rules.

used the provisions of the law to place all lending activities under government oversight. As in Italy (Chapter 5), the domestic sovereign bond market was now fully regulated at government-imposed rates and maturities. In 1943, the government established the National Savings Promotion Bureau to absorb any remaining private savings through neighborhood associations—the funds could be withdrawn only for the purchase of government bonds. Not surprisingly, these policies kept interest rates artificially low until the end of WWII. The government was thereby able to place massive amounts of debt with impunity.

Amid large-scale nationalizations, the National Mobilization law gave the government authority to use unlimited budgets for war financing.<sup>48</sup> The government scaled up income tax rates, topping the general tax with scheduler taxes, and set up a separate corporate tax regime. In addition, it increased the number of commodities that were subject to excise taxes and raised the rates. Despite these tax hikes, large financing gaps developed. Two laws enacted in 1936–37 shattered the budgetary discipline that had been enforced in the past. The government could now move cash easily between various budgetary accounts, including a reserve that could be used at its discretion.<sup>49</sup> The government began to manipulate the budget, pumping cash resources from debt-financed special accounts into the general account (Figure 7.17). Fiscal policy relied heavily on easy credit from the central bank, financial repression intensified, and inflation surged.

The military regime had swiftly addressed the mother of debt-related questions: Should one honor one's debt? In this case, the answer was: one need not do so.

## CONCLUSION

Japan's experience in the interwar period shows how the balance of power between fiscal and monetary policies—the extent to which one policy is subordinate to the other or the two act cooperatively—shapes economic outcomes. Three distinct episodes of fiscal-monetary interactions and their interlinkages with debt policy have been identified in this chapter.

The first period from 1918 to 1930 is characterized by relatively tight fiscal and monetary policies, anchored by a desired return to the gold standard and the ambition to internationalize the yen. Fiscal discipline and credibility were reinforced by the need to tap foreign financing in the 1920s, the implicit rule of targeting a balanced budget, and *de facto* central bank independence. These policies, in turn, paved the way for increased access to debt financing by the government and the adoption of relatively sound debt management policies.

The orthodox policies of balanced budgets, tight money, and fixed exchange rates against the backdrop of a series of domestic shocks and a worldwide economic collapse drove the economy into a severe depression. The depression in

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<sup>48</sup>Farley (1939).

<sup>49</sup>Kept out of the parliament's control, the budgets did not operate on a fiscal year basis. Instead, they were typically kept open until the end of the conflict and often beyond.

Japan, however, proved relatively short lived due to the triumvirate of policies adopted in 1931–33—fiscal expansion, accommodative monetary policy, and exchange rate devaluation. This period was characterized by monetary subordination *and* cooperation: fiscal deficits were financed in part by printing money, but the BoJ prevented inflation from getting out of control. The period also coincided with a limited need for external debt financing, thereby attenuating external pressure to maintain fiscal prudence. To signal fiscal discipline, the government announced a commitment to gradually reduce the outstanding stock of domestic public bonds. But this “fiscal rule” proved not to be credible in light of the country’s mounting militarism and international isolation.

The period from 1933 to WWII was one of clear fiscal dominance. Even though the government had access to domestic debt financing in the mid-1930s, central bank independence was eroded as seigniorage revenues were increasingly channeled to meet burgeoning fiscal deficits. The government also resorted to indirect mechanisms to finance deficits once domestic debt financing became less readily available. Financial repression methods during the late 1930s guaranteed that part of household savings was used to finance government deficits and allowed the government to partially default on interest payments because the fiscal and monetary authorities unilaterally determined the remuneration of confiscated savings.

## ANNEX 7.1. BACKGROUND INFORMATION

**Annex Table 7.1.1. Intermediaries Involved in the Placement of Foreign Bonds**

Bond Name	Currencies	Bank Consortiums Involved
<b>5% Bonds (1897, 1902)</b>	JPY	Baring, HSB, YSB
<b>4% Sterling Loan I (1899)</b>	GBP	Chartered Bank, Parr, HSB, YSB
<b>4.5% Sterling Loan I (1905)</b>	GBP, USD	Chartered Bank, Parr, HSB, YSB
<b>4.5% Sterling Loan II (1905)</b>	GBP, USD, DEM	Chartered Bank, Parr, HSB, YSB, Warburg
<b>4% Sterling Loan II (1905)</b>	GBP, USD, DEM, FRF	Chartered Bank, Parr, HSB, YSB, Deutsch-Asiatischen Bank (and partners), Rothschilds
<b>5% Sterling Loan (1907)</b>	GBP, FRF	Rothschilds
<b>4% Franc Loan (1910)</b>	FRF	Rothschild Paris
<b>4% Sterling Loan III (1910)</b>	GBP	Parr, HSB, YSB
<b>5% Franc Exchequer Bonds (1913)</b>	FRF	Rothschild Paris
<b>6.5% Gold Bonds (1924)</b>	USD	Morgan, KL, NCB, FNB
<b>6% Sterling Loan (1924)</b>	GBP	Westminster, HSB, Rothschilds, Baring, Henry Schroeder, Morgan London, Panmure Gordon, YSB
<b>5.5% Sterling Loan (1930)</b>	GBP	Westminster, HSB, Rothschilds, Baring, Henry Schroeder, Morgan London, YSB
<b>5.5% Gold Bonds (1930)</b>	USD	Morgan, KL, NCB, FNB, YSB

Sources: Metzler (2006); Moody's; author.

Note: DEM = Deutsche mark; FNB = First National Bank of New York; FRF = French franc; GBP = British pound; HSB = Hongkong and Shanghai Bank; KL = Kuhn, Loeb and Co.; NCB = National City Bank of New York; Rothschilds includes both Rothschild Paris and London; USD = US dollar; YSB = Yokohama Specie Bank. The table shows only sovereign securities; there were also government-guaranteed industrial loans that involved the same international banks.

**Annex Table 7.1.2. Wars Fought by Japan**

War	Japan's Involvement	Special Account Period
<b>Sino-Japanese War</b>	Aug 1894–Apr 1895	Jun 1894–Mar 1896
<b>North China Affair (Boxer Uprising)</b>	Aug 1899–Sep 1901	—
<b>Russo-Japanese War</b>	Feb 1904–Sep 1905	Oct 1903–Mar, 1907
<b>WWI and the Siberian Expedition</b>	Aug 1914–Jun 1922	Aug 1914–Apr 1925
<b>Shandong Expedition</b>	May 1928–May 1928	—
<b>Mukden Incident (Manchuria)</b>	Sep 1931–Feb 1932	—
<b>China Incident and WWII</b>	Jul 1937–Sep 1945	Sep 1937–Feb 1946

Source: Author.

Note: WWI = World War I; WWII = World War II. Special war accounts were extrabudgetary procedures that were opened to finance the warring armies.

Annex Table 7.1.3. Political and Economic Leadership during the Interwar Period

Dates	Period [Emperor]	Prime Minister	Majority Party	Finance Minister	Bank of Japan Governor
1868–1912		Meiji (明治) [Mutsu Hito]			
July 1912	Taishō (大正) [Yoshi Hito]				Korekiyo Takahashi
December 1912		General Katsura Tarō	None	Wakatsuki Reijirō	Yatarō Mishima
February 1913		Admiral Yamamoto Gonnohyōe	Military	Takahashi Korekiyo	
April 1914		Ōkuma Shigenobu	Rikken Dōshikai	Wakatsuki Reijirō	
				Taketomi Tokitoshi	
October 1916		Marshal Terauchi Masatake	Military	Terauchi Masatake	Junnosuke Inoue
				Kazue Shōda	
September 1918		Hara Takashi <sup>1</sup>	Rikken Seiyūkai	Takahashi Korekiyo	
March 1919					
November 1921		Takahashi Korekiyo		Takahashi Korekiyo	
June 1922		Marshal-Admiral Katō Tomosaburō	Military	Otohiko Ichiki	
September 1923		Admiral Yamamoto Gonnohyōe		Junnosuke Inoue	
January 1924		Kiyoura Keigo	None	Kazue Shōda	
June 1924		Katō Takaaki (twice)		Osachi Hamaguchi	
January 1926			Seiji Hayami		
December 1926	Shōwa (昭和) [Hiro Hito]	Wakatsuki Reijirō	Kenseikai	Kataoka Naoharu	Otohiko Ichiki
April 1927		Tanaka Giichi	Rikken Seiyūkai	Takahashi Korekiyo	Junnosuke Inoue
June 1928				Chuzo Mitsuchi	Hisaakira Hijikata
July 1929		Osachi Hamaguchi <sup>1</sup>	Rikken Minseitō	Junnosuke Inoue	
April 1931		Wakatsuki Reijirō			
December 1931		Inukai Tsuyoshi <sup>1</sup>	Rikken Seiyūkai	Takahashi Korekiyo	
May 1932		Admiral Saitō Makoto	Military		Eigo Fukai
July 1934		Admiral Keisuke Okada <sup>1</sup>		Machida Chūji	
June 1935					
March 1936		Kōki Hirota	None (prowar)	Eiichi Baba	

(Continued)

Dates	Period [Emperor]	Prime Minister	Majority Party	Finance Minister	Bank of Japan Governor
<b>February 1937</b>		General Senjūrō Hayashi	Military	Toyotaro Yuki	Seihin Ikeda
<b>June 1937</b>		Fumimaro Konoe	None	Okinori Kaya Shigeaki Ikeda	Toyotaro Yuki
<b>January 1939</b>		Hiranuma Kiichirō		Sotaro Ishiwata	
<b>August 1939</b>		General Nobuyuki Abe	Military	Kazuo Aoki	
<b>January 1940</b>		Admiral Mitsumasa Yonai	Taisei Yokusankai	Yukio Sakurauchi	Keizo Shibusawa
<b>July 1940</b>		Fumimaro Konoe (thrice)		Isao Kawada Masatsune Ogura	
<b>October 1941</b>		Hideki Tōjō		Okinori Kaya	
<b>July 1944</b>		Kuniaki Koiso		Sotaro Ishiwata	
<b>April 1945</b>		Kantarō Suzuki		Juichi Tsushimar	
<b>August 1945</b>		Prince Naruhiko Higashikuni		Imperial family	
<b>October 1945</b>		Kijūrō Shidehara	Nihon Shimpotō	Keizō Shibusawa	Eikichi Araki
<b>May 1946</b>		Shigeru Yoshida	Jiyūtō	Tanzan Ishibashi	

Source: Author.

Note: In Imperial Japan, eras are named from the emperor's official name. The North American convention is used, and first names are given first.

<sup>1</sup>Indicates prime ministers who were murdered, thought to be murdered, or injured during attempted murder while in office.

The main political parties during the period are as follows:

Jiyūtō = Liberal Party

Kenseikai = Constitutional Association

Nihon Shimpotō = Japan Progressive Party

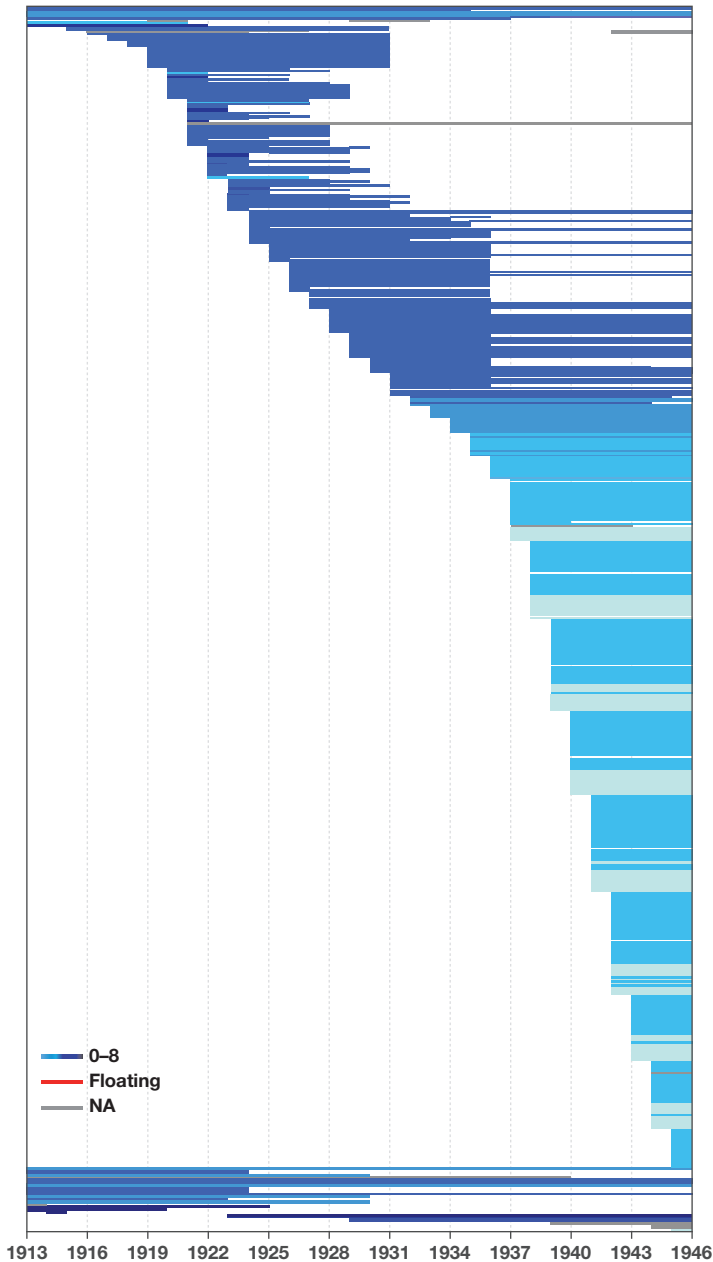
Rikken Dōshikai = Constitutional Association of Allies

Rikken Seiyūkai = Constitutional Association of Political Friendship (conservative)

Rikken Minseitō = Constitutional Democratic Party (liberal, successor of the latter)

Taisei Yokusankai = Imperial Rule Assistance/Aid Association (fascist)



**Annex Figure 7.1.1. Public Debt Instruments in Japan, 1913–46**

Source: Interwar Debt Database.

Note: Each outstanding instrument is represented by a horizontal line. Years are calendar years. Domestic instruments are at the top, and foreign debt constitutes the block at the bottom. This chart represents how the number of domestic issuances skyrocketed over time, while interest rates were pushed down. It also illustrates how foreign issuances were rare by comparison.

## ANNEX 7.2. JAPAN'S INTERNATIONALIZATION EFFORTS

Prior to WWI, and in its immediate aftermath, Japanese authorities harbored ambitions of forming a yen block and transforming Tōkyō into an international financial center. In their minds, this endeavor had to be underpinned by a free market for gold—thus adherence to the gold standard (Metzler 2002, 2006). Japan started in 1916–17 to make loans, in yen, to Britain, France, and Russia, either directly or through Japanese banks, so that these countries could, in turn, buy Japanese goods (see Annex Table 7.2.1 for a list of loans). Increasing the share of trade invoiced in yen as opposed to dollar or pound was also considered important for forming a yen block in Asia. Underlying these policies were ambitions to internationalize the yen and create a yen-based gold-exchange standard for neighboring countries. This policy met with success in Korea—the Dai-Ichi Ginkō (First National Bank) acted as a *de facto* central bank. The 1917–18 Nishihara loans to China were intended to follow the same model.

Despite these efforts, the country remained relatively isolated from international capital markets. Why did the yen not catch up as an international currency, and why did Tōkyō not emerge as an international marketplace? Several explanations can be put forward, drawing on the literature on international currencies that has identified a number of factors that determine whether a currency is suited for international currency status (McKinnon 1979; Matsuyama, Kiyotaki, and Matsui 1993; Rey 2001).

- For most international investors, Japan remained a distant and minor player and the yen an untested currency. These investors could scarcely trust a currency without the prospect of the country reconvening with the gold standard.
- As a small economy, Japan's weight in global output and trade was limited and its government financing needs were too small to provide the volume and frequency of transactions necessary to ensure liquidity.
- Japanese capital and money markets were not sufficiently developed, open, and liberalized. Persistent capital controls were incompatible with internationalization ambitions. Initially, limited capital flow management measures were intended to limit carry-trade opportunities for domestic liquidity. However, they became entrenched after 1933.

**Annex Table 7.2.1. Japanese Loans to Allies and China, 1914–18**

Issue Date	Country	Name of the Loan	Interest (annual)	Maturity (years)	Amount (JPY millions)	Issuers
Nov 1915	France	French Military Bonds (first series)	5.0	15.0	0.9	Franco-Japanese Bank
Dec 1915	China	First Armament Loan	9.0	5.0	2.4	Mitsui Bussan, Mitsubishi Gomei, KZ, Taipei Group
Feb 1916	Russia	Russian Government Treasury Bills (first series)	5.0	1.0	50.0	Japanese 18-bank syndicate
Jul 1916	Britain	British Sterling Treasury Bills	6.0	1.0	94.6	MoF Deposit Bureau
Sep 1916	France	French Military Bonds (second series)	5.0	15.0	0.2	Franco-Japanese Bank
Sep 1916	Russia	Russian Government Treasury Bills (second series)	6.0	1.0	70.0	18-bank syndicate
Oct 1916	Britain	British Treasury Bills	5.0	3.7	5.2	Sale and Frazer Co.
Oct 1916	Russia	Short-Term Military Bonds (first to third series)	5.0	1.0	11.9	Sale and Frazer, Russo-Chinese Bank
Oct 1916	Russia	Russian Government Liberty Bonds	5.0	1.0	2.7	Sale and Frazer, Russo-Chinese Bank
Dec 1916	Britain	British Military Bonds	5.0	3.0	3.8	Sale and Frazer, IBJ
Dec 1916	Britain	1916 British Government Yen Treasury Notes	6.0	3.0	100.0	18-bank syndicate
Jan 1917	China	First Banking Facilities Loan	7.5	1.0	5.0	IBJ, Banks of Taiwan and Chōsen
Feb 1917	Russia	Russian Government Treasury Bills (third series)	6.0	1.0	50.0	18-bank syndicate
Mar 1917	France	French Yen Treasury Bills (four issues)	6.0	1-1.75	26.2	MoF Deposit Bureau
Apr 1917	Russia	Russian Government Treasury Bills	5.0	0.5	15.5	MoF Deposit Bureau
Jul 1917	France	1917 French Government Yen Treasury Notes	6.0	3.0	50.0	18-bank syndicate, Franco-Japanese Bank
Sep 1917	Russia	Russian Government Treasury Bills (fourth series)	6.0	1.0	105.0	18-bank syndicate
Sep 1917	China	Second Banking Facilities Loan	7.5	1.0	20.0	IBJ, Bank of Taiwan, Bank of Chōsen
Oct 1917	Russia	Russian Government Treasury Bills	6.0	0.7	15.5	MoF Deposit Bureau

*(Continued)*

Issue Date	Country	Name of the Loan	Interest (annual)	Maturity (years)	Amount (JPY millions)	Issuers
Oct 1917	Russia	Russian Government Treasury Bills (fifth series)	6.0	1.0	66.7	18-bank syndicate
Nov 1917	France	French Military Bonds (third series)	4.0	25.0	0.4	YSB, Franco-Japanese Bank
Nov 1917	China	Second Armament Loan	9.0	2.8	0.9	Mitsui Bussan, Mitsubishi Gomei, KZ, Taipei Group
Dec 1917	China	Third Armament Loan	9.0	2.8	15.4	Taipei Group
Jan 1918	Britain	British Yen Treasury Bills	5.0	1.0	80.0	MoF Deposit Bureau
Feb 1918	China	Naval Wireless and Telegraph Loan	10.0	30.0	5.2	Mitsui Bussan
Apr 1918	China	Telegraph Cable Loan	8.0	5.0	20.0	IBJ, Bank of Taiwan, Bank of Chōsen (via EBC)
Jun 1918	China	Kirin-Kainei (Hueining) Railway Preliminary Loan	7.5	0.5	10.0	IBJ, Bank of Taiwan, Bank of Chōsen
Jul 1918	China	Fourth Armament Loan	9.0	2.2	12.5	Taipei Group
Aug 1918	China	Mine and Forestry Loan	7.5	0.5	30.0	IBJ, Bank of Taiwan, Bank of Chōsen (via EBC)
Sep 1918	China	Manchuria-Mongolia Four-Way Railway Loan	8.0	10.0	20.0	IBJ, Bank of Taiwan, Bank of Chōsen
Sep 1918	China	Santo Two-Way Railway Preliminary Loan	8.0	0.5	20.0	IBJ, Bank of Taiwan, Bank of Chōsen
Sep 1918	China	War Participation Loan	7.0	1.0	20.0	IBJ, Bank of Taiwan, Bank of Chōsen
Nov 1918	France	1918 French Government Yen Treasury Notes	6.0	3.0	50.0	18-bank syndicate, Franco-Japanese Bank

Source: Bytheway and Metzler (2016).

Note: EBC = European Business Council in Japan; IBJ = Industrial Bank of Japan;

JPY = Japanese yen; KZ = Kawasaki Zosensho; MoF = Ministry of Finance; YSB = Yokohama Specie Bank.

## ANNEX 7.3. FINANCIAL CRISES IN 1920s JAPAN

Starting in 1920, a series of financial stress episodes, largely originating in the banking sector, hit the country. In each instance, an exogenous element triggered bank runs and financial panic—expectations of a hard landing of the Japanese economy after the WWI boom, the failure of a local company, an earthquake, and a mistaken announcement by a finance minister. According to Shizume (2009), remnant weaknesses in banking supervision and the lack of a resolution mechanism hindered financial markets from settling nonperforming loans. Although the economic impact of these crises was relatively muted (industrial production plateaued rather than collapsed), an environment of distrust and low confidence in the banking sector prevailed. The crises also contributed to the concentration of economic activity around a handful of *zaibatsu*.

Given its dependence on domestic financing sources, the Japanese government had a clear interest in keeping the banking system afloat. But since fiscal discipline prevailed in the 1920s, the government wanted to limit the direct impact on nominal public debt. Thus, outright bailout or budget support was not provided. Instead, the government strengthened financial regulation, declared banking moratoria, and relied on BoJ interventions (Shizume 2009). Specifically, the BoJ issued “special” loans—loans granted to a wider range of borrowers or backed by collateral of lower grade than usual.

The Great Kantō Earthquake of 1923 is an illustration of how BoJ-sponsored interventions worked. The earthquake disrupted the operations of businesses and banks, damaging the financial assets of banks, as well as their physical capital, and triggering financial panic. To help suppliers, the government declared a moratorium postponing the settlement of debts and commercial bills. In parallel, a system of Earthquake Casualty Bills was established, described by Western commentators as “legislation of rather startling character” (Lamont and Smith 1927). Banks bought commercial bills from the devastated area, regardless of the issuer’s outstanding credit, with the BoJ rediscounting them.

These schemes involved government guarantees but had no direct budgetary impact. Moreover, the loans kept the banking system afloat, allowing the government to secure financing domestically. However, they undermined the banking sector’s and BoJ’s role in pricing risk. The burden that these earthquake bills represented was so important for the BoJ’s balance sheet that the government had to exchange them against Treasury bonds when the 1927 Shōwa financial crisis hit.

Overall, the volume of special loans issued remained relatively contained. The BoJ sterilized its support by reducing its claims abroad and through regular repo operations on government securities. Yet, the schemes also implied a steadily growing BoJ exposure to the government.

More importantly, the impact on the financial sector was less benign than it seemed, as the BoJ lost the ability to discriminate among borrowers. An obvious example of regulatory forbearance, the cleanup of bad loans was put off for years and the Earthquake Casualty Bills extended twice. This would become a trigger

for the 1927 Shōwa financial crisis. The government eventually had to exchange the earthquake bills for Treasury bonds to indemnify against BoJ losses and buffer its balance sheet. Shizume (2009) notes that Eigo Fukai, then an executive director of the BoJ and later governor, wrote: “In summing up the fundamental causes of massive bank failures in 1927, we can conclude that the original sources were the inappropriate business practices during the post-war collapse and the temporary stop-gap measures to fix them. Ultimately, it all came to the inevitable end.”

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# The Interwar Debt Database

Conducting research on public finance history requires comprehensive, comparable, and relevant data, which are often difficult to find and too sparse or too aggregated. The political and economic turbulence of the interwar period presents additional challenges to data collection.

Various researchers have compiled long-run historical data on public debt.<sup>1</sup> However, most existing public debt databases draw on country-specific sources, making cross-country comparisons difficult. More problematic and contrary to present day practices, there were no widespread statistical standards to ensure comparability of aggregates. National statistics varied greatly in terms of definitions; it was common for a single country to change its working definitions over time, helping to conceal fiscal problems or serve political purposes.

In this book, we rely on a new database described in detail in a companion paper by End, Marinkov, and Miryugin (2019)—the Interwar Debt Database. This database is designed to more accurately represent public finances for this period by focusing on individual public debt instruments. The debt security can be thought of as a common denominator of public finance across countries for this period, providing objective, contractual, cash-based information on public debt and fiscal policy. A debt contract, by its very nature, corresponds to a series of predictable cash flows. Aggregate debt data are less reliable because their coverage varies across time and countries. In the interwar period, flow data (for example, expenditure and revenues) were generally presented in budgeted terms, as opposed to the amounts actually spent or collected. Budgets were often scattered across different accounts; special accounts were common, making consolidation of the budget accounts a difficult exercise, particularly a century later.

The Interwar Debt Database contains some 3,800 debt instruments, issued by 18 countries from 1913–46, with details on instruments characteristics (for example, coupon rates, maturity, and denomination). From an international perspective, the database also sheds light on who owed what, and to whom (that is, to which country). The 18 countries in the database provide reasonable coverage, not only from a geographic perspective (Figure A.1), but also because these countries accounted for the majority of public debt issued during the interwar period. In 1935, the countries in our dataset covered some 88 percent of the total debt reported in the League of Nations publications. The focus is on sovereign bonds

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<sup>1</sup>See Abbas and others (2011, 719–20) for a broad review of databases on public debt published up to 2010. Since then, there have been others, including Abbas and others (2014); Mauro and others (2013); Reinhart and Rogoff (2011); and Reinhart, Reinhart, and Rogoff (2012).

because sovereign and quasi-sovereign bonds constituted a large share of financial instruments, both domestically and internationally.

**Figure A.1. Countries Included in the Interwar Debt Database**

Europe	Americas	Asia-Pacific	Africa
<ul style="list-style-type: none"> <li>• Austria</li> <li>• Belgium</li> <li>• France</li> <li>• Germany</li> <li>• Italy</li> <li>• United Kingdom</li> <li>• Russia</li> </ul>	<ul style="list-style-type: none"> <li>• Canada</li> <li>• United States</li> <li>• Argentina</li> <li>• Chile</li> <li>• Costa Rica</li> </ul>	<ul style="list-style-type: none"> <li>• Australia</li> <li>• New Zealand</li> <li>• India</li> <li>• Japan</li> </ul>	<ul style="list-style-type: none"> <li>• South Africa</li> <li>• Egypt</li> </ul>

## DATABASE CONSTRUCTION

Information on the domestic and external debt published by the League of Nations was used as a starting point in constructing the database. This information was supplemented with data from several other sources to fill in gaps, obtain finer disaggregation, and find complementary qualitative information. These sources include Moody's publications, national sources (for example, budget documents and statistical yearbooks, central bank bulletins), and other specific resources. Where information was scant, inference and interpolation methods were used (see End, Marinkov, and Miryugin (2019) for details).

The objective was to obtain, for each debt instrument issued by (or on behalf of) the general government, the time series of the outstanding amounts, as well as detailed instrument-level characteristics. The latter include the nature of the instrument, coupon rates (the nominal interest payment promised on issuance, excluding the various premia that were often granted upon issuance or redemption), maturity dates, currency denomination, and taxation regimes. Most instruments had descriptive names, such as "4.5 percent 10-year Treasury bill of 1933," from which the key characteristics can be inferred.

A few caveats are in order:

- First, we do not have data on the ownership of instruments, except for those reported in the balance sheets of national central banks.
- Second, price data on individual debt instruments are not available for the majority of countries in the database. In the future, collecting price data for marketable government debt securities would complement the information on quantities for individual debt instruments. Following the pioneering efforts of Professors Hall and Sargent (Hall and Sargent 2011; Hall, Payne, and Sargent 2018) for the United States and Professors Ellison and Scott (forthcoming) for the United Kingdom, the market value of the debt could then be calculated by matching price and quantity data for a large number of countries.

- Finally, despite our best efforts, some categories remain incomplete. Data quality is invariably worse during wartime. Therefore, even though we made a concerted effort to reconstruct the bonds that were outstanding at the end of World War I, some shorter-term securities might be missing.

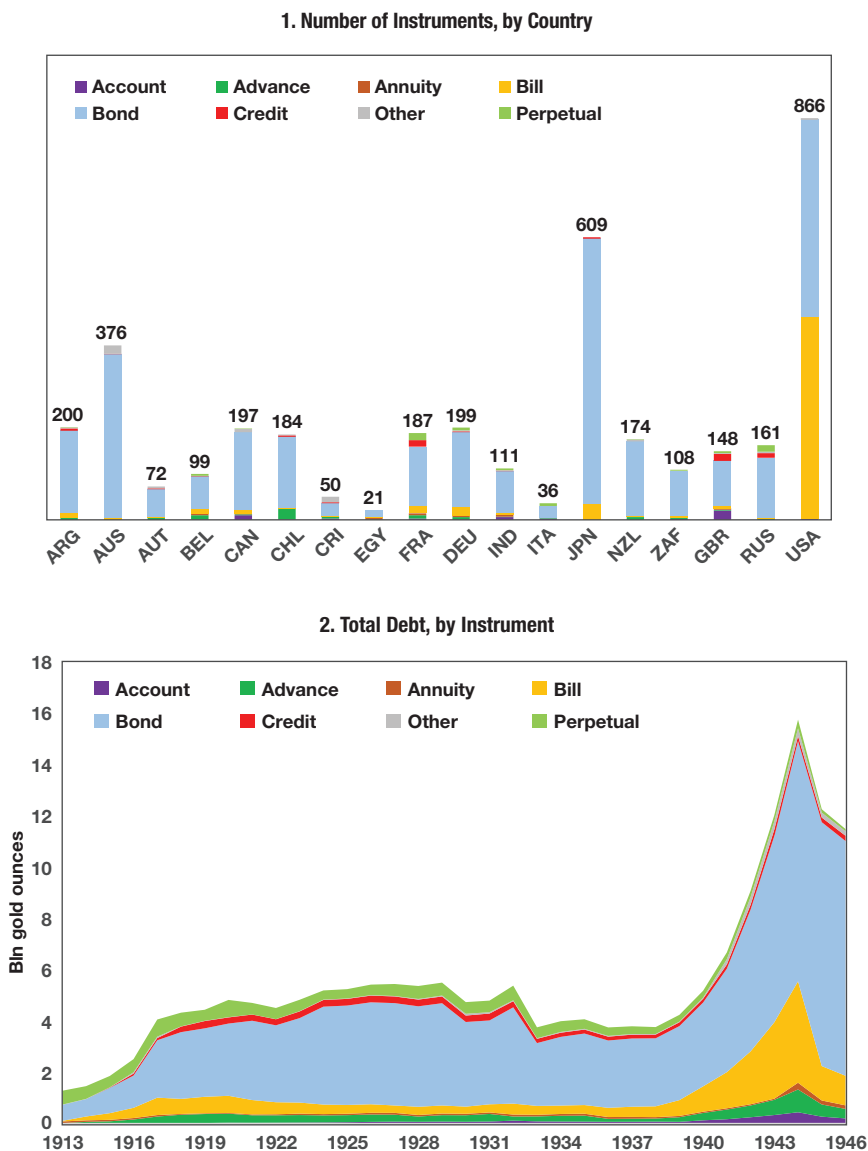
Nevertheless, we consider the database as the best starting point for researchers who want to study individual bonds or debt management practices during the interwar period.

## DEBT INSTRUMENTS

Debt instruments in the Interwar Debt Database are classified into the following categories, which are based on the type of cash flows they entitle their holders (Figure A.2):

- **Bonds.** These were debt instruments that obligated the government to two types of cash flow: (1) a principal when the bonds were presented to the paying agents on or after their maturity dates; (2) interest payments when attached coupons were presented to the paying agents.
- **Perpetuals.** These were instruments without maturity dates. The principal was never paid, unless the government or bondholder activated their potential options to redeem it.
- **Bills.** These were debt instruments without coupons, and they generally had a shorter-term maturity than bonds.
- **Credit.** These were instruments that were generally contracted with financial institutions and that provided annual payments of some principal and interest.
- **Advances.** These were financing facilities that were arranged with local bodies, other government departments (for example, Treasury or central bank), savings banks, or foreign authorities. They generally involved a low or null interest rate and an open-ended maturity, and they were typically governed by bylaws rather than by commercial contracts.
- **Accounts.** These were instruments that included demand or term deposits that were sometimes made available to the government, on a regulatory or voluntary basis.
- **Annuities.** These were debts that had no set maturity dates and that had cash flows that the government could amend by law. They differ from a perpetual bond in that the annual payments were not contractual coupon rates but lump sums allocated in each annual budget.
- **Other.** These were public debt instruments or aggregates for which no decomposition was possible to fit in one of the above categories (for example, arrears).

Figure A.2. Typology of Instruments



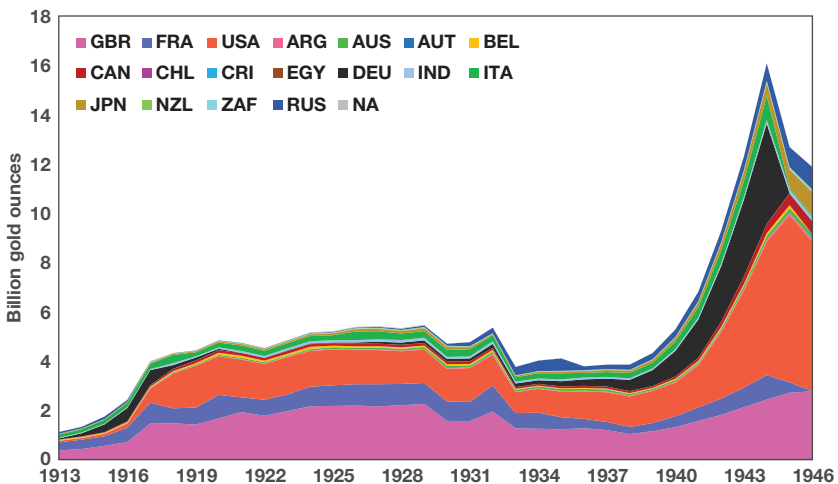
Source: Interwar Debt Database.

Note: Bln = billion. The amounts are expressed in gold equivalent. This is to abstract from choosing a reference currency to describe a period in which the leading international currencies competed for that status. The database allows for the expression of amounts in US dollars or British pounds. Horizontal axis label in panel 1 use International Organization for Standardization (ISO) country codes.

The Interwar Debt Database also includes comprehensive details on instrument characteristics, including the following:

- **Issuer.** The country whose sovereign issued or guaranteed the instrument (for example, the 18 countries listed in Figure A.1).
- **Instrument name.** Information about the type of instrument, the coupon rate, and issuance date or maturity.
- **Entity.** The entity issuing the instrument (for example, central bank or government).
- **Residency and currency.** The market in which the instrument was issued and the currency of issue. This can be any one of the values under “Issuer” or a combination of the values for bonds that were issued in multiple markets (Figure A.3).
- **Coupon rate.** Interest rate associated with the instrument (Figure A.4).
- **Maturing date.** Ultimate redemption date for the principal. When the instruments were automatically rolled over, this is coded as “rolling” (Figure A.5).
- **Redemption.** Some debt instruments had embedded options that let either the government or the lender trigger principal repayment earlier than the maturity date. Government’s early redemptions could involve lotteries or randomizations, as well as largesse, when computing the current latent value of the bond (Figure A.6).
- **Sinking fund.** Cash reserves established to assist in the redemption of public loans on maturity. Portions of budget revenues were sometimes devoted to these funds (Figure A.7).
- **Purpose.** A broad categorization of the purposes for which instruments were issued, including conversion, defense, economic development, and infrastructure (Figure A.8).

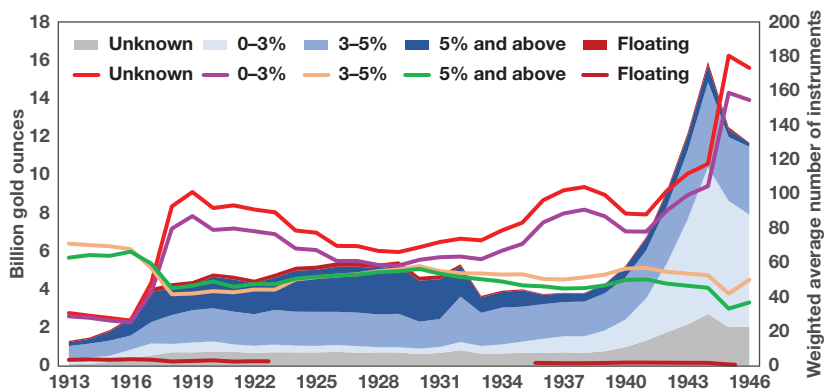
**Figure A.3. Decomposition by Residency**



Source: Interwar Debt Database.

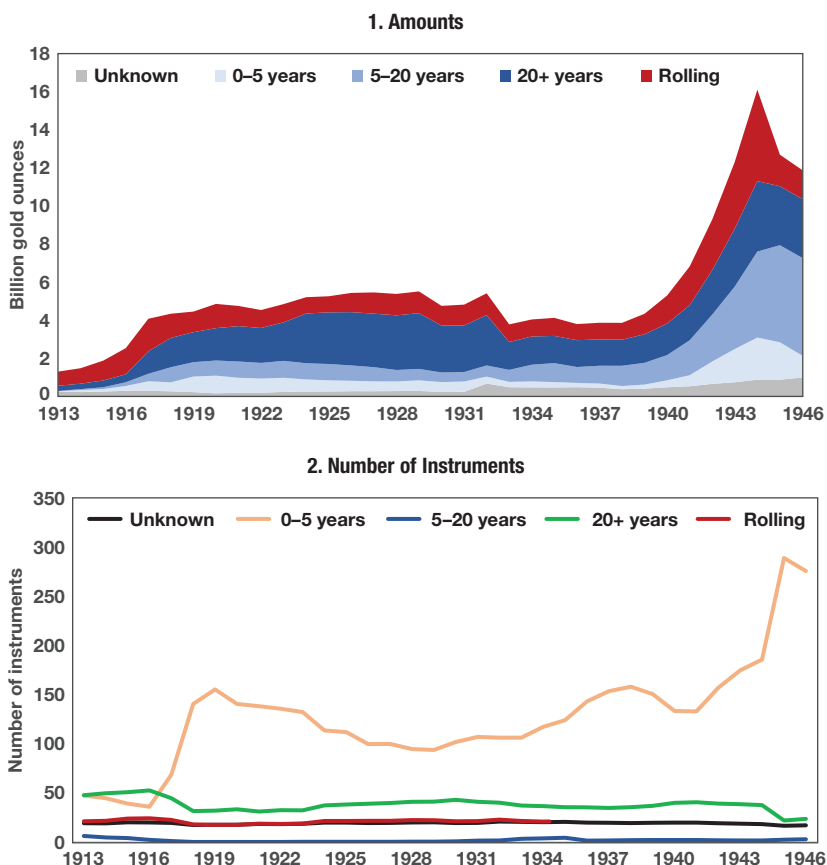
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.

Figure A.4. Weighted Coupon Rates

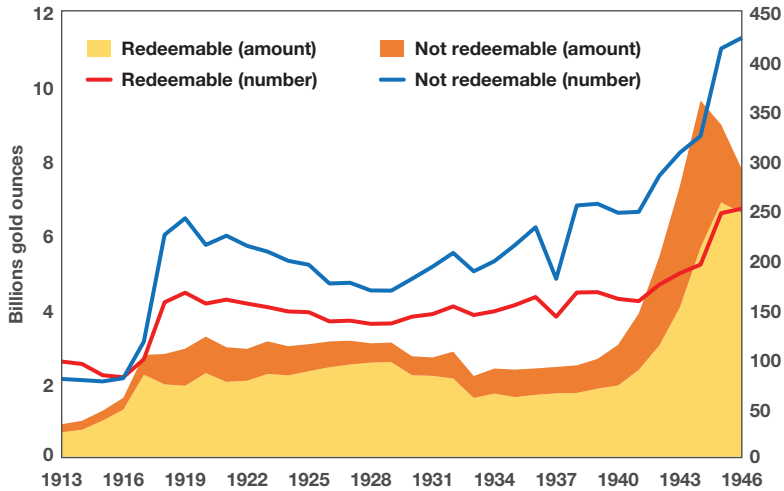


Source: Interwar Debt Database.

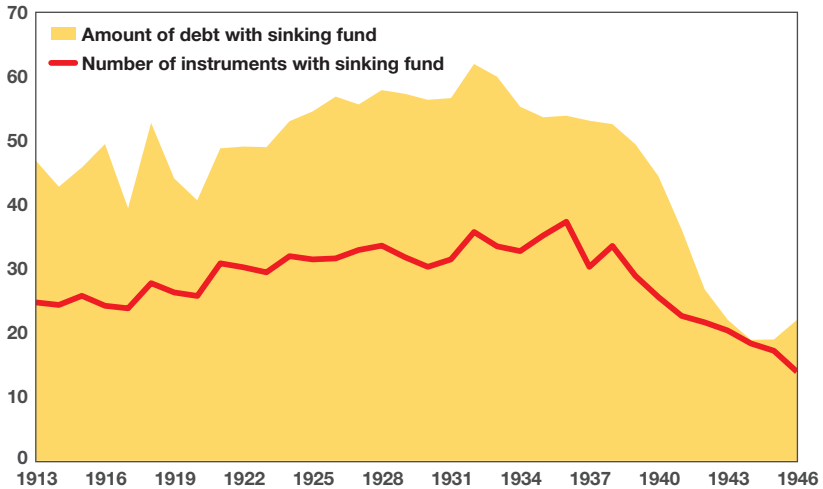
Figure A.5. Debt Instruments by Maturity



Source: Interwar Debt Database.

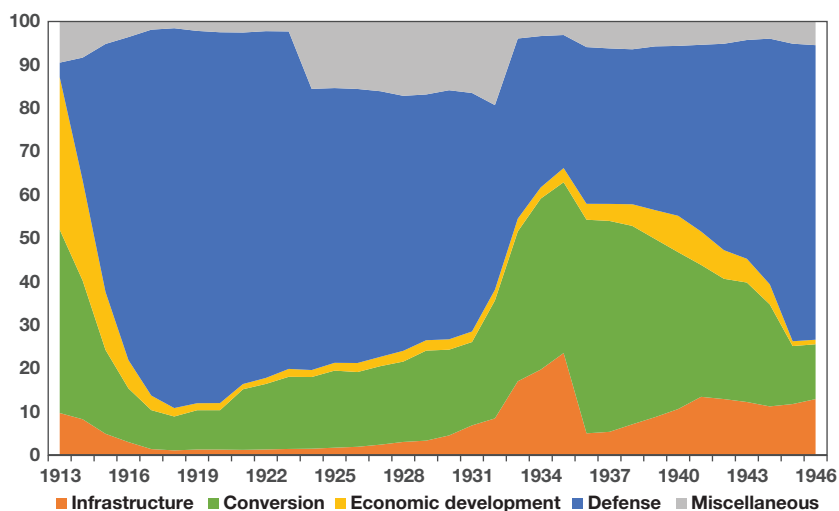
**Figure A.6. Redeemable versus Nonredeemable Instruments**

Source: Interwar Debt Database.

**Figure A.7. Debt with Sinking Fund (in Percentage of Total Classified Debt)**

Source: Interwar Debt Database.



**Figure A.8. Purposes of Public Debt (in Percentage of Total Classified Debt)**

Source: Interwar Debt Database.

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# Index

## A

Accominotti, O., 77n25, 232n55  
Adams, Henry Carter, xiv, 1, 2, 3, 6, 7n23  
Agent General for Reparation Payments, 40, 208  
Agriculture: in France, 122, 156; in Germany, 216; in Italy, 196  
Aguiar, Mark, 32n57, 187n40  
ALC. *See* Australian Loan Council  
Alesina, A., 125n8, 136n29, 185n32, 190, 191  
Amador, M., 187n40  
Amortization: in France, 15\*–152; in Germany, 212, 227, 229; in Italy, 185, 187–88, 188f; in Japan, 249f  
Amulree Commission, Newfoundland and, 113–14  
Annuities, 63: in France, 123, 130n17; in Germany, 212; in Interwar Debt Database, 285  
Anson, M., 65n11  
Attlee, Clement, 114  
Australia: bail out of states, 94–96, 102; balance of trade, 95f; bond markets, 100; Commonwealth Bank, 97; consolidation of state and federal debts, 92–103, 93f, 95f; Constitution, 93–94, 94n31; coupon rates, 83; credit conditions, 88; Debt Conversion Agreement Act, 100, 101; deflation, 97, 99n39; domestic debt conversion, 98–103, 100nn42–44, 101f; exchange rate, 95f; external debt, 97–98; Financial Agreement Act, 96n34, 100, 102–3; GDP, 103; income tax, 94, 94n32; land tax, 94, 94n32; Moody's ratings, 86; Premiers' Plan, 99n39, 101, 103; public finances, 92f; sovereign debt crisis, 82–83; sterling exchange rate, 82; UK and, 95–96, 103; unemployment, 97, 99; war loans, 91n36  
Australian Loan Council (ALC), 96, 97, 100

Austria, international credits by US to, 5n13  
Austria-Hungary: Italy, 175; Serbia, 59

## B

Balance of trade, Australia, 95f  
Banca d'Italia (Bank of Italy), 173, 176, 179n17, 189–90, 192–93, 192n54  
Banco di Napoli, 192–93  
Banco di Sicilia, 192–93  
Bank for International Settlements (BIS), 73, 227, 229n48, 232n55  
Banking Act of 1926, Italy, 192–93, 192n54  
Bank of England, 65n11, 67: Italy and, 174, 182; Japan and, 251n24  
Bank of Italy (Banca d'Italia), 173, 176, 179n17, 189–90, 192–93, 192n54  
Bank of Japan (BoJ), 243, 247n17, 260–61, 263–64, 279  
Banque de France (BdF), 137, 146, 155–56: net claims on government, 138f  
Barro, R. J., 18n44, 122n4, 143n39  
BdF. *See* Banque de France  
Belgium: German reparations, 128; Liberty Loan Acts, 5n12; Moody's ratings, 86  
Bennett, Edward, 215  
Bhandari, A., 32n57, 122n4  
BIS. *See* Bank for International Settlements  
Blum, Léon, 136  
BoJ. *See* Bank of Japan  
Bolton, P., 85, 85n12  
Bombshell message, of Roosevelt, 16, 16n39, 55  
Bonds and bond markets: in Australia, 100; in Dominions of the British Commonwealth, 82; in France, 153; in Interwar Debt Database, 285; in Japan, 260–64, 263f, 263n41; taxes and, 83n6, 84n11; in UK, 73–78, 74f–78f; in US, 73–78, 74f–78f; *See also specific types*

- Book value: of sovereign debt, 194; of US Treasury bonds, 9, 9n27, 10f
- Bordo, M. D., 82n3, 106n62, 110n69
- Brüning, Heinrich, 214, 216n23
- Bryan, William Jennings, 1, 2: letter to Wilson, W., 52–53
- Buchheit, L. C., 205
- Bulow, J., 84n9
- C**
- CAA. *See* Caisse Autonome d'Amortissement
- Caetani, Glasio, 186n35
- Caillaux, Joseph, 173n1
- Caillaux-Churchill Agreement, 70, 130
- Cain, P. J., 81
- Caisse Autonome d'Amortissement (CAA), 153, 156, 156n57
- Caisse des Dépôts et des Consignations, 156, 156n57
- Calvo, G. A., 82n3
- Canada: currency depreciation, 106, 108; Dominion notes, 109–10; exchange rate, 109f; Finance Act of 1914, 89, 107n63; foreign debt, 107f; gold clauses, 106–10, 110n69; gold convertibility, 89n23; gold embargo, 108–9; gold standard, 106; in Great Depression, 106, 113; long-term bond yields, 109f; monetary policy, 108; Moody's ratings, 86; Newfoundland and, 111–13; paper currency, 89n23; public finances, 92f; sinking fund, 113; UK and, 107f; US and, 107f, 108n66; US dollar and, 106, 108; war loans in, 90–91
- Canadian Bankers' Association, 89, 89n23
- Canadian Gold Clauses Act of 1937, 110
- Cassa DD PP, 193–94, 195f
- Chamberlain, Neville, 67
- Chambers, D., 77n25
- Chari, V. V., 122n4, 191, 191n51
- Cheng, X., 62n7
- Chernow, R., 186
- Christiano, L. J., 122n4
- Churchill, Winston, 72: Caillaux-Churchill Agreement, 70, 130
- Circuito dei capitali*, 196
- Civil War (US), x, 7, 7nn21–23: gold clauses, 18; gold standard, 14; inflation, 106n61; price level, 15f; price-output outcomes, 16–18, 17f; returns and government debt levels, 18–19; Union bonds, 19
- Clark, C., 97n37
- Clémenceau, Georges, 127
- Clement, P., 232n55
- Cohen, N., 65n11
- Colonial Stock Acts, in UK, 86, 86n14
- Commerzbank, 216–17
- Commodity prices: in Dominions of the British Commonwealth, 81, 115; in Japan, 250; in New Zealand, 104
- Commonwealth Bank, of Australia, 97
- Constitution: of Australia, 93–94, 94n31; of Germany, 214, 216n23, 223; of Japan, 244n10; of US, 93
- Conversion Bank for Foreign Debt, 230
- Conversiones forzosas* (mandatory conversions), in Italy, 174, 189–91
- Coupon rates: in Australia, 83; in France, 149; in Interwar Debt Database, 286, 288f; in Italy, 199n60; in New Zealand, 83; on US Treasury bonds, 21
- CREDIOP. *See* Istituto di Credito per le Opere Pubbliche
- Cuba, Liberty Loan Acts and, 5n12
- Currency and Bank Notes Act of 1914, in UK, 62
- Currency-denominated loans, 89: in France, 125
- Currency depreciation: in Canada, 106, 108; in France, 125, 130–31, 137; in Germany, 224; in Italy, 177, 183; in Japan, 241, 258; in New Zealand, 104; in UK, 63
- Currency stabilization: in Germany, 224; gold clauses, xiv
- Customs duties: in Germany, 226; in Newfoundland, 113n77, 114
- Czechoslovakia: foreign credits of, 43n79; Liberty Loan Acts, 5n12
- D**
- Dawes Plan, 40–2, 43n78, 73, 75, 227n46, 230–32, 232n55, 236:

- France and, 130n17, 137; J.P. Morgan & Co. and, 40, 226–27; secondary market prices, 230f; US and, 232n56
- Debt Conversion Act, in New Zealand, 105
- Debt Conversion Agreement Act, in Australia, 100, 101
- Debt Council, in Germany, 209, 214, 216n23, 223
- Debt-deflation theory, 18, 18n40
- Debt management: in France, 143–57, 145f, 147f, 151f, 152f–54f; in Italy, 178; in Japan, 241, 260–64; maturity structures for, 32f, 32n57, 125n6; in US, 144n41; after WWI, 31–34, 32f, 33f
- Debt moratorium, by Hoover, 23n50, 35, 37, 43, 73, 75, 215
- Debt-to-GDP ratio: Federal Reserve, 34–38, 36f, 37f, 38t; foreign credits, 34–38, 36f, 37f, 38t; international credits by US, 7; in Italy, 186, 197; in Japan, 247, 253; primary deficit, 34, 37, 141n38; in UK, 67–68, 68f, 69t; US Treasury bonds, 34–38, 36f, 37f, 38t
- De Cecco, M., 226n43
- Deflation: in Australia, 97, 99n39; currency stabilization and, xiv; in Italy, 190–91; in Japan, 251, 256, 258; in New Zealand, 104
- Deposit Bureau, in Japan, 243, 251n38, 260
- D’Erasmus, P., 84n11
- De Steffani, Alberto, 186, 186n36, 187n39
- Dewey, Davis, 6
- Dias, Daniel A., 9n27
- Discount rate: of Federal Reserve, 20–22, 21f, 36; in Japan, 263–64
- Dollar (US): Canada and, 106, 108; exchange rate, 16; Germany and, 209–10, 210f; tranche, 227; *See also* Greenback dollars
- Dominican Republic, UK and, 115
- Dominion notes, 106–7, 107n63, 109–10
- Dominions of the British Commonwealth, xv, 81n1: bond markets, 82; British Colonial Office, 86n17; commodity prices, 81, 115; domestic debt, 88–92, 90f, 91t, 92f; German reparations, 228; in Great Depression, 82; honored debts and selective defaults in, 81–115; Melbourne Agreement, 98, 99n39; sinking fund, 96, 113; sovereign debt crises, 115; Statute of Westminster, 111; taxes, 83; UK and, 85–92, 87f, 88f, 90f, 91t, 92f, 119; unemployment, 85; war loans, 69–70, 69f, 72n20; *See also* Australia; Canada; Newfoundland; New Zealand
- Dovis, A., 191, 191n51
- Drazen, A., 83n8, 185n32, 199
- Dresdner Bank, 216–17
- ## E
- Earthquake Casualty Bills, in Japan, 278–79
- Eaton, J., 84n9
- Edwards, S., 4n10, 18n42, 84n10
- Eichengreen, B., 7n20, 108n66
- Ellison, M., xivn1, 74
- Employment creation bills, in Germany, 217–18, 218f, 218n30
- End, N., 283
- Estonia, international credits by US to, 5n13
- Ethiopia, Italy in, 174
- Exchange rate: in Australia, 95f; in Canada, 109f; in Germany, 207f, 229, 229n50; in Italy, 173, 178, 184, 184f; in Japan, 251f, 256, 257f; in UK, 14, 76–77, 77f; in US, 16, 76–77, 77f
- Exchequer Bonds, in UK, 63n9
- Excusable default, 84
- ## F
- Faraglia, E., 32n57, 144n41
- Federal Deposit Insurance Corporation, 19n46
- Federal Reserve: assets, 20t; debt-to-GDP ratio, 34–38, 36f, 37f, 38t; discount rate, 20–22, 21f, 36; foreign credits, 50–51; gold coverage ratio, 14n34; gold reserves, 19n46; Italy, 174; liabilities, 21f; Liberty Bonds, 19, 20; reserve deposits, 19n46; in US, 7; Victory Bonds, 22

- Federal Reserve Act, 19n46
- Federal Reserve Board: international credits, 3–4; in WWI, 9n25
- Federal Reserve notes, 19n46, 22
- Ferguson, Thomas, 16n39
- Finance Act of 1914, in Canada, 89, 107n63
- Financial Agreement Act, in Australia, 96n34, 100, 102–3
- Financial repression, 156n58: in France, 125, 156; in Germany, 225; in Italy, 173–201; in Japan, 242
- Finland: foreign credits of, 43n79; international credits by US to, 5n13
- Fiscal policy: in France, 132–36; in Italy, 173, 185; in Japan, 241–42, 256, 264–69; WWI and, xi
- Fisher, I., 17–18, 18n42, 39
- Foreign credits, 22–25, 23f, 24f: debt-to-GDP ratio, 34–38, 36f, 37f, 38t; Federal Reserve and, 50–51; *See also* International credits by US
- Four Dominions. *See* Dominions of the British Commonwealth
- France, xv: amortization schemes, 150–52; annuities, 123, 130n17; bond markets, 153; budget aggregates, 135, 135f; budget deficits, 142; coupon rates, 149; currency-denominated loans, 125; currency depreciation, 125, 130–31, 137; Dawes Plan, 130n17, 137; debt in real terms, 141f; debt management, 143–57, 145f, 147f, 151f, 152f–54f; domestic debt, 148; financial repression, 125, 156; fiscal dominance, 136–41; fiscal policy, 132–36; foreign claims and liabilities, 131f; foreign credits, 23; GDP, 122; German reparations and, 37n67, 127–28, 127f, 142; gold clauses, 121n2, 149; gold convertibility, 12, 125; gold embargo, 250; gold standard, 136, 140; governments, 164t–65t; Great Depression, 142; income tax, 133, 134f; industrial production, 123f; inflation, 123, 137, 142; interest rates, 151f, 153; international credits by US for, 3–52; Japan and, 244; laissez-faire, 121n2; Liberty Loan Acts, 5n12; liquidity risk, 153f; marginal income tax rates, 133, 134f; maturity structures, 150; Moody's ratings, 86; National Credit, 128, 128f; National Defense bonds, 125, 128, 137, 146–48, 148f, 150, 153; pensions, 123, 132n24; public debt instruments, 159f–63f; public debt management, 121–69, 123n5; purchasing power, 140f; railways, 123n5; revenues, 133f; Russia, 129n13; sinking fund, 150; sovereign bonds, 137, 139f, 150, 168–69; sovereign debt, 124f; taxes, 125, 132–36, 132n25, 133n26, 144, 150; trade balance of, 129f; UK and, 130n17; US and, 130, 130n17; wages and prices, 136, 137f; war loans, 71; after WWI, 121–69; WWII, 142
- Friedman, M., 14n34, 22
- ## G
- Gallatin, A., 18n44
- GDP: of Australia, 103; of France, 122; of Italy, 182, 186n34; WWI and, ix; *See also* Debt-to-GDP ratio
- Gennaioli, N., 191n50
- George, D., 1, 66–67
- German reparations, xv, 37n67, 39–42, 41f, 43nn77–78, 72–73; Dominions of the British Commonwealth and, 228; France and, 127–28, 127f, 142; Treaty of Versailles and, 228; *See also* Dawes Plan; Young Plan
- Germany: amortization, 212, 227, 229; annuities of, 212; banking crisis 1931, 214–17, 215n21; Constitution, 214, 216n23, 223; Conversion Law 1935 in, 219n31; currency depreciation, 224; currency stabilization, 224; customs duties, 226; Debt Council, 209, 214, 216n23, 223; domestic debt, 208f; employment creation bills, 217–18, 218f, 218n30; exchange rate, 207f, 229, 229n50; external debt obligations, 226–36, 230f, 233t–35t; financial repression, 225; France

- and, 5–6; gold, 209, 209n12; gold clauses, 236; Gold Discount Bank, 216, 218; Great Depression, 214–17; hyperinflation, xv, 39, 206–14, 208n9; indexed debt, 209–11; inflation, xv, 223–24; international credits by US and, 3; Italy and, 175, 187; League of Nations, 208n11; Loan Liquidation Act 1925 in, 211; Mefo bills, 219–20, 220f, 220n35; military spending, 59n3; mortgage bonds, 214n19; public works and rearmament, 218–26; repatriation of bonds, 231; sinking fund, 214; sovereign bonds, 218–19; sovereign debt, 205–37; tax remission certificates, 210, 217n28; tax smoothing model, 175; transfer moratoriums, 230–32, 233t–35t; Treasury bills, 206–7, 210, 220f, 224, 226; UK and, 236; unemployment, 217; US and, 232n56; war bonds, 206n6; war financing, 224–26, 225f; war loans, 213f, 225; WWI and, 205; WWII and, 205, 218–26, 225f
- Germinal franc, 136, 136n31
- Gersovitz, M., 84n9
- Glass-Seagal Act, 196
- Gold: Germany, 209, 209n12; greenback dollars, 14; Liberty Bonds, 18n43
- Gold clauses: in Canada, 106–10, 110n69; currency stabilization, xiv; in France, 121n2, 149; in Germany, 236; Liberty Bonds, 4n10; after US Civil War, 18; Young Plan, 228
- Gold convertibility: in Canada, 89n23; in France, 12, 125; in UK, 12
- Gold embargo: Canada, 108–9; France, 250; Japan, 250–51, 256; US, 12n30, 14n35
- Gold reserves: Federal Reserve, 19n46; in Italy, 176n10
- Gold standard: in Canada, 106; France, 136, 140; in Italy, 176; Japan and, 241, 246, 246n14, 249–52, 256n32; New Zealand and, 104; in UK, 14, 62, 76–77, 82, 96n33, 104; in US, 76; in US Civil War, 14; WWI and, ix, x, xiii, 10–12, 82
- Gollan, R., 91n36
- Gomes, J., 18n40
- Gopinath, G., 187n40
- Great Britain. *See* United Kingdom
- Great Depression, ix: Canada in, 106, 113; Dominions of the British Commonwealth in, 82; excusable default, 84; France and, 142; Germany and, 214–17; income taxes, 31; Italy and, 174; Japan and, 259f; Young Plan, 73
- Greece: foreign credits, 43n79; Liberty Loan Acts, 5n12
- Greenback dollars: gold, 14; in US Civil War, x
- Greenwood, J., 89n25
- Grossman, H., 84
- Gruen, D., 97n37
- Gulati, M., 205
- ## H
- Haircuts: for Australian domestic debt, 101; to war loans, 71; World War Foreign Debt Commission, 22n48
- Hall, George J., xivn1, 6n6, 7n22, 9n27, 35, 67, 73–74, 82n4, 199n60
- Hamaguchi, O., 250, 251, 256
- Hamilton, A., 121
- Hawtrey, R., 14n36
- Helfferrich, K., 1
- Helleiner, E., 108n64
- Hicks, J. R., 143n39
- Hicks-Arrow prices, 22–23, 22n49
- Hitler, A., 219n32, 224
- Hollyer, J. P., 206n5
- Hoover, H.: debt moratorium, 23n50, 35, 37, 43, 73, 75, 215; Trading with the Enemy Act and, 18n45
- Hopkins, A. G., 81
- Hungary: foreign credits of, 43n79; international credits by US to, 5n13
- Hyperinflation: in Germany, xv, 39, 206–14, 208n9; in Japan, 242
- ## I
- ICIUP. *See* Istituto di Credito per le Imprese di Pubblica Utilita
- IMF, 49n86
- Imperial Preference, in UK, 84n9

- Income tax: in Australia, 94, 94n32;  
in France, 133, 134f; after WWI,  
27–31, 28f–31f, 28t, 29t
- Indexed debt, in Germany, 209–11
- Inflation: currency stabilization, xiv; debt-  
to GDP ratio, 34, 36, 37; in France,  
123, 137, 142; in Germany, xv, 223–  
24; in Italy, 177, 198f, 200–201; in  
Japan, 259f; in UK, 63; in US Civil  
War, 106n61; US Treasury bonds  
and, 13; *See also* Hyperinflation
- Inoue, J., 250n23
- Institute for Industrial Reconstruction  
(IRI, Ricostruzione Industriale),  
196, 196n56, 196n58
- Interest rates: in Australia, 100; in France,  
151f, 153; in Italy, 199n60; in  
Japan, 257f, 264; Liberty Loan  
bonds, 4; shadow, 198; *See also*  
Coupon rates; Discount rate
- Interest saving: in Germany, 218; in Italy,  
199, 199n61
- International credits by US, xiv, 1–55,  
23f, 24f, 34–38, 36f, 37f, 38t: for  
France, 3–52; for UK, 3–44, 71–72,  
71t; in US Treasury bonds, 9, 9f; at  
WWI armistice, 5, 5t
- International trade, WWI and, ix
- Interwar Debt Database, 283–84, 284f,  
286f–90f
- IRI. *See* Institute for Industrial  
Reconstruction
- Istituto di Credito per le Imprese di  
Pubblica Utilita (ICIUP), 192, 193f
- Istituto di Credito per le Opere Pubbliche  
(CREDIOP), 192, 193f
- Istituto Mobiliare (Land Institute), 196
- Italy: amortization, 185, 187–88, 188f;  
Banking Act 1926 in, 192–93,  
192n54; Banking Law 1936  
in, 196; coupon rates, 199n60;  
currency depreciation, 177, 183;  
debt management, 178; debt-to-  
GDP ratio, 186, 197; deflation,  
190–91; domestic debt, 189–91,  
190f; economic and political  
context, 175–78, 176f–78f; election  
results, 178f; in Ethiopia, 174;  
exchange rate, 173, 178, 184, 184f;  
external debt, 182–83; financial  
repression, 173–201; fiscal policy,  
173, 185; foreign credits, 23; GDP,  
182, 186n34; Germany, 187; gold  
reserves, 176n10; gold standard,  
176; Great Depression, 174; index  
of wholesale prices in, 183n27;  
inflation, 177, 198f, 200–201;  
interest rates, 199n60; interest  
saving, 199, 199n61; international  
credits by US to, 5; J.P. Morgan  
& Co. and, 188, 192; laissez-faire,  
187n39; land tax, 176; Liberty  
Loan Acts, 5n12; liquidation  
effect, 198, 199n62; liquidation  
of government debt, 200–201;  
Littorio loans, 190–91; mandatory  
conversions (*conversiones forzosas*) in,  
174, 189–91; maturity structures,  
174, 197, 198; monetary policy  
in, 186–89; Moody's ratings, 86;  
National Loans, 179–81, 180t, 181f;  
postwar stabilization, 183–91, 184f,  
185f, 188f, 189f; primary deficit,  
174; public debt, 179–83, 179f,  
180t, 181f, 182f; quota novanta,  
173, 183–86; railways, 175, 175n6;  
sinking fund, 150n52; special credit  
institutions, 192, 193f; taxes, 175,  
176, 176n9, 184–85, 184n30;  
Treasury bills, 181, 181n21, 189,  
190; UK and, 178, 182–83, 187,  
188–89; unemployment, 176, 177;  
US and, 178, 182–83, 187,  
188–89; after WWI, 174; WWII,  
196, 197
- J**
- James, H., 206n3
- Japan, xvi, 246–79: Act on the Calculation  
of Government Bond Prices in,  
258; amortization, 249f; balance  
of payments, 247f; Bank Fund  
Management Order, 267–69; Bank of  
England and, 251n24; bond markets,  
260–64, 263f, 263n41; central  
government budget, 249f; China  
and, 251; commodity prices, 241;  
Constitution, 244n10; *coup d'état*,

- 266; currency depreciation, 241, 258; debt management, 241, 260–64; debt-to-GDP ratio, 247, 253; deflation in, 251, 256, 258; Deposit Bureau, 243, 260, 260n39; discount rate, 263–64; Earthquake Casualty Bills, 278–79; economic leadership, 272t–73t; exchange rate, 251f, 256, 257f; financial crises of 1920s, 278–79; financial repression, 242; fiscal dominance, 260–64, 261f–63f; fiscal policy in, 241–42, 256, 264–69; France and, 244; general account revenues, 245f; gold embargo, 250–51, 256; gold standard, 241, 246, 246n14, 249–52, 256n32; government expenditures, 268f; Great Depression and, 259f; hyperinflation, 242; inflation, 259f; interest rates, 257f, 264; internationalization efforts, 275; J.P. Morgan & Co., 252, 252n25; in League of Nations, 264, 283; loans to other countries (1914–1918), 276t–77t; Manchurian Incident, 264; Meiji restoration, 242, 264; monetary policy, 242, 256, 264–69; public debt instruments, 274f; railways, 243; savings campaigns, 243; Shōwa financial crisis, 250, 250n22, 251, 260; sinking fund, 256, 260; sovereign bonds, 244n9, 266f, 269; sovereign debt, 258; tax smoothing, 258; Treasury bills, 267n45; UK and, 243, 246, 256n41; war bonds, 260n39; wars fought by, 271t; WWI and, 241, 242–48, 245f; WWII and, 242
- Jermann, U., 18n40  
 Johnston, T., 66, 67  
 J.P. Morgan & Co., 2: Dawes Plan and, 40, 226–27; France, 129; German reparations, 41; Italy, 188, 192; Japan, 252, 252n25
- K**  
 Kehoe, P. J., 122n4, 191, 191n51  
 Kellogg, F., 187  
 Kellogg-Briand Pact, 249n18  
 Kessler, P., 232n55
- Keynes, John Maynard, 3, 6, 40n71, 65n11, 77n25, 87–88; on France, 133; Germany, 206n3; Japan, 258, 258n36; Paris Peace Conference, 72n18  
 Kindleberger, C. P., 258, 258n36  
*King v. International Trustee*, 110  
 Klug, A., 43n77  
 Kuczynski, R. R., 40
- L**  
 Lamont, Thomas, 186  
 Land tax: in Australia, 94, 94n32; in Italy, 176  
 Lang, Jack, 99, 103  
 Latvia: foreign credits of, 43n79; international credits by US to, 5n13  
 Lausanne Conference, 73, 228: France and, 130  
 League of Nations: Dominions of the British Commonwealth, 119; Germany, 208n11; Interwar Debt Database, 283, 284; Japan, 246, 264  
 Liability dollarization, 110  
 Liberty Bonds (loans), 4t, 32–34, 34f: convertibility, 4, 4n11; debt-to-GDP ratio, 38; Federal Reserve System, 19, 20; gold clauses, 4n10; gold, 18n43; UK and, 71  
 Liberty Loan Acts, 5n12: Wilson, W., and, 3  
 Liquidation effect, in Italy, 198, 199n62  
 Lithuania: foreign credits of, 43n79; international credits by US to, 5n13  
 Littorio loans, in Italy, 190–91  
 Loan Liquidation Act of 1925, in Germany, 211  
 London Schedule of Payments, 39, 43n78  
 Lucas, R. E., Jr., 122n4
- M**  
 Maier, C. S., 183n25  
 Manchurian Incident, Japan, 264  
 Mandatory conversions (*conversiones forzosas*), in Italy, 174, 189–91  
 Marginal income tax rates: in US, 27–28, 29f; in France, 133, 134f  
 Marinkov, M., 283



- Market value, 284: debt-to GDP ratio in  
 US, 36; of long-term debt, 144n40;  
 in UK, 67; of US Treasury bonds, 9,  
 9n27, 10f
- Martin, A., 191n50
- Matthew 6:12, 1
- Maturity structures: for debt  
 management, 32f, 32n57, 125n6;  
 in France, 150; in Germany, 206; in  
 Italy, 174, 197, 198
- McAdoo, William Gibbs, 7n21, 13
- McKenna, Reginald, 60n5
- McKinnon, R., 156n58
- Mefo bills, 219–20, 220f, 220n35
- Meiji restoration, in Japan, 242, 264
- Meissner, C., 82n3
- Melbourne Agreement, for Dominions  
 of the British Commonwealth, 98,  
 99n39
- Mellon, Andrew, 13, 27, 72: refinancing  
 by, 32–34; Volpi and, 173n1
- Mellon-Bèrenger Agreement, 130
- Mendoza, E. G., 84n11
- Ministerial waltz (*valse des ministères*), 125
- Miryugin, F., 283
- Mitchener, K. J., 246n14
- Modigliani-Miller theorems, 32n57
- Monetary policy: in Canada, 108; gold,  
 xi; in Italy, 173, 186–89; in Japan,  
 242, 256, 264–69; of Roosevelt,  
 14–16, 16n39; sovereign debt and,  
 xiv; WWI and, xi
- Moody's Analytics, 62, 62n7
- Moody's ratings, 86, 86n18
- Morgan Loan, 188, 189
- Morrow, Dwight W., 41–42
- Mussolini, Benito, xv, 173, 174,  
 183–84, 186
- N**
- Nakamura, M., 250
- Nason, J. M., 60n5
- National Credit, in France, 128, 128f
- National Defense bonds, in France, 124,  
 128, 137, 146–48, 148f, 150, 153
- National Loans, in Italy, 179–81, 180t, 181f
- National Savings Certificates, in UK, 64
- Newfoundland: abandonment of self-  
 government, 111–13; Amulree  
 Commission, 113–14; Canada,  
 111–13; customs duties, 113n77, 114;  
 defaults, 81; Imperial Oil Company,  
 113n78; public finances, 112f;  
 railways, 111; war loans, 111n74
- New Plan of 1934, in Germany, 232–36
- New Zealand: commodity prices, 104;  
 coupon rates, 83; credit conditions,  
 88; currency depreciation, 104; Debt  
 Conversion Act, 105; deflation,  
 104; domestic debt restructuring,  
 103–6; foreign debt, 87, 87n19;  
 gold standard, 104; Moody's ratings,  
 86; Mortgages and Tenants Further  
 Relief Act of 1932 in, 104n54;  
 Mortgages Relief Act of 1931 in,  
 104n54, 105; public finances in,  
 92f; sovereign debt crises in, 103; on  
 sterling exchange rate, 82
- Niemeyer, Otto, 97–98, 97n37, 99n39
- Nitti, Francesco, 180n18
- O**
- Oosterlinck, K., 232n55
- Organisation for Economic Co-operation  
 and Development (OECD), 62
- P**
- Packard, T., 62n7
- Paris Peace Conference: Japan at, 246;  
 Keynes at, 72n18
- Passalacqua, A., 125n8
- Payne, Jonathan, 6n6, 35
- Pensions, in France, 123, 132n24
- Perpetual bonds (*rentes*): in France, 144,  
 146–48, 155n55; in Interwar Debt  
 Database, 285; in Italy, 179
- Perry v. United States*, 4n10, 18n43
- Pigou, Arthur Cecil, 176–77
- Poincaré, Raymond, 132, 132n21, 135,  
 137, 151, 153
- Poland, 5n13
- Polyani, Karl, 81
- Pontzen, M. J., 216n24
- Portes, R., 108n66
- Premiers' Plan, in Australia, 99n39,  
 101, 103
- Primary deficit: debt-to-GDP ratio and, 34,  
 141n38; in Italy, 174; of UK, 62, 62f

## Q

Quota novanta, 173, 183–86

## R

Redish, A., 82n3, 106n62, 110n69

Reichsbank, 206, 206n3, 209, 216:  
employment creation bills and, 218

Reichsmark (RM), 208, 209

Reinhart, C. M., 83n7, 111, 111n73,  
156n58, 173, 199n60, 200

Reiter, W., 215n21

Rentenmark, 207–8

*Rentes*. See Perpetual bonds

Reparations. See German reparations

Reparations Commission, 39–40, 72

Revolutionary War, in US, 82n4

Ribot, A., 148n48

Ricardian equivalence, 143n39

Ricardo, David, 12n28

Ricostruzione Industriale. See Institute for  
Industrial Reconstruction

*Rikken Minseitō* (Constitutional  
Democratic Party), 249

*Rikken Seiyūkai* (Constitutional  
Association of Political  
Friendship), 249

RM. See Reichsmark

Rogoff, K. S., 83n7, 84n9, 111,  
111n73, 173

Romania, Liberty Loan Acts and, 5n12

Roosevelt, Franklin, 14n34: bombshell  
message, 16, 16n39, 55; monetary  
policy, 14–16, 16n39; Trading with  
the Enemy Act and, 18n45

Rosendorff, P., 206n5

Rosenthal, H., 85, 85n12

Ross, A., 87n19

Rossi, S., 191n50

Rothbard, Murray N., 16nn38–39

Russia: France and, 129n13; Liberty  
Loan Acts and, 5n12; war loans to,  
70–71

Russo-Japanese War, war bonds for, 252

## S

Sargent, Thomas J., xivn1, 6n6, 7n22,  
9n27, 35, 67, 73–74, 82n4, 83n6,  
143–44, 199n60, 208n9

Sbrancia, 199n60, 200

Schacht, Hjalmar Horace Greeley, 43n77,  
205, 206, 206n4, 219, 219n32,  
224

Schäffer, Hans, 215

Schmid, Lukas, 18n40

Schram, A., 175n6

Schultzenstein, S., 208n10

Schwartz, Anna Jacobson, 22

Scott, A., xivn1, 74

Second Boer War, 59

Serbia: Austria-Hungary and, 59; Liberty  
Loan Acts and, 5n12

Shadow interest rate, 198

Shaw, E., 156n58

Shizume, M., 246, 246n14, 278, 279

Shōwa financial crisis, in Japan, 250,  
250n22, 252, 260

Sinking fund: in Canada, 113;  
in Dominions of the British  
Commonwealth, 96, 113; in France,  
150; in Germany, 214; in Interwar  
Debt Database, 286, 289f; in Italy,  
150n52; in Japan, 256, 260

Sino-Japanese War, 267–69

Slater, M., 63n8

Smith, B., 89n25

Sovereign bonds, 283–84: in France, 137,  
139f, 150, 168–69; in Germany,  
218–19; in Japan, 244n9, 266f,  
269

Sovereign debt, 187n40: book value of,  
194; contracts, xiv; default on, x–xi;  
of France, 124f; of Germany,  
205–37; of Japan, 258; monetary  
policy and, xiv; of UK, 2; after  
WWI, xiii

Sovereign debt crises: in Australia,  
82–83; in Dominions of the British  
Commonwealth, 115; in New  
Zealand, 103; political revolutions  
from, xi

Statute of Westminster, Dominions of  
the British Commonwealth and,  
111

Steiner, A., 224n39

Steiner, Zara, 7n20

Sterling exchange standard, 82

Stokey, N. L., 122n4

Stresemann, Gustav, 40–41

## T

Taishō (Emperor), 245n11, 249n18

Takahashi, Korekiyo, 256, 256n31, 258, 258n36, 260, 266–67

Taxes: bond markets and, 83n6, 84n11; in Dominions of the British Commonwealth, 83; in France, 125, 132–36, 132n25, 133n26, 144, 151; in French Revolution, 133; in Italy, 175, 176, 176n9, 184–85, 184n30; temporary tax cut in US, 25, 25n52; in UK, 60–61, 60n5, 61f; WWI and, ix; *See also* Income tax; Land tax

Tax remission certificates, in Germany, 217, 217n28

Tax smoothing, 18n44: in France, 175; in Germany, 175; in Japan, 258

Tomita, T., 263n42

Tomz, M., 82n4, 103

Tooze, Adam, 7n20, 43n77

Transfer moratoriums, in Germany, 230–32, 233t–35t

Treasury bills: in Germany, 206–7, 210, 220f, 224, 226; in Italy, 181, 181n21, 189, 190; in Japan, 267n45

Treaty of London, 175, 182

Treaty of Versailles, 39, 72n18, 75: German reparations and, 127, 228

Trustee Acts, in UK, 88

Turkey, UK and, 115

## U

UK. *See* United Kingdom

Unemployment: in Australia, 97, 99; in Dominions of the British Commonwealth, 85; in Germany, 217; in Italy, 177

Union bonds, in US Civil War, 19

United Kingdom (UK), xiv–xv: Australia and, 95–96, 103; bond markets, 73–78, 74f–78f; Canada and, 107f; Colonial Stock Acts, 86, 86n14; Currency and Bank Notes Act of 1914, 62; currency depreciation, 63; debt-to-GDP ratio, 67–68, 68f, 69t; Dominican Republic and, 115; Dominions of the British Commonwealth and, 85–92, 87f, 88f, 90f, 91t, 92f, 119; Egypt and,

115; exchange rate, 14, 76–77, 77f; Exchequer Bonds, 63n9; foreign credits, 23, 43n79; France and, 130n17; German reparations and, 37n67; Germany and, 236; gold convertibility, 12; gold standard, 14, 62, 76–77, 82, 96n33, 104; government debt, 63–64, 64f; government expenditures, 59–60, 60f; Imperial Preference, 84n9; inflation, 63; Italy and, 178, 182–83, 187, 188–89; Japan and, 243, 246, 263n41; Liberty Loan Acts and, 5n12; market value in, 67; McKenna Rule, 60n5; military spending, 59n3, 61–62; National Savings Certificates in, 64; primary deficit, 62, 62f; sovereign debt, 2; taxes, 60–61, 60n5, 61f; Trustee Acts, 88; Turkey and, 115; US foreign credits to, 71–72, 71t; war loans, 64–67, 65f; WWI and, 59–78; Young Plan and, 73

United States (US): bond markets, 73–78, 74f–78f; Canada and, 107f, 108n66; Constitution, 93; debt management, 31–34, 32f, 33f, 144n41; exchange rate, 76–77, 77f; federal expenditures, 8f; federal revenues, 8f; foreign credits, 22–25, 23f, 24f, 34–38, 36f, 37f, 38t; France and, 130, 130n17; German reparations and, 39–42, 41f; Germany and, 232n56; Glass-Seagal Act, 196; gold clauses, 84n10; gold embargo, 12n30, 14n35; gold standard, 76; income taxes after WWI, 27–31, 28f–31f, 28t, 29t; Italy and, 174, 178, 182–83, 187, 188–89; National Monetary System, 7; Revenue Act of 1913 in, 7; Revolutionary War in, 82n4; World War Foreign Debt Commission in, 6, 22n48, 35, 71–72, 71t; *See also* Civil War; Dollar; Federal Reserve; Liberty Bonds; Victory Bonds

US Treasury: accounting system, 45–49; interest, 26–27

US Treasury bonds: book value, 9, 9n27, 10f; coupon rates, 21; debt-to-

- GDP ratio, 34–38, 36f, 37f, 38t;  
international credits by US, 9, 9f;  
market value, 9, 9n27, 10f; prices,  
25–31, 27f; real and nominal  
returns, 10, 11f, 13, 13n31; real  
returns, 15f, 16f
- V**
- Vahey, S. P., 60n5  
*Valse des ministères* (ministerial waltz), 125  
Van Huyck, J., 84  
Victory Bonds (loans), 4t, 32–34, 34f:  
    Federal Reserve and, 22  
Viets, R. B., 110n69  
Viner, Jacob, 14n34  
Volpi di Misurata, Giuseppe, 70, 173,  
    173n1, 187  
Vreeland, J. R., 206n5
- W**
- War bonds: in Germany, 206n6; in Japan,  
    260n39; for Russo-Japanese War, 252  
Warburg, James, 14n34  
War loans: in Australia, 91n36; in  
    Canada, 90–91; Dominions of  
    the British Commonwealth and,  
    69–70, 69f, 72n20; in France,  
    71; in Germany, 213f, 225; in  
    Newfoundland, 111n74; to Russia,  
    70–71; in UK, 64–67, 65f  
Warren, George F., 18n42  
Washington, George, 2  
Weidenmier, M. D., 246n14  
Wilson, S., 246n13  
Wilson, Woodrow, 1, 2: letter from Bryan,  
    52–53; Liberty Loan Acts and, 3;  
    peace without victory by, 3n6  
Woodford, M., 181n20  
World War Foreign Debt Commission, 6,  
    22n48, 35, 71–72, 71t  
World War I (WWI): debt management  
    after, 31–34, 32f, 33f; Federal  
    Reserve Board in, 9n25; fiscal  
    policy and, xi; France after, 121–69;  
    funding of, 59–78; Germany and,  
    205; gold standard and, ix, x, xiii,  
    10–12, 82; income tax after, 27–31,  
    28f–31f, 28t, 29t; Italy after, 174;  
    Japan and, 241, 242–48, 245f;  
    monetary policy and, xi; price-  
    output outcomes after, 16–18, 17f;  
    returns and government debt levels  
    in, 18–19; UK and, 59–78; US  
    Civil War and, 13–22; US price  
    level in, 15f; US Treasury bonds  
    in, 23  
World War II (WWII): France and, 141;  
    Germany and, 205, 218–26, 225f;  
    Italy and, 196, 197; Japan and,  
    242  
Wormell, J., 71  
Wright, Mark L. J., 9n27, 82n4  
WWI. *See* World War I  
WWII. *See* World War II
- Y**
- Yared, P., 125n8  
Yokohama Specie Bank (YSB), 244  
Young Plan (loans), 40, 43, 43n78,  
    72–73, 205, 227–32, 236: gold  
    clauses, 228; secondary market  
    prices, 230f; US and, 232n56  
YSB. *See* Yokohama Specie Bank
- Z**
- Zandi, M., 62n7  
Zero-coupon yield curves, 35  
Zhang, J., 84n11  
Ziegler, D., 216n26  
Zwischensheine, 209

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"Interwar political and economic upheaval owed much to the web of sovereign debts and payment obligations built up during World War I. Lessons learned then helped set the stage for postwar prosperity and peace—but some of today's politicians are forgetting those lessons. This book's seven fascinating chapters, some based on new data, analyze how debt burdens between the wars drove major countries' fortunes and international relations. *Debt and Entanglements* will be required reading for anyone who wants to understand the economic origins of today's international order, and the threats that it faces."

– Maury Obstfeld, University of California, Berkeley

"*Debt and Entanglements* provides a fascinating history of sovereign debt management during the interwar period – a period characterized by dramatic economic and political instability. The authors masterfully blend new data, deep institutional knowledge and modern economic theory to sharpen our understanding of this critical period and to draw timeless lessons for economic policymaking. A must-read for scholars and policymakers alike."

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**PUBLICATIONS**

Debt and Entanglements  
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