

PRINCETON STUDIES IN INTERNATIONAL FINANCE NO. 24

Key Currencies and Gold
1900-1913

Peter H. Lindert

INTERNATIONAL FINANCE SECTION
DEPARTMENT OF ECONOMICS
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PRINCETON STUDIES
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by
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DEPARTMENT OF ECONOMICS

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CONTENTS

	<i>Page</i>
1. INTRODUCTION	1
2. FOREIGN CURRENCIES AS RESERVES	6
2.1 Gathering Numbers	6
2.2 Metallic and Paper Reserves in 1913	9
2.3 The Currencies Held	16
2.4 The Accumulation of Foreign Exchange before 1913	21
2.5 Why Hold Currencies?	27
3. THE CENTER COUNTRIES: DEFICITS AND STABILITY	36
3.1 Deficits	37
3.2 Resources for Currency Defense	42
4. THE LONG AND THE SHORT: FINANCIAL INTERMEDIATION AND THE BALANCE OF PAYMENTS	58
4.1 The Financial-Intermediation Hypothesis	58
4.2 The Quantitative Impact of Capital Flows	62
4.3 Some Simple Correlations	68
4.4 Imperfect Adjustment	74
5. SUMMARY AND CONCLUSIONS	76

LIST OF TABLES

	<i>Page</i>
1. The Composition of Reported Official Reserves in 35 Countries, End of 1913	10
2. Reported Foreign Holdings of Major Currencies, End of 1913	18
3. Growth and Composition of Foreign-Exchange Assets, 1900-1913	22
4. Foreign-Exchange Assets, Various Groups and Periods, 1880-1913	23
5. Summary International Accounts of Great Britain, France, and Germany, 1900-1913	39
6. Trade, Balances, Capital Flows, and Overall Balances of Selected Countries, Annual Averages for Various Periods, 1880-1913	69

LIST OF CHARTS

1. Gold and Foreign-Exchange Assets, Various Groups and Periods, 1880-1913	24
2. Monthly British Import Prices before and after Selected Bank-Rate Increases	45
3. Asymmetries in the Influence of Discount Rates on Exchange Rates, Various Pairs of Countries and Sample Periods, 1899-1913	51
4. Berlin Exchange Rates and Official Discount Rates, September-October 1911	54
5. Capital Flows and Overall Balances, Selected Countries, 1880-1913	70
6. Trade and Overall Balances, Selected Countries, 1880-1913	71

KEY CURRENCIES AND GOLD

1900-1913

1. INTRODUCTION

The troubled union of gold and leading currencies on which the international reserve structure has depended is being realigned under pressure. The pressures on the dollar that have continued for a decade are largely responsible for the present retrospective study. Although the experiences being examined date back more than half a century, the focus has been particularly influenced by such recent events as the seemingly irreversible deficits and gold losses of the United States, Robert Triffin's *Gold and The Dollar Crisis*, the progressive restrictions on American lending abroad, and the two-price gold system of March 1968.

The persistence of an atmosphere of crisis over so many years quite naturally leads to curiosity about the emergence and past maintenance of the key-currency system that has proved so fragile. It is illuminating to ask when and how such a system evolved, and when or whether it has functioned smoothly.

The fourteen prewar years that opened this century seem especially appropriate for this inquiry. It is common knowledge that most private international settlements were conducted in sterling, French francs, and German marks rather than in gold, and these key currencies are generally thought to have comprised a share of the world's official reserves as well. In addition, the era in which international monetary relationships exhibited their most impressive stability can be dated from about the turn of the century. Fixed gold parities had finally been established in the mid- and late 1890's by Russia, India, Japan, Italy, Austria-Hungary, Greece, and Rumania, and the monometallic gold standard had survived its last electoral threat in the United States in 1896.

The role of world banker was performed by Britain, France, and Germany in these years on a scale unmatched either before or since. Between the turn of the century and the outbreak of war, Britain poured over 5 per cent of her estimated national product (or about two-fifths of net national investment) into net foreign investment, primarily into long-term fixed-interest bonds. By 1913 the share of net

foreign assets in the value of Britain's consolidated wealth may well have been between a quarter and a third. At the liquid end of the financial spectrum, equally impressive and unprecedented figures would apply (if obtainable) to the annual volume of liquid sterling bills and deposits exchanged the world over.¹ French and German net foreign investments ranged somewhere from 1.5 to 3.5 per cent of the respective national incomes, or from 7.5 to 18 per cent of national saving, from the 1860's through 1913. Despite the unavoidable roughness of the estimates underlying data of this sort, it is clear that the three major prewar creditor countries lent a much larger share of their income and saving to foreigners than has the United States in the postwar years.²

It is on this overall context of maximum commitment to international lending, liquidity creation, and stable gold parities at a time of vigorous growth in world trade and output that the following inquiry into the successful past operation of a key-currency system is focused. The turn of the century has been selected as the specific starting point for many of the following measurements primarily because more data are available for that point in time than for dates in proximate years. What data there are indicate that the conclusions below would not be altered if it were possible to select any other starting date from the decade or so after 1895 and any other terminal date from the last five prewar years.

The sets of questions that lend themselves to treatment in the present study are:

- (1) In what amounts and for what purposes were liquid claims on foreign countries held? How large were the foreign-exchange

¹ The worldwide reliance on the liquid paper liabilities of one or a handful of centers does seem to have been quite recent, as the present discussion implies. An arbitrary date for the "emergence" of key-currency arrangements is best placed somewhere in the latter half of the nineteenth century. The international prestige attached to individual currencies in earlier centuries typically stemmed from widespread acceptability of coins rather than paper. The centrality of the Amsterdam money market in the seventeenth and eighteenth centuries apparently rested on operations in bills on foreign places rather than on the creation of deposit claims against Amsterdam itself. See Charles H. Wilson, *Anglo-Dutch Commerce and Finance in the 18th Century* (Cambridge: University Press, 1941), especially pp. 199-200.

² Net foreign investments accounted for less than 0.4 per cent of the net national product of the United States and only 4.7 per cent of net national saving over the two decades ending with 1966.

assets of official institutions in relation to their metallic holdings?

- (2) How did the amount of liquid foreign liabilities of each reserve center compare with the size of its reserves?³ Did the reserve-currency countries (Britain, France, Germany) incur prolonged payments deficits by current definitions, as have the United States and the United Kingdom in more recent years? Did those countries lose gold?
- (3) The conclusion that the reserves of Britain and Germany indeed fell increasingly short of their liquid liabilities (Chapter 3 below) renews the perennial question: why was this era in international monetary history so conspicuously stable? What precise mechanisms enabled the central banks of these countries to defend their reserves and convertibility against the pressures that arose? What features of the financial network prevented the defense measures of one center from placing unmanageable strain on another?
- (4) What accounts for the numerical similarity of the overall payments position of the center countries to the recent dollar glut? Can this pattern be causally linked to the financial intermediation performed by the center countries or to their reserve-center status?

The first set of questions is taken up in Chapter 2, the second and third in Chapter 3, and the final set in Chapter 4.

Although the focus of this study is on the period 1900-1913, care must be taken to keep the present-day framework that has shaped the inquiry from presenting a distorted perspective on the functioning of the international monetary system in those years. In particular, some justification must be offered for imposing mid-century balance-of-payments accounting on an era that hardly knew or cared about these elaborate measurements. The concepts being applied are those of the "liquidity" and "official-settlements" definitions of an overall payments

³ A "reserve currency" will be defined here as one which official as well as private foreigners willingly hold in liquid form in significant amounts and for significant lengths of time. A "vehicle currency" is one which, in the form of liquid claims, experiences a continuously high *turnover* in international transactions, including a large share of transactions not involving the country with which the currency is associated. The two definitions naturally tend to apply to the same currencies. The term "key currency" will be applied to currencies that are both reserve and vehicle currencies.

balance.⁴ Each relates changes in a country's internationally liquid reserves to its external liquid liabilities only, on the argument that a given amount of the latter represents a different and greater cause for concern about official reserves than the same amount of domestic funds. The residential distinction between domestic and foreign creditors can only be arbitrary since the threat of conversion of a certain claim into gold is rightly regarded as an unknown percentage probability. Nonetheless, it is generally assumed that greater percentages of foreign than of domestic funds are likely to seek sudden conversion in time of crisis. Foreign-held balances also respond to foreign monetary policy measures and to market opportunities different from those facing domestic asset holders. In a historical context in which official gold might be sold either to domestic or to foreign private citizens, distance and institutional barriers frequently made it more difficult to repurchase coins and bars from abroad than from private domestic stocks. Before 1914 central bankers indeed applied special "gold devices" to prevent the export of gold that they would have been more willing to yield to domestic circulation.⁵ For these reasons, the implied focus on international claims by the current measurements of overall balance seems valid in connection with the period 1900-1913.

The fact that gold could then be sold to private parties both domestic and foreign detracts very little from the importance of the balance-of-payments focus. The private circulation of gold makes the liquidity definition of overall balance preferable to the official-settlements definition, which does not display liquid liabilities to private foreigners "below the line" along with liabilities to foreign official institutions. In certain computations referred to in Chapter 4, however, the paucity of data on private claims will necessitate substitution of official-settlements balances for liquidity balances.

It should be stressed that comparing liquid liabilities with reserves

⁴ For a comparison of the two measures by a document favoring the official-settlements variant, see Review Committee for Balance of Payments Statistics, *The Balance of Payments Statistics of the United States* (Washington: 1965). Various special accounting categories given in current U.S. balance-of-payments presentations are omitted in the chapters below on the grounds that they are institutionally irrelevant to the period 1900-1913. Prime examples are the net changes in the I.M.F. position and changes in holdings of Roosa bonds.

⁵ For a general description of the gold devices, see Richard S. Sayers, *Bank of England Operations, 1890-1914* (London: P. S. King and Son, 1936), especially Chapter IV; and Arthur I. Bloomfield, *Monetary Policy under the International Gold Standard, 1880-1914* (New York: Federal Reserve Bank of New York, 1959), pp. 52-55.

does not imply that a massive conversion of balances was imminent or just narrowly averted. Rather the following chapters examine, in addition to the size of this potential but ostensibly remote threat, some causes for the appearance of this "overhang" of claims, and the means used by central banks to deal with it. The fact that the pound, the mark, and the franc survived all pressures in the years before 1914 in fact augments the importance of discerning the extent of these pressures and explaining the monetary tranquility that distinguishes this period from subsequent experience with the key-currency system.⁶

⁶ Much of the material that follows has been discussed at greater length in the author's "Key Currencies and the Gold Exchange Standard, 1900-1913," unpublished doctoral dissertation, Cornell University, February 1967 (hereafter referred to as Lindert [1967]). Both dissertation and monograph have benefitted greatly from Professor Bloomfield's earlier study in this series, and from his comments and suggestions. Helpful criticisms have also been provided by John L. Bridge, Douglas F. Dowd, Jaroslav Vanek, David T. Williams, Jeffrey G. Williamson, and Nancy Williamson, and financial assistance by the Ford Foundation.

2. FOREIGN CURRENCIES AS RESERVES

The dearth of reliable information on the extent of liquid indebtedness between countries has been the most formidable single barrier to our understanding of the international financial network before World War I. Much of the present chapter must therefore be addressed to the task of improving on our dim perception of these magnitudes.

2.1 GATHERING NUMBERS

Professor Bloomfield recently made the first serious effort to assemble the missing figures.⁷ Utilizing personal contact as well as a wide variety of published and unpublished sources, he was able to present eighteen annual series on official exchange holdings and a slightly smaller number of private series, in addition to numerous individual estimates of various international balances. The use of additional materials, most of them published but all of them obscure, has enabled the present author to supplement his data on the amounts held, and also to indicate the currency distribution of many such holdings.⁸

Although these two studies have unearthed a surprising abundance of information, the task of measuring the world's short-term international capital is far from completed, and for obvious reasons. The unsolicited disclosure of such revealing statistics was not a widespread practice. Finance was a very private affair. To make matters worse, the four most important countries—Britain, France, Germany, and the United States—displayed the greatest reluctance to present foreign-exchange data. Not only did their governments fail to release aggregates based on data withheld by private institutions, but there is also good reason to doubt that officials even ascertained these magnitudes for their own use. The United States Comptroller of the Currency, for one, apparently never gathered confidential foreign-exchange data from American banks. No British figures on short-term external claims have been released by any of the larger banks or by the Government, and the apparent inability of the Cunliffe and Macmillan Committees

⁷ Arthur I. Bloomfield, *Short-Term Capital Movements under the Pre-1914 Gold Standard*, Princeton Studies in International Finance No. 11 (Princeton: International Finance Section, 1963).

⁸ The tables of primary data that underlie most of the aggregates presented below occupy too much space for inclusion in the present monograph. These tables and a detailed listing of the sources consulted can be found in Lindert (1967), Chapter 2.

to discern Britain's prewar short-term position suggests that the appropriate aggregates will never be forthcoming from the British side. The same pessimistic appraisal seems unavoidable regarding German and French data.

The smaller countries, on the other hand, were more willing to scrutinize and publicize their foreign-exchange positions, apparently because these were key indicators for judging the overall soundness of their national currencies. For several secondary countries, as will be noted again below, foreign-exchange assets in fact formed part of the legal (and published) reserves backing domestic-currency issues. The availability of data for the peripheral countries, it turns out, is sufficient in the aggregate to warrant a number of rough but illuminating quantitative conclusions about the external positions of the major countries. Since any financial claim can be measured from the balance sheet of either party involved, the present study can undertake at least a partial measurement of the crucial data on British, French, and German liquid liabilities by drawing on the liquid foreign *asset* figures of the peripheral countries. While many of the reporting institutions did not specify the shares of their foreign-exchange assets held in each currency, breakdowns of the available currency⁹ and less direct evidence suffice to establish that the greater part of the exchange holdings measured consisted of sterling, francs, and marks. Consequently, this study will measure the payments positions of England, France, and Germany from the outside—that is, from the data that peripheral countries have provided on their holdings in the major financial centers.

The figures obtained pertain to the foreign-currency assets¹⁰ of various institutions in thirty countries between 1880 and 1913. While care has been taken not to rely on any of the casual isolated "guesstimates" made by financial writers of the time, errors could exist in any

⁹ Strictly speaking, balance-of-payments statistics should be collected on a residence basis and not on a currency basis. This means, for example, that Italy's financial claims against Great Britain are those claims held against British residents and not those that happen to be denominated in sterling. As far as can be determined, the data presented below do represent the former type of financial relationship (i.e., claims of one country against the *residents* of the other country specified by the primary source of data). For semantic convenience, at any rate, the distinction between nationality of debtor and nationality of currency will be suppressed, and—to use the same example—Italy's claims against British residents will be referred to as her holdings of "sterling."

¹⁰ Foreign-currency assets were more faithfully published than the corresponding liabilities. Thus, no attempt has to be made to estimate the foreign assets of the major countries from the liability figures of peripheral countries.

of several figures. Nearly all of the data come from the year-end¹¹ balance sheets of private commercial banks, central banks, national treasuries, and special exchange funds. The assets consisted of commercial and financial bills drawn on foreign places, foreign treasury bills, deposits in foreign banks, current-account credits with banking branches and correspondents abroad, and a small amount of foreign government bonds deserving the adjective "liquid" (British consols, French *rentes*, and German imperial bonds). No one country has been covered entirely; figures available for some years are missing for others; and several institutions reported only part of their holdings (e.g., only their foreign bills and only their bank deposits abroad). While at least 90 per cent of the official exchange balances seem to have been covered for the end of 1913, the share of private claims represented must be much less than one-half, and both shares are progressively lower for earlier years.

The magnitude of the omissions is less important, however, than the likely impact that the missing figures would have on the specific measurements to be made. Inadequate coverage of some quantitative measure does not preclude inferences based on estimates seeking only to establish a general range of values. Thus, although this and the following chapter cannot pin down an accurate measure of the foreign indebtedness and payments balances of the major countries, it will prove both possible and useful to establish boundary estimates of these magnitudes. Boundary estimates from incomplete information have to rest on two foundations: (1) the use of the most "conservative" interpretation of data whenever several interpretations are possible (i.e., the higher estimate when an upper boundary is sought, and the lower for a lower boundary), and (2) indirect evidence about the missing data showing that their inclusion would not place the true figure on the "wrong" side of the boundary. This approach underlies the arguments that follow. Only minimum estimates, and not direct value estimates, can be presented for the liquid obligations and payments deficits of the major countries between the turn of the century and the First World War. Several reasons for assuming that the missing data on the United States, the great international banks, non-financial enterprises, and other groups would reinforce the conclusions

¹¹ Data referring to dates between September 30 and March 31 have been included in annual year-end aggregates. Data given for June 30 and other summer dates, however, have been used only in benchmark calculations and not in annual series.

of this study are given elsewhere.¹² The most obvious reason is simply the rapid expansion of trade and international banking that characterized the period under study.

Since many of the foreign-asset figures are not broken down by currency, it will also prove helpful in the next chapter to display specially derived "unallocated residuals" for the ends of 1899 and 1913. For each of these benchmark dates, a partial currency breakdown yields figures on claims against Britain, France, Germany, and other centers plus holdings that represent an unknown currency mixture. The latter amount will be presented to allow speculation on the shares of sterling, francs, and marks in this total. While the three main currencies probably accounted for more than half of the unallocated amount, none of the conclusions below actually depend on such conjecture.

Since far more data are accessible for the end of 1913 than for any earlier date, a relatively clear picture of the pattern of the holdings of currency at that time precedes the more involved task of tracing their growth over the previous decades.

2.2 METALLIC AND PAPER RESERVES IN 1913

The predominance of official holdings among those for which figures have been found makes it convenient to turn first to these holdings and their share of official reserves. Deciding which institutions should be considered official is not difficult, but a few borderline cases deserve brief mention. The arguments of Professor Bloomfield for inclusion of the Yokohama Specie Bank, the Bank of Sicily, the Bank of Naples, the Swedish National Debt Office, and the Belgian *Caisse Générale d'Epargne et de Retraite* as official have been accepted.¹³ All banks usually referred to as central banks have been included, even when privately owned and legally independent of the national government. All other privately owned banks, however prominent, have been excluded, although a good case could be made for the official nature of some (for example, the Canadian chartered banks).

The 1913 amounts of official gold, silver, and exchange reserves are shown for a slightly Europe-heavy sample of thirty-five countries in Table 1. Although no one type of reserve asset has been thoroughly covered for all the central banks and governments, the world totals represent a broader coverage of each than has previously been pre-

¹² Lindert (1967), Chapters 2-4.

¹³ Bloomfield, *Short-Term*, pp. 10, 11.

TABLE I
THE COMPOSITION OF REPORTED OFFICIAL RESERVES IN 35 COUNTRIES, END OF 1913
(Converted into millions of dollars at 1913 pars)

	(1) <i>Gold</i>	(2) <i>Silver</i>	(3) <i>Foreign exchange</i>	(4) <i>Total reserves</i>	(5) = (3) as <i>a percentage of (1) + (3)</i>
<i>Three main creditors</i>	1,122.5	189.4	52.8	1,364.7	4.5%
United Kingdom, B of England	164.9	NA	—	164.9	—
France, B of France	678.9	123.5	3.2	805.6	0.5
Germany, Reichsbank	278.7	65.9	49.6	394.2	15.1
<i>Other Europe</i>	1,757.0	309.4	610.6	2,677.0	25.8%
Austria-Hungary, A.-H. B	251.4	50.7	17.1	319.2	6.4
Austria-Hungary, Imperial Treasury	0.2	4.6	—	4.8	
Belgium, B Nationale	48.1	10.8	32.2	91.1	61.8
Belgium, government	a	NA	13.7	13.7	
Belgium, Caisse Générale d'Epargne et de Retraite	a	NA	31.8	31.8	
Bulgaria, Nat'l B	10.6	4.5	2.7	17.8	
Denmark, Nat'l B	19.6	1.3	6.2	27.1	13.3
Denmark, Treasury	20.9	6.2	—	27.1	
Finland, B of Finland	7.0	0.4	20.9	28.3	74.9
Greece, Nat'l B	4.8	0.3	43.9	49.0	90.1
Iceland, B of Iceland	0.1	—	NA	0.1	NA
Italy, 3 issue banks	265.4	21.3	38.1	324.8	13.2
Italy, Treasury	68.5	18.6	12.7	99.8	
Netherlands, B of Netherlands	61.1	3.9 ^f	6.2	71.2	9.2
Netherlands, Treasury	a	0.1	—	0.1	
Norway, B of Norway	11.9	0.4	10.8	23.1	47.6
Norway, Treasury	—	0.2	—	0.2	
Portugal, B de Portugal	8.1	9.6	NA	17.7	NA

Rumania, Nat'l B	29.2	0.3	15.9	45.4	35.3
Russia, State B	786.2	31.2	86.1	903.5}	28.0
Russia, Treasury	NA	NA	219.5 ^b	219.5}	
Serbia, Nat'l B	11.2	0.7	0.8	12.7	6.7
Spain, B of Spain	92.4 ^c	138.8	NA ^c	231.2	NA ^c
Sweden, B of Sweden	27.4	1.3	34.3	63.0}	61.3
Sweden, Nat'l Debt Office	NA	NA	9.1	9.1}	
Switzerland, Nat'l B	32.9	4.2	8.6	45.7	20.7
<i>Western Hemisphere</i>	1,764.9	525.2	64.8	2,354.9	3.5%
Argentine, Conv. Fund	225.2	NA	—	225.2}	
Argentine, B of the Nat'n	30.9	NA	5.0	35.9}	1.9
Bolivia, B of the Nat'n	2.6	NA	NA	2.6	NA
Brazil, Amortizat'n Fund	89.6	NA	NA	89.6	NA
Canada, Min. of Finance	115.4	0.2	13.2	128.8	10.2
Chile, Conv. Fund & Emission Office	NA	NA	46.6	46.6	NA
Uruguay, B.R.O.U.	10.8	1.7	NA	12.5	NA
U.S.A., Treasury	1,290.4	523.3 ^d	—	1,813.7	—
<i>Africa, Asia, Australia</i>	201.8	108.5	403.9	714.2	66.7%
Algeria, B of Algeria	8.2	NA	NA	8.2	NA
Australia, Treasury	22.0	NA	2.3	24.3	9.5
Ceylon, government	1.0	3.8	3.1	7.9	75.6
Egypt, Nat'l B	10.5	0.7	8.0	19.2}	
Egypt, Treasury	1.3	3.7	NA	5.0}	40.4
India, Treasury & special funds	83.0	88.4	136.3	307.7	62.2
Japan, B of Japan	63.8	0.2	78.3	142.3}	
Japan, government	1.0	NA	41.9	42.9}	78.3
Japan, Yokohama Specie B	0.6 ^e	NA	115.7	116.3}	
Neth. Indies, B of Java	10.4 ^f	11.7 ^f	6.9 ^f	29.0	39.9
Philippines, Gold Std. Fund	NA	NA	11.4 ^g	11.4 ^g	NA
ALL 35 COUNTRIES	4,846.2	1,132.5	1,132.1	7,110.8	18.94%

(TABLE 1—Continued)

	(1) Gold	(2) Silver	(3) Foreign exchange	(4) Total reserves	(5) = (3) as a percentage of (1) + (3)
Percentages of total reserves (silver included):	68.1	15.9	15.9	100.0	
Amounts held by:					
Central banks	2,927.1	483.4	474.8	3,885.3	14.0%
Treasuries and special funds	1,918.5	649.1	510.8	3,078.4	21.0%
Other official institutions ^a	0.6	NA	147.5	148.1	99.6%

SOURCES: U.S. Federal Reserve Board, *Banking and Monetary Statistics* (1943), pp. 528-551; U.S. Bureau of the Mint, *Annual Report of the Director of the Mint*, 1914; and various official sources cited in Lindert (1967), Chapter 2.

NOTES: Details may not add up to totals due to rounding. (B = Bank, Banque; NA = not available; — = zero.)

^a Described as small.

^b Equals the difference between a corrected total for all official holdings (\$305.6 million) and those of the State Bank alone. See *ibid.*, p. 61.

^c In addition, Spain held 192.4 million pesetas (\$37.1 million) with correspondents abroad, most of which consisted of metal under earmark but some of which comprised foreign-exchange holdings.

^d June 30, 1914.

^e Includes some silver.

^f March 31, 1914.

^g December 31, 1911.

^h *Belgian Caisse Générale* and *Yokohama Specie Bank*.

ⁱ The foreign exchange held by the Bank of Japan and the government has been valued according to Ushisaburo Koyabashi, *War and Armaments Loans of Japan* (New York: Oxford University Press, 1922), p. 187. For the annual series sought in Table 4, however, the slightly higher figure of Harold G. Moulton, *Japan* (Washington: The Brookings Institution, 1931), p. 412, has been used.

sented. The coverage of official gold holdings is slightly more complete than those of the League of Nations¹⁴ and the Federal Reserve Board.¹⁵ Silver holdings, usually not included in measurements of total reserves of 1913 or later years, have been displayed here because silver, though quickly fading from the international financial scene, was still used in international settlements in the Far East and to a limited extent by a few Western countries on the "limping" gold standard (Belgium, France, Switzerland). The figures on silver tend to overstate its importance as a reserve against international pressure, both because it was probably used less than either gold or foreign exchange and because it would have been difficult to sell quickly in large amounts at a satisfactory price on the world market.

The total figure for foreign-exchange assets exceeds all previous estimates for 1913. What appears to have been the earliest guess was a figure of \$300 million in a 1931 League of Nations memorandum.¹⁶ The following year a study of the Bank for International Settlements raised the conjectural amount to "at least \$400 million and at most \$600 million" for the half dozen or so years preceding the outbreak of war.¹⁷ This estimate stood until Professor Bloomfield recently undertook his more thorough investigation and raised the 1913 estimates. The present figure of \$1,132 million is moderately higher than his \$963 million. Although a number of minor changes have been made, more than half the increase over his total stems from the present author's conclusion that the official Japanese balances abroad consisted predominantly or entirely of financial claims and not gold coins and bars under earmark.¹⁸ Still more foreign exchange is thought to have been officially

¹⁴ League of Nations, *Memorandum on Currency and Central Banks, 1913-1925* (Geneva: Kundig, 1926), Vol. II, Table IV.

¹⁵ Federal Reserve Board, *Banking and Monetary Statistics* (Washington: 1943), pp. 528-551. This was the source used for 1913 gold figures by the International Monetary Fund, *International Reserves and Liquidity* (1958), p. 16. The world total given by the Federal Reserve (\$4,859 million) is just as high as that presented in Table 1, but includes holdings in Canada, New Zealand, and Venezuela by private banks.

¹⁶ Feliks Mlynarski, *The Functioning of the Gold Standard* (Geneva: League of Nations, 1931), p. 16, as cited in International Monetary Fund, *International Reserves and Liquidity*, p. 16.

¹⁷ Bank for International Settlements, *The Gold-Exchange Standard* (Mimeographed *aide-mémoire*, Basle, 1932), p. 5.

¹⁸ For a detailed attempt to decipher the evidence pertaining to Japan's foreign balances, see Lindert (1967), pp. 33-48.

held in 1913 by Brazil (both the Bank of Brazil and the Treasury),¹⁹ Mexico, Panama, Siam, the Straits Settlements, and other countries, but it is likely that at least 90 per cent of the world total has been covered in Table 1.

Foreign exchange accounted for a significant share of total reserves—almost 19 per cent if silver is excluded, and 16 per cent if it is included. This proportion is probably an accurate reflection of the total global share of foreign exchange in reserves in 1913.²⁰ If complete coverage could somehow be achieved by securing the missing data on Latin American and other governments, the additional amounts of gold and silver would probably exceed the additional exchange holdings, but the share of foreign exchange in the total would probably not be much less than 19 per cent, and almost certainly not below 18 per cent. If one were to include the reserve assets of key private banks in countries in which the functions of a central bank are not performed by any official institution, the share of foreign balances would be raised slightly, largely because of the great importance of such balances to the chartered banks of Canada.

The extent to which governments and central banks were willing to hold liquid assets abroad before 1914 underscores the tenuous and arbitrary nature of the customary distinction between a prewar "gold standard" and an interwar "gold-exchange standard." Indeed, comparing the results shown in Table 1 with similar data from the 1920's suggests that if the latter term is to be applied in connection with the 'twenties, it fits 1913 equally well. Although the Genoa Conference of 1922 is often thought to have ushered in the gold-exchange standard in order to economize gold, the governments and central banks of forty-six countries held only 16.5 per cent of their reserves (excluding silver) in foreign exchange at the end of 1924 and only 17.6 per cent at the end of 1925.²¹ Even if these proportions were adjusted upwards

¹⁹ The Brazilian Treasury held £10 million (\$48.7 million) in London at the end of March 1907 and £6.5 million (\$31.6 million) there a year later. Brazil, Congresso, *Caixa de Conversão* (1914), p. 638; and Centro Industrial do Brasil, *Brazil: Its Natural Riches and Industries* (1910), p. 220. Unfortunately, the figure for March 1914 could not be ascertained.

²⁰ The level of foreign-exchange reserves, as well as its share of the total, was representative of the three-year period 1911-1913 and not just of the few months around the end of 1913.

²¹ Calculated from dollar figures given in League of Nations, *Memorandum on Currency and Central Banks, 1913-1925* (1926), Vol. I, Table N, p. 65. The gold-reserve figures have been lowered, and the foreign-exchange share thereby raised

by including special-purpose official institutions like the Yokohama Specie Bank and the *Caisse Générale d'Épargne et de Retraite*, they still would probably not exceed the 1913 ratio. At the end of 1928, after France had accumulated vast amounts of exchange reserves and their world total was about as great as it was at any time in the inter-war period, sixty-eight countries still held only 24.5 per cent of their official reserves in foreign assets.²² The well-known postwar spread of the use of foreign-exchange reserves was concentrated heavily in Europe (excluding Britain and Russia) where their share of total reserves reached as high as 42 per cent at the end of 1928. This development was largely offset, however, by the decline in the use of foreign-exchange reserves by Russia and Japan, and by the accumulation of large amounts of gold by the United States, a country that continued to hold virtually all of its reserves in metallic form. To identify the years of World War I and its aftermath as a period of transition from a gold to a gold-exchange standard thus seems misleading as well as artificial.²³

Though the official practice of holding foreign exchange had become widespread by the outbreak of World War I, some governments held a good deal more than others. Of the 1913 global total almost 60 per cent was held by Russia, Japan, and India. (This inequality in the size of foreign-exchange balances is not without its parallels in other periods; at the end of 1928 France alone accounted for 40 per cent of the total.²⁴) None of the chief creditor nations' governments or central banks was among the top foreign-currency holders. In fact, among the six Western European net-creditor nations—Britain, France, Germany, Switzerland, the Netherlands, and Belgium—there appears to have been an inverse correlation between their rank as net creditors

by adjusting the data for the United States to exclude gold in circulation (that is, outside of the Treasury and the Federal Reserve banks).

²² Data for fifty-seven countries have been taken from "The Adequacy of Monetary Reserves," International Monetary Fund *Staff Papers*, Vol. III, No. 2 (October 1953), pp. 200-202, and supplemented with figures for eleven East European countries (not including the Soviet Union) from Ragnar Nurkse's League of Nations study, *International Currency Experience* (1944), pp. 234, 235.

²³ It might be argued that an important feature of a gold-exchange standard is the use of foreign exchange as legal backing for domestic deposits and note issues, as advocated at the Genoa Conference. But this criterion was at least partially fulfilled by the prewar system, since Italy, Russia, Austria-Hungary, Greece, India, Japan, Rumania, Chile, and other countries backed part of their note issue with foreign-exchange assets.

²⁴ "The Adequacy of Monetary Reserves," p. 201.

and their rank as official holders of foreign exchange. For the most part, officials in the creditor nations refrained from accumulating large balances abroad, leaving activities of that sort to their well-developed private financial communities. Conversely, the greatest amounts of foreign-currency balances were amassed by some of the world's largest accumulators of total reserves and the world's largest debtors. This interrelationship will be examined further in Chapter 4.

When the creditor countries were able to influence the form of reserves held in a given debtor country, the debtor ended up keeping a large share of its reserves on deposit with its creditors. Several of the countries holding more foreign exchange than gold—many of them colonies—provide examples. After prolonged debate over possible solutions to her monetary disarray, India in 1899 became the best-known prewar manager of a "gold-exchange standard," and not surprisingly held over half of her currency reserve in London (and the rest in India). A similar tendency to bank in the ruling or lending country was exhibited by Ceylon, the British West Indies, British West Africa, the Dutch East Indies, French Indo-China, the French West Indies, and the Philippines, and by Greece and Japan, two noncolonial debtors. While the preference of the leading powers for reliance on non-metallic reserves by others was generally not made explicit, the great financial centers were well aware of the advantages of gaining liabilities instead of losing gold, and occasionally made their wishes known to overseas borrowers and dependencies. In the case of London at least, the partial retention of loan proceeds in the lending banks was an established policy: "It was a usual practice to require a client who was given a line of credit for acceptance to maintain a minimum balance in proportion of his availments; and considerable sums were necessarily held in London for this purpose. The handling of the issue and other private financial business of foreign Governments and private firms also required the maintenance of London deposits which might be highly variable in amount."²⁵ The issue of creditor control will be examined further in the final section of this chapter.

2.3 THE CURRENCIES HELD

The foreign balances of official institutions the world over, both where the creditor nations actively influenced the choice of a reserve asset and where they did not, were of course concentrated in a hand-

²⁵ Thomas Balogh, *Studies in Financial Organization* (Cambridge: Cambridge University Press, 1950), pp. 233-234.

ful of financial centers. Specific information on the countries in which foreign balances were held is naturally less complete than data for the total amounts held, but enough breakdowns into the different national currencies held have been obtained for the end of 1913 to establish in broad outline the relative importance of each as a reserve currency. This information is presented in Table 2.

Two main conclusions are suggested by these data. On the one hand, London was clearly the primary reserve center on the eve of World War I. On the other, the primacy of sterling among reserve currencies was not so unrivalled as some authors have implied.

Of the holdings reported by currencies, sterling accounted for more than French francs and German marks combined. The importance of the dollar in world finance has been overstated by the figures on dollar holdings, which reflect the close ties between the United States and Canada, for which a relatively complete statistical coverage is available. Of the lesser currencies not identified separately in Table 2, the most noteworthy were Dutch guilders, held in small amounts by several European central banks as well as by the Dutch East Indies, and Scandinavian kroner, held mainly within the Scandinavian Monetary Union itself.

The positions of the main currencies differed markedly between Europe and the rest of the world. Sterling, clearly the leading reserve currency elsewhere, by no means held such a privileged position across the Channel. Although the large franc holdings by Tsarist Russia might be discounted as a somewhat special case, the popularity of marks and francs clearly extended all over the Continent. Sterling ranked no better than third in Europe including Russia and second in Europe without her. It should be remembered, however, that many countries failed to provide data on their holdings of each currency, and only the broad outlines of the overall world pattern can be conjectured with confidence. In Europe, where most of the available but undifferentiated data on total holdings were concentrated, a full knowledge of all data would probably reveal as much in marks and francs as in sterling, at least among official institutions.²⁶ On the other hand, most of the

²⁶ The validity of this assertion would depend to a considerable extent on the allocation of the official Belgian balances. These may well have been spread fairly evenly among sterling, francs, marks, and guilders, but information is lacking.

Figures are available on the currency distribution of the foreign exchange held by the Danish National Bank, but on a July 31 basis. While these holdings were spread around a number of countries, those in Germany tended to assume the largest single share. Danmarks Nationalbank, *Nationalbankens Regnskab*, 1906/1907-1913/1914.

TABLE 2
 REPORTED FOREIGN HOLDINGS OF MAJOR CURRENCIES, END OF 1913
 (in millions of 1913 dollars)

	<i>Amounts held in:</i>					<i>Total</i>
	<i>England</i>	<i>France</i>	<i>Germany</i>	<i>Other countries</i>	<i>Country not specified</i>	
<i>Europe, Total</i>	76.4	262.1	115.5	44.9	531.6	1,030.5
<i>Official holdings</i>	76.4	262.1	115.5	44.9	164.5	663.4
Austro-Hungarian B	3.9	—	8.3	—	4.9	17.1
B of Finland	3.3	1.1	5.4	4.0	7.1	20.9
German Reichsbank	14.0	5.0	—	14.4	16.2	49.6
Nat'l B of Greece	10.9	19.0	0.1	—	13.9	43.9
3 Italian issue B's	2.2	—	17.8	2.9	15.2	38.1
Italian Treasury	3.5	7.5	0.8	0.9	—	12.7
B of Norway	3.1	1.2	3.1	3.5	—	10.9
Nat'l B of Rumania	2.0	3.3	10.5	0.1	—	15.9
Russian gov't, State B	23.7	221.8	53.0	7.1	—	305.6
B of Sweden, Nat'l Debt Off.	6.2	0.9	15.4	11.8	9.1	43.4
Swiss Nat'l B	3.6	2.3	1.1	0.2	1.4	8.6
Other official	—	—	—	—	96.7	96.7
All private	—	—	—	—	367.1	367.1
<i>Western Hemisphere, Total</i>	34.3	—	34.8	141.6 ^a	56.2	266.9
<i>Official holdings</i>	25.0	—	34.8	—	5.0	64.8
Canadian banks (private)	9.3	—	—	141.6 ^a	—	150.9
Canadian Min. Finance	13.2	—	—	—	—	13.2
Chile, special funds	11.8	—	34.8	—	—	46.6
Other official	—	—	—	—	5.0	5.0
Other private	—	—	—	—	51.2	51.2

(TABLE 2 Continued)

	Amounts held in:					Total
	England	France	Germany	Other countries	Country not specified	
<i>Africa, Asia, Australia, Total</i>	344.8	13.0	2.0	17.4	43.1	420.3
<i>Official holdings</i>	330.2	13.0	2.0	17.4	41.3	403.9
Australasian banks (private)	6.7	—	—	—	—	6.7
Australian government	2.3	—	—	—	—	2.3
Ceylon government	3.1	—	—	—	—	3.1
Indian government	136.3	—	—	—	—	136.3
B Japan and gov't of Japan	101.7	13.0	2.0	3.5	—	120.2
Yokohama Specie Bank	86.8	—	—	—	28.9	115.7
Philippines, government	—	—	—	11.4	—	11.4
South African banks (private)	7.9	—	—	—	1.0	8.9
Other official	—	—	—	2.5 ^b	12.4	14.9
Other private	—	—	—	—	0.8	0.8
<i>World</i>						
Official holdings	431.6	275.1	152.3	62.3 ^c	210.8	1,132.1
Private holdings	23.9	—	—	141.6 ^c	420.1	585.6
TOTAL	455.5	275.1	152.3	203.9^c	630.9	1,717.7

SOURCE: Lindert (1967), Tables 2-C through 2-G.

NOTES:

^a Mostly dollars, although part is believed to have been sterling.

^b Dutch guilders held by the Netherlands East Indies.

^c Of which, in U.S.A.: Official 16.3

Private 141.6

Total 157.8

missing data from Latin America and Asia would probably have represented sterling and dollars. The ranking of the three main currencies according to their amount of use as official exchange reserves would not be upset by complete statistical coverage, and the relative proportions held would probably not be very different from the proportions implied by Table 2.

That the data should reveal leadership on the part of sterling is hardly surprising. Of greater interest is the extent to which Germany and France had succeeded in attracting liquid foreign funds. The relative importance implied for these currencies by Table 2 is at odds with the portrayal of sterling's prewar position as essentially that of the sole international currency. A number of writers in the 'thirties have described Britain's financial position as unique and monopolistic in the sense of London's having "deposit-compelling power."²⁷ It has been asserted, for example, that "So far as can be gathered from occasional information, the majority by far of the exchange holdings of Central Banks were kept before the war in London. . . . Foreign exchange holdings were not converted into other currencies, and the post-War practice of converting sterling balances into dollars or *vice versa* was unknown. The difficulties encountered since the War by the Central Banks on whose market the exchange constitutes a claim . . . were practically non-existent. In other words: *there was only one reserve center* for the gold exchange standard and none of the difficulties resulting from the multiple reserve system of the post-War period were extant."²⁸ Table 2 makes it clear that such statements give a misleading impression of London's position on the eve of the war.²⁹ If the currency proportions reported were representative of government and central-bank

²⁷ For various statements of this view, see Carel Jan Smit, "The Pre-War Gold Standard," *Proceedings of the American Political Science Association*, Vol. XVI, No. 1 (1934), pp. 53-56; William A. Brown, Jr., *The International Gold Standard Reinterpreted, 1914-1934* (New York: National Bureau of Economic Research, 1940), especially Vol. I, pp. 156-157; Bank for International Settlements, *The Gold Exchange Standard* (Basle, 1932), p. 6; and similar comments in Alec G. Ford, *The Gold Standard, 1880-1914: Britain and Argentina* (Oxford: Clarendon Press, 1962), p. 32. The phrase "deposit-compelling power" was apparently originated by Smit.

²⁸ BIS, *op.cit.* Italics mine.

²⁹ As far as can be determined, the distribution of official exchange balances among the major financial centers at the end of 1913 was not unrepresentative of the pattern from about 1910 on. A comparison with figures for the end of 1912 is consistent with this assertion, under the assumption that the official Japanese holdings were distributed similarly in the two years.

preferences the world over, not even a majority of the world's official foreign-currency balances were held in sterling.

Very little can be said with assurance about the currency proportions prevailing in private portfolios. Certain *a priori* arguments and descriptions by financial observers would lead one to suspect that the private supremacy of London over Paris and the German centers was greater than is revealed by the proportions for official holdings, but these same considerations have led to an exaggeration of London's uniqueness as an official reserve center, as Table 2 has shown. As long as quantitative data are lacking, it is better to avoid guesses about currency proportions, in view of the danger that such guesses may gain acceptance by default in future years. One can only make the usual assumption that sterling was the world's chief currency (by either a stock or a turnover definition), and presume that its share was not rising after the turn of the century.

2.4 THE ACCUMULATION OF FOREIGN EXCHANGE BEFORE 1913

To add a temporal dimension to the 1913 account just given of part of the international financial structure, some note must be made of the spread of foreign-currency holdings over the years leading up to the First World War. While the absence of what must have been well over half of the world's private international claims precludes estimation of annual global totals, limited inferences can be drawn from annual movements in a partial sampling.

As the data stand, no two years between 1880 and 1913 have been given the same overall coverage, and straightforward aggregates of all available figures would not be comparable between different years. Some criterion for serial continuity needs to be laid down. Whenever an individual series begins or ends because data are missing on assets that probably did exist, the series must be excluded from any aggregate figures extending over a period that includes the missing years (unless some reasonable basis for interpolation can be found). On the other hand, many apparent changes in coverage reflect the emergence of a new bank or the beginning of a bank's policy of holding foreign currency in the middle of a period over which the global growth of foreign-exchange holdings is being charted. Such additions to the basis of measurement need not complicate matters as severely as, for example, the appearance of a new product would complicate the construction of a consumer-price index. The opening of a new institution

dealing in foreign exchange, which was not simply the successor to a previous institution with similar dealings, is best viewed as a genuine contribution to the growth of foreign-exchange claims, and such additions to the measurement base will be accepted. When it is known that a new exchange-holding institution was formed from others that also held foreign balances, continuity requires that the holdings of the old and new be joined in a single series. (The latter procedure is implicit in the figures derived for the Swiss National Bank, formed out of four note-issue banks in 1907.)

Several aggregate series on foreign-exchange holdings assembled in this way are presented in Tables 3 and 4 and Figure 1. Inasmuch as

TABLE 3
GROWTH AND COMPOSITION OF FOREIGN-EXCHANGE ASSETS, 1900-1913
(in millions of dollars)*

	End of 1899	End of 1913	Change	1913 index (1899=100)
(1) <i>Official Institutions</i>	246.6	1,124.7	878.1	456
(2) known sterling	105.1	425.4	320.3	405
(3) known francs	27.2	275.1	247.9	1,010
(4) known marks	24.2	136.9	112.7	566
(5) other currencies	9.4	55.3	45.9	590
(6) unallocated	80.7	232.0	151.2	287
(7) <i>Private Institutions</i>	157.6	497.8	340.2	316
(8) known sterling	15.9	16.0	0.1	100
(9) known francs	—	—	—	—
(10) known marks	—	—	—	—
(11) other currencies	62.0	156.7	94.7	253
(12) unallocated	79.7	325.1	245.4	408
(13) <i>All Institutions</i>	404.2	1,622.5	1,218.3	401
(14) known sterling	121.0	441.4	320.4	365
(15) known francs	27.2	275.1	247.9	1,010
(16) known marks	24.2	136.9	112.7	566
(17) other currencies	71.4	212.0	140.6	297
(18) unallocated	160.4	557.1	396.7	347
(19) <i>Sum of sterling, francs, marks, and unallocated holdings:</i>				
(20) all institutions	332.8	1,410.5	1,077.7	424
(21) official institutions	237.2	1,069.4	832.2	451
(22) private institutions	95.6	341.1	245.5	357

SOURCE: Lindert (1967), pp. 212, 213.

NOTES: The 1913 totals fall slightly short of the corresponding magnitudes in Table 2 owing to the exclusion from Table 3 of a few individual series for which data were available for 1913 but not for 1899.

* Details may not add up to totals due to rounding.

TABLE 4
FOREIGN-EXCHANGE ASSETS, VARIOUS GROUPS AND PERIODS, 1880-1913
(millions of dollars)*

End of year	(A) 1880 to 1913, official institutions only	(B) 1880 to 1913, total	(C) 1899 to 1913, total†	(D) 1908 to 1913, total†
1880	101.9	126.9	—	—
1	79.3	104.5	—	—
2	81.6	110.6	—	—
3	94.6	127.5	—	—
4	117.8	147.9	—	—
1885	145.7	177.6	—	—
6	124.2	166.3	—	—
7	111.4	154.7	—	—
8	110.7	158.7	—	—
1889	203.1	258.3	—	—
1890	251.4	295.9	—	—
1	183.3	225.8	—	—
2	140.0	183.5	—	—
3	96.4	146.1	—	—
4	133.2	187.3	—	—
1895	116.6	177.0	—	—
6	164.5	231.7	—	—
7	182.6	256.6	—	—
8	162.9	229.1	—	—
1899	138.3	211.7	328.0	—
1900	180.8	263.0	370.1	—
1	258.4	361.2	475.5	—
2	340.1	432.8	545.1	—
3	413.9	518.7	613.5	—
4	435.8	590.4	751.7	—
1905	432.3	564.4	912.4	—
6	574.7	717.8	1,071.3	—
7	475.3	590.0	904.4	—
8	477.6	620.3	1,002.4	1,134.2
1909	565.9	720.4	1,116.8	1,262.0
1910	799.8	966.9	1,340.7	1,495.2
1	815.1	980.8	1,326.9	1,534.6
2	772.9	939.3	1,271.8	1,513.4
1913	814.0	982.6	1,378.8	1,642.0

SOURCE: Lindert (1967), Tables 5-4 through 5-7.

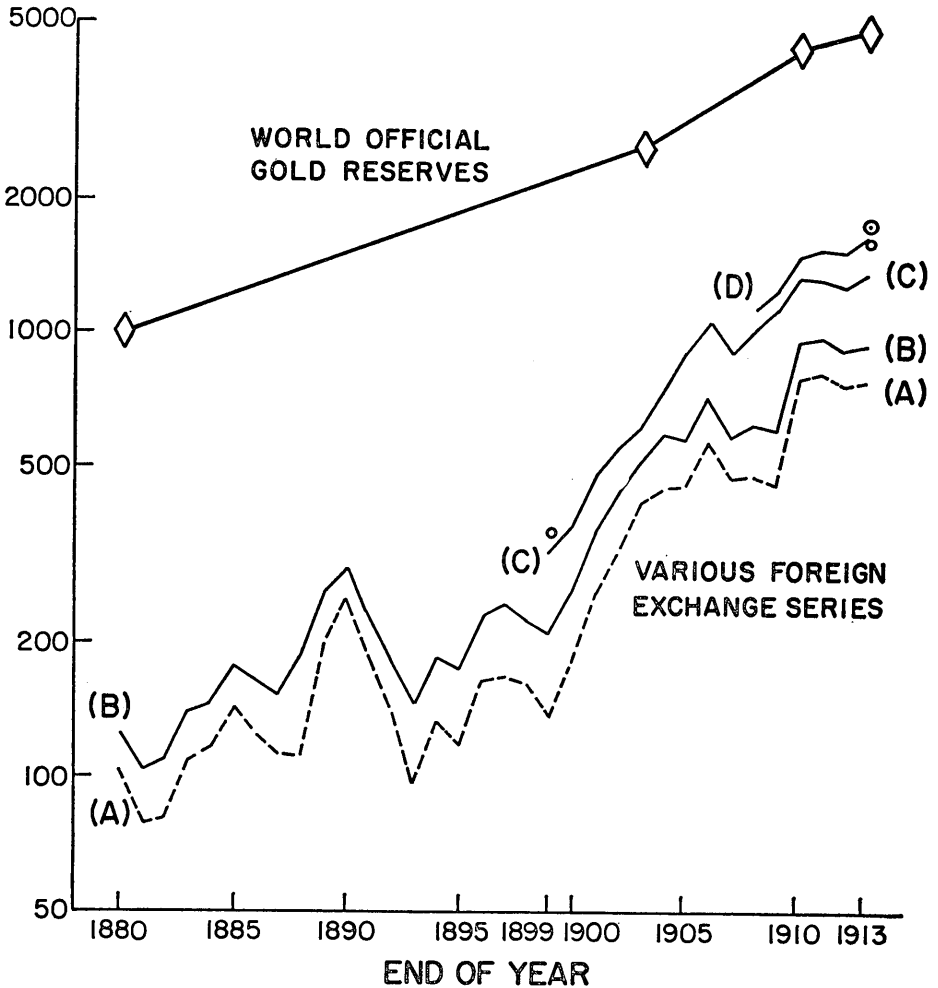
NOTES: Series A has been constructed from 18 individual series; Series B, from 26; Series C, from 39; and Series D, from 52. The aggregates for the two dates in Table 3 represent 50 individual series, while the 1913 total in Table 2 represents 59.

* Details may not add up to totals due to rounding.

† Dashes in these two columns mean "not available."

FIG 1. GOLD AND FOREIGN-EXCHANGE ASSETS, VARIOUS GROUPS AND PERIODS, 1880-1913

MILLIONS OF
1913 DOLLARS
(LOG SCALE)



NOTES: For figures, see Tables 2, 3, and 4, and text.

◊ = 1899, 1913 benchmarks, Table 3.

○ = 1913 benchmark, Table 2.

the basis for consistent coverage narrows progressively for earlier and earlier years, the number of component series being aggregated varies inversely with the number of years being covered.

A convenient summary of the changes occurring in the fourteen-year span featured in this monograph is provided in Table 3. One trend revealed by these benchmark data is the relative rise of France and Germany as reserve centers. London was easily the chief repository for official funds at the turn of the century and (one presumes, despite the absence of data) in earlier years as well. The subsequent competition among centers implied by the available statistics was more real in the case of Anglo-German competition than Anglo-French. The lion's share of French liabilities to foreign central banks and governments after the turn of the century was taken by the official franc balances of Russia alone, while the use of marks as reserves was more widespread, with at least half a dozen countries keeping more official funds in Germany than in any other foreign country.

The rate of expansion in foreign-exchange claims in this period is striking. In fourteen years official holdings grew three and a half times over, or at an annual rate of 10.8 per cent. The small sample of private holdings more than tripled, expanding at 8.2 per cent (a rate that probably slightly exceeded the growth rate of the true total private holdings). The vast majority of the individual reporting institutions more than doubled their assets, and only three minor private series showed absolute declines.³⁰ Comparison with global figures on official gold reserves identifies the same period as one in which foreign exchange was gaining on gold as a reserve medium. While the world's gold reserves have not been measured for the end of 1899, their 1900-1913 trend can be surmised from the following available year-end estimates:

1880	\$1.0 billion
1903	\$2.6 billion
1910	\$4.2 billion
1913	\$4.9 billion. ³¹

³⁰ There were reductions in the claims of Canadian chartered banks on agents and correspondents in the United Kingdom, the balances with foreign agents held by the Comptoir National d'Escompte de Paris, and the foreign bill holdings of the Swiss note-issue banks other than the National Bank.

³¹ The 1880 and 1903 figures are taken from Bloomfield, *Short-term*, p. 15. I have estimated the 1910 and 1913 totals from the sources cited in the notes to Table 1 above. Official gold reserves expanded more rapidly than did total monetary gold stocks. For estimates of these stocks, see Robert Triffin, *The Evolution*

In none of the periods bordered by these benchmark dates did the world's official gold reserves accumulate as rapidly in percentage terms as its foreign-exchange reserves did between the turn of the century and World War I.³²

A natural subject of inquiry is the extent to which fluctuations in the annual data on foreign exchange seem to follow the behavior of other macroeconomic variables. Only very vague correlations have been detected between the series presented in Table 4 and summary data on trade values, production, or interest rates in the principal countries. Less tenuous is the link between international movements of short- and long-term capital. The brief periods in which liquid foreign claims on the three center countries rose most quickly were periods of large exports of British, French, and German capital, although the countries accumulating the foreign exchange were not always those receiving the most capital. Conversely, the financial crashes of 1890 and 1907 also make an appearance in the pattern of exchange holding. When the Baring Crisis broke, ending the Argentine-led new-issues boom of the late 1880's, the Russian government undertook a massive conversion of its exchange reserves into gold to be repatriated to the safety of St. Petersburg, adding to the serious strain felt in the financial centers. The reduction in exchange balances following the American panic of 1907 was apparently worldwide, although in this case, too, Russia gave up the most, owing to the severe economic and financial crisis she suffered in the wake of the military defeat and the revolution of 1905. The world's reported foreign-exchange holdings also dipped after the outbreak of the Boer War (1899) and during the 1911-1912 war scares accompanying the Moroccan crisis and the onset of the Balkan Wars, but the impact of these events may be more apparent than real. In the latter period, for example, the large losses (and conversions) of foreign exchange by Japan and India need not have been linked to the

of the International Monetary System: Historical Appraisal and Future Perspectives, Princeton Studies in International Finance No. 12 (Princeton: International Finance Section, 1964), p. 79.

³² Over the decade 1904-1913, for example, gold reserves grew at about 6.3 per cent annually, well below the 10.8 per cent rate of foreign-exchange accumulation for the years 1900-1913. Both rates of expansion exceed those of world trade value (5.3 per cent) and world manufacturing output (3.9) for 1900-1913.

The present argument is not inconsistent with Bloomfield's statement that "clearly the great bulk of the growth in official monetary reserves between 1880 and 1913 was provided by gold." (*Short-term*, p. 79.) His remark refers to absolute differences, whereas the comments above focus on percentage growth rates.

diplomatic situation in Europe, although the losses of the Reichsbank certainly were. The influence of short-run crisis, in any event, can be detected in the data available, reminding us again that abnormal movements of short-term capital were not entirely absent before the World Wars, as Bloomfield has shown.³³

2.5 WHY HOLD CURRENCIES?

An explanation of the trend toward holding official reserves in paper form requires exploring the motivations that seem to have prompted this development. Because monetary authorities were no more inclined to discuss their reasons for acquiring foreign balances than they were to advertise the amounts so held, empirical evidence on this matter will be supplemented by a certain amount of *a priori* supposition.

The most obvious reason for preferring exchange over metallic reserves is simply the interest income to be earned from the former. Once stated, however, this natural presumption is difficult to document for the period under study. Contemporary official and academic treatments of exchange policy tended to play down the interest returns accruing on the official accounts and to stress instead the stabilization benefits that *Devisenpolitik* was providing in the public interest.³⁴ The strong presumption that interest earnings were an important inducement to holding exchange in place of gold cannot be confirmed or disconfirmed.³⁵

A second well-known advantage to holding and dealing in foreign exchange is the fact that its transport and transactions costs are lower than those of gold. In the years before 1914 even banks in gold-producing countries (Australia, South Africa, and the United States) resorted to regular adjustment of London balances rather than rely on

³³ *Ibid.*, Chapter V.

³⁴ In the case of the Austro-Hungarian Bank, the primacy of the stabilization motive was even formalized into a 1911 law providing for withdrawal of the Bank's note-issue privilege in the event that it pursued exchange and interest gains at the expense of exchange-rate stability. Ciril Nemeč, *La Banque Austro-hongroise et sa liquidation* (Paris: Giard, 1924), p. 71.

³⁵ One direct testimonial to a keen official desire to reap interest is Clapham's reference to the desire of the Yokohama Specie Bank to have the sterling Chinese indemnity lent out on the London money market as soon as possible. John H. Clapham, *The Bank of England* (Cambridge: The University Press, 1945), II, p. 405.

Also difficult to find is direct evidence that short-term funds shifted from one center to another in response to interest differentials between them. Professor Bloomfield has found no confirmation of such a response in the data on Canada's chartered banks. *Short-term*, p. 65. (See also Chapter 3 below.)

fluctuations in oceanic gold shipments to balance accounts. Another advertisement for the low cost and relative convenience of transferring financial claims was the bizarre Japanese practice of sending export bills to the London discount market on the Trans-Siberian Railway.³⁶

For many countries the very fact that a conspicuously stable and secure gold reserve was the best window-dressing for promoting confidence imparted certain advantages to the manipulation of sizeable exchange balances. The increasingly keen competition for gold reserves made it more difficult to acquire gold than to give it up. Consequently, most European countries (in particular, France, Germany, Switzerland, Austria-Hungary, Rumania, and Russia) found it in their interests to supplement "gold devices" with foreign-exchange sales to keep temporarily adverse payments balances from causing gold losses. Such sales could not continue indefinitely, of course, and a persistently adverse balance would ultimately have to be met with more substantial adjustments, after which the foreign balances could be replenished.

Perhaps the most noteworthy determinant of the degree of official exchange-holding was the extent of the country's dependence on credit from the financial center. As has been observed above, borrowers in the London capital market were commonly required to keep a certain share of their proceeds on deposit in London. (For colonies of the lending country, an extra commitment was implied.) References from scattered sources show that such deposits were in fact kept with the very banks that underwrote, supervised, and/or subscribed to the loans of the borrowing country. Thus Brazil's official balances were entrusted to Nathan Rothschild's in London,³⁷ Chile's special funds were distributed among the three German "D-banks" and Nathan Rothschild's,³⁸ and the Italian Treasury banked with about thirty reputable private houses around Europe.³⁹ For both economic and political reasons, many governments relied on the branches of their own country's banks in the major financial centers: the bulk of Japan's foreign reserves rested in the Yokohama Specie Bank in London, the Canadian Finance Ministry used the London facilities of the Bank of Montreal, and Rus-

³⁶ Junnosuke Inouye, *Problems of the Japanese Exchange, 1914-1926* (London: Macmillan, 1931), p. 5.

³⁷ Eduard Dettman, *Das moderne Brasilien* (Berlin: H. Paetel, 1912), p. 362.

³⁸ Chile, Ministerio de Hacienda, *Memoria*, 1905-1913.

³⁹ Principally with Rothchild's in Paris, S. Bleichroder (Berlin), Barings, and Hambro's (London). See, for example, Italy, Ministero del Tesoro, *Relazione della direzione generale del tesoro*, 1900-1901, pp. 113, 114.

sian officials manipulated accounts in several Russian branches in Western Europe (as well as in other major private houses).

The element of creditor control should not be viewed as necessarily dominant in such financial ties. Much of the retention of liquid claims on principal lenders was more discretionary than compulsory in spirit. In addition to possessing the advantages already mentioned, sterling, franc, or mark balances could serve as collateral for short-term credits from institutions other than the repository or as a suitable means of putting external balances to work in-between major foreign disbursements. And while no asset commanded any more prestige than gold, large balances in London, Paris, or Berlin generally testified as effectively to a large borrower's ability to repay as did the metal itself. In other words, while some exchange-holding could have been virtually mandatory for the debtor nations, the greater part seems to have reflected relatively independent asset-placement decisions.

Nothing illustrates the interplay of compulsion and volition in exchange-holding more distinctly than the accumulation of the world's largest prewar foreign-exchange supply by the world's greatest net long-term debtor. Humiliated in a costly war with Japan, nearly overthrown by revolution, and chronically dependent on a growing inflow of capital from the Western creditor nations, the Tsarist Government controlled a vast network of liquid funds in about a dozen financial centers. From these deposits Russia reaped all of the standard benefits. They provided collateral for further borrowing;⁴⁰ could be counted as reserves against domestic note issues; earned interest; and facilitated management of exchange rates, the gold supply, and the St. Petersburg money market. Russian private banks and merchants also benefited from the "report" operations, through which Russian short-term borrowers were given inexpensive forward cover against exchange risks,⁴¹ and from the fact that a large share of the official deposits abroad were kept in the overseas branches of Russian banks for extended periods, giving them greater resources for short-term investments. In many instances, the foreign branches in turn made additional funds available to their home offices in St. Petersburg or Moscow, with

⁴⁰ The deposits in Paris served to improve Russia's credit standing in one additional respect: they provided a fund from which to bribe the French financial press. For a documentation of this aspect of the consistently sordid history of Franco-Russian finance, see A. Raffalovich, "*L'abominable vénalité de la presse . . .*" (Paris: Librairie du Travail, 1931).

⁴¹ For a description of these operations, see Bloomfield, *Short-term*, p. 42, and the works cited there.

the result that official reserves abroad augmented the supply of short-term capital in the domestic money market.⁴²

Such benefits would alone be sufficient to justify amassing large exchange balances abroad. Even more central to Russia's vital link with Western creditors, however, was the bargaining power that her vast liquid sums bestowed. Long-run dependence on the goodwill of Western creditors did not prevent Russian officials from compelling this goodwill by wielding the convertibility of their liquid funds as a financial weapon. As one writer has recently remarked, "In the relationship of creditor and debtor the position of the latter was frequently and paradoxically the stronger."⁴³

The importance of this point was not overlooked at the time. An official Russian tract written in answer to criticism of the foreign-reserve accumulation explained that the creditor nations might decide at any time to shut off the flow of new long-term credits, and that "under such circumstances our possession of large money balances abroad represents a mighty weapon of self-defense. The possibility of our free disposal and maneuvering of several hundred million rubles of gold balances on the world money market imparts a strong influence on the course of monetary conditions, the size and real meaning of which is well recognized and taken into account by interested circles. . . . We can, according to our wishes, both impede and facilitate the rotation of the individual wheels of the monetary-settlements mechanism. In this connection it must be noted that the achievement of desired results is insured not only by real actions, but also by 'psychological' influence, the 'calculation of possibilities,' connected with the right of free disposal of large cash sums."⁴⁴ The unreliability of Russian deposits and bill holdings was recognized as early as 1894 by some London observers, who noted that "the market has learnt by experience that the balances of the Russian Government are moved

⁴² I. F. Gindin, *Russkie kommercheskie banki* (1948), p. 255n. One writer has suggested that the Credit Office of the Finance Ministry expressed its relative approval of the behavior of individual private Russian banks through its distribution of the foreign-currency reserve among their respective branches abroad. See A. I. Bukovetskii, "'Svobodnaia nalichnost' i zolotoi zapas tsarskogo pravitel'stva v kontse XIX—nachale XXv.," in Akademia Nauk S.S.S.R., *Monopolii i inostrannyi kapital v Rossii* (1962), p. 371.

⁴³ Olga Crisp, "Some Problems of French Investments in Russian Joint Stock Companies, 1894-1914," *Slavonic and East European Review*, Vol. 35 (December 1956), p. 236.

⁴⁴ Russia, Ministerstvo finansov, *Osobennaia kantseliaria po kreditnoi chasti, K voprosu o "russkom zolotom zapase zagraniitsei"* (1914), pp. 23, 24.

about in a perplexingly capricious way, and are liable to be withdrawn at inopportune times."⁴⁵

The threat of retaliatory withdrawal of funds was also used in at least one instance to secure foreign short-term credits to private Russian banks. During the Moroccan crisis of 1911, monetary tightness prompted the larger English and French banks to abstain from renewing their usual Russian credits. The prospect of an acute shortage of foreign exchange in St. Petersburg threatened to impose large exchange losses on Russian banks. The Government, having previously taken care to place much of its foreign reserve in the same houses that lent heavily to Russia, made deposits in these banks available to Russian banks. The foreign banks, instead of gaining the desired inflows of cash, found that calling in Russian bank paper led only to deposit losses. Thus convinced of the "double-edged consequences" of restricting short-term lending to Russia, the English and French banks were allegedly more inclined to renew such credits thereafter.⁴⁶

The Russian example illustrates two broader historical truths about the spread of key-currency claims. First, it cannot be made intelligible without reference to the international financial structure as a whole, which in turn was greatly influenced by the political currents of the time. Second, the Franco-Russian symbiosis exhibited a dynamic pattern of growing reciprocal commitments between a deposit-accepting center that lent on long term and its deposit-holding debtor. The link between the two created opportunities for the exercise of power on both sides.

Another illustration of the same points is provided by the accumulation of the world's second largest foreign reserve by Japan. While the Yokohama Specie Bank had kept small amounts abroad in the 1880's, Japan's large foreign reserves after the turn of the century were essentially a by-product of her successful wars against China (1895) and Russia (1904-1905). From the former, Japan exacted, in addition to Korean "independence," a convertible-sterling indemnity that was no less than 29 per cent of the value of Japanese national income for

⁴⁵ *Economist*, Vol. LII (November 1894), p. 1,399, as cited in Bloomfield, *Short-term*, p. 27.

⁴⁶ Russia, *Ministerstvo finansov*, *op.cit.*, pp. 24-26. During the same crisis the government reportedly also exerted diplomatic pressure on Germany by threatening to transfer 200 million marks (\$47.6 million) deposited in Berlin to Paris. *Novyi Zhurnal*, vol. XXXVII, p. 282, as cited in James W. Long, "The Economics of the Franco-Russian Alliance, 1904-1906," unpublished doctoral dissertation, University of Wisconsin, June 1968, p. 15n.

1896.⁴⁷ Even after the greater part of this windfall had gone into military spending, and despite a seriously adverse balance of payments around the turn of the century, the remaining London balances were sufficient to keep the yen on a fixed gold parity from 1897 until World War I. A second wave of rapid reserve accumulation was ushered in by Japan's borrowing heavily in the West to finance the Russo-Japanese War. Once again, something less than the full amount raised was spent, and the new higher amounts in foreign banks were maintained for several years. While Japan reaped numerous benefits from her "specie" held abroad,⁴⁸ there is evidence that she retained part of this reserve at the request of its custodians. It has been claimed that secret agreements made with England (and perhaps with other creditors) required Japan not to spend or convert part of the proceeds of the Chinese Indemnity⁴⁹ and the subsequent war loans.⁵⁰ If true, such agreements would again illustrate the use of prohibitions on conversion by London in order to lock in funds that might have drained gold. Concurring evidence is provided by reports in the *Economist* of frequent cooperation between the Japanese Government and the Bank of England from 1905 through 1907. When the Bank of England sought to remove funds from the money market, it persuaded the Japanese to hold deposits in the Bank of England itself; in return it allowed short-run loosening to occur in London markets when large Japanese loans were being floated.⁵¹

The amount and timing of foreign-exchange holding thus reflected a variety of economic motivations and historical circumstances. No one explanatory variable suffices to account for so many different and independent decisions on national reserve policies. The growth and allocation of private international claims, though not taken up here, displayed an equally diversified set of motivations.

There nevertheless seems to have been a broader logic to the evolution of the key-currency system, one that is not inconsistent with the

⁴⁷ Hugh T. Patrick, "External Equilibrium and Internal Convertibility: Finance in Meiji Japan," *Journal of Economic History*, Vol. XXV (June 1965), p. 207.

⁴⁸ For a discussion of the nature of these holdings, see Lindert (1967), pp. 33-48.

⁴⁹ Inouye, *Problems of the Japanese Exchange*, p. 74.

⁵⁰ Ushisaburo Koyabashi, *War and Armaments Loans of Japan* (New York: Oxford University Press, 1922), p. 186.

⁵¹ Sayers, *Bank of England Operations*, pp. 40-43. See also Sir Albert Feavear-year, *The Pound Sterling*, 2nd edition (Oxford: Clarendon Press, 1963), pp. 321-331.

diversity just noted. It may well be that the best answer to the question posed in this section—"Why hold currencies?"—is the common retort: "Why not?" Under the conditions prevailing in the heyday of the "gold standard," should one have expected the international community to confine its international reserves to gold?

This question is provoked by two considerations, both of which have been touched on already. First, the data presented earlier in this chapter suggest that the official exchange balances accounted for perhaps 10 per cent of (non-silver) reserves as early as 1880. Since worldwide adherence to fixed gold parities is best dated only from the 1870's, when silver prices declined and the international operations of the London money market became highly refined, it would seem that foreign-currency holdings played a significant, though by no means leading, role in the external dealings of monetary authorities throughout most or all of the age of international gold. This impression is reinforced by a pattern exhibited by many countries when they first tied their currencies to gold: officials in Germany, Russia, Austria-Hungary, Switzerland, Greece, Rumania, Argentina, and Japan held balances abroad even at the times that monetary reforms placed their respective currencies on a monometallic parity.⁵² In most of these cases the connection between the two developments was quite direct, inasmuch as the same loans or war indemnities enabling the currency to be pegged to gold gave rise to continued foreign-exchange holdings.

Second, the spread of a smoothly functioning system of fixed gold parities and the emergence of London as the world's key money market went hand and hand. The more reliable and widespread became official determination and ability to stabilize exchange rates, the more willing each major country became to deal in the money market of the other. On the other hand, the growing interdependence of international money markets greatly facilitated the stabilization of rates by making international flows of trade and credit more responsive to changes in conditions in individual money markets, and by providing a quicker and cheaper means of stabilization than gold arbitrage could.⁵³ It does not follow that the spread of stable rates had to be accompanied by concentration of international monetary settlements into one or a few key financial centers, but the nature of international gold transactions

⁵² This was not the case, however, for certain other countries, such as Britain, France, and the United States.

⁵³ The present discussion relates only to a context of confidence and absence of "hot money" movements.

and short-term finance brought about such a concentration anyway. The very conservatism of gold-holders and the financial community propels these groups toward the market or two in which the risk of unsatisfactory prices is the least. The markets exercising such attraction have tended to be those advertising the longest tradition and the largest volumes of transactions. And the more gold and capital such markets have attracted, the more established their reputation and the larger their turnover, and so forth. Reinforcing this tendency toward concentration were the lower transport costs implied by one gold market instead of many, the lower administrative and intermediation fees possible in a centralized market, and the greater expertise of brokers and others in a highly specialized money market.

This entire nexus of financial forces produced not only a centralized gold market and a centralized international money market, but a tight link between the two, as one writer accurately observed more than thirty years ago: "... the world-wide adoption of the gold standard not merely led to a growing interdependence of money markets but actually reinforced the integration of the London-centered world credit system. London possessed the world's central gold market. New York, Amsterdam, Berlin, Paris and numerous other centers became more closely tied to London as a central money market since they were tied to gold by stringent legal rules. The possession of sterling balances was the surest means of getting gold when wanted. The London open market was the one place in the world where, especially after the discovery of the extensive Witwatersrand gold deposits in the Transvaal, a constantly growing percentage of the world's rapidly increasing supply of new gold was regularly available, to provide a legal basis for the continuously growing credit requirements of various countries."⁵⁴ In other words, while the gold market regulated the value and flow of currencies, the key-currency markets also helped regulate the value and flow of gold.⁵⁵

Nothing that has just been said should be construed as an assertion that a single force induced all major countries to hold exchange reserves. Nor does the present discussion contradict the earlier observa-

⁵⁴ Carel Jan Smit, "The Pre-War Gold Standard," in the *Proceedings* of the Academy of Political Science, Vol. XVI (April 1934), p. 56.

⁵⁵ Somewhat analogous is the functioning of the bimetallic standard around the middle of the nineteenth century. Much of the stability that it managed to exhibit before the 1870's was due to the fact that one key country, France, stood ready to exchange gold and silver freely at a stable rate. See Leland Yeager, *International Monetary Relations* (New York: Harper and Row, 1966), p. 252.

tion that the other two chief reserve centers challenged London's supremacy just before World War I. Nor, again, is it being claimed that a gold standard must lead to a gold-exchange standard with any predictable speed.

The point is rather that the very success of the gold standard in performing its task of promoting confidence in foreign currencies set the stage for the emergence of a system of currency-reserve manipulation. Monetary authorities still had, and exercised, a wide range of reserve-asset options, of course. Just as some countries preferred to hold currencies as a reserve for obtaining gold when needed, others held gold in the knowledge that they could easily procure currencies. The latter case, in fact, is closer to the official behavior of the three countries upon which most past research has focused—Britain, the United States, and France. Despite all this latitude given national policies, one general observation seems appropriate: because the gold standard achieved its greatest stability only when a network of key international money markets was well established and vice versa, it was precisely when conditions made the gold standard strongest that the arguments against holding exchange balances became weakest.⁵⁶

In this qualified sense, the key-currency system may best be viewed as a "logical" outcome of a successful and stable gold standard. The fact that later experience has lent an aura of instability to this system, which some have chosen to contrast with the apparent stability of the "nineteenth-century gold standard," confronts us with one more of history's ironies. The irony of the rise of a key-currency regime before World War I is underscored by another quantitative implication of the data presented above: the accumulation of liquid claims on major financial centers loomed much larger in relation to the total reserves held by the center countries than in relation to the total reserves of the countries holding these claims. The next chapter turns to this relationship between liquid liabilities and reserves at the center, and investigates its meaning for the basic question of the stability of the international monetary system.

⁵⁶ The inducements to foreign-exchange holding mentioned in the text could be interpreted as promoting either a high *level* of exchange balances or a great *expansion* in their amount. The latter interpretation, which considers such inducements as explanations of the prewar growth of key-currency balances, seems warranted (1) because desires to maintain large foreign balances could be satisfied only by incurring net payments surpluses over a period of years, and (2) it is likely that the advantages of exchange reserves were perceived only gradually by the monetary authorities of some countries.

3. THE CENTER COUNTRIES: DEFICITS AND STABILITY

Reporter: "Why do you have balance-of-payments problems now, when you didn't have them fifty years ago?"

The Hon. Mr. Callaghan: "There were no balance-of-payments problems fifty years ago because there were no balance-of-payments statistics."—Chancellor of the Exchequer's news conference, Washington, D.C., October 3, 1965.⁵⁷

Comparing the growth of known holdings in major currencies to movements in the reserves of Britain, France, and Germany yields minimum estimates of each center's payments deficits and the ratio of its liquid foreign liabilities to its official reserves. The rationale for presenting such measurements decades after the period to which they apply has already been alluded to in the first chapter: although monetary authorities rightly concerned themselves with both domestic and foreign pressures on their reserves, foreigners were, and still are, recognized as a special class of creditors, and greater efforts were made to prevent gold exports than internal drains. Today the same recognition of a special connection between liquid claims of foreigners and the defense of national currencies underlies the attention given to the "liquidity" balance, the "official-settlements" balance, and the external-liquidity ratio.⁵⁸ Transferring the same indicators to the prewar period will serve to set the stage for further investigation of the sources of key-currency stability before 1914 and (in the next chapter) an inquiry into the causes for the appearance of the payments pattern revealed by data for the period 1900-1913.

⁵⁷ George Dixon, "Let's Abolish Statisticians," *Washington Post*, October 4, 1965, p. A21.

⁵⁸ The ratio of certain liquid liabilities to reserves, and the difference between the same two magnitudes (the "overhang" of foreign claims), have frequently been employed as summary measures of a country's external-liquidity position. See, for example, Walther Lederer, *The Balance of Foreign Transactions: Problems of Definition and Measurement*, Special Papers in International Economics No. 5 (Princeton: International Finance Section, 1963), esp. pp. 9-15; Robert Triffin, *Gold and the Dollar Crisis* (New Haven: Yale University Press, 1961), Introduction and Part I; and Peter B. Kenen, "International Liquidity and the Balance of Payments of a Reserve-Currency Country," *Quarterly Journal of Economics*, Vol. LXXIV (November 1960), pp. 572-586.

3.1 DEFICITS

The indicators themselves would hardly support complacency about the defensive position of sterling or of the three key currencies together on the eve of the war. All the gold in the Bank of England and in private English banks in 1913 could not have redeemed that country's liquid foreign liabilities. Even the sterling holdings identified in Table 2 were over two and a half times the size of the Bank's store of gold (\$170 million) and substantially more than this plus the \$200 million or so stored in seventy-six other banks at the time.⁵⁹ When it is further recalled that the data on foreigners' sterling assets are far from complete, the total aggregate amount of sterling held abroad appears to have been a high multiple of the Bank of England's reserve and probably as great as the entire country's gold stock. Even if the exclusion of the colonies' London balances is advocated on the grounds that such balances would never have joined a run on sterling, the fact remains that England's liquid liabilities were far in excess of her total reserves.

It was in England, the "clearing house of the world," that the ratio of liquid external liabilities to gold reserves was apparently the highest. Germany's liquid foreign obligations probably exceeded the Reichsbank's gold and foreign-exchange reserves by a wide margin, in view of the fact that even those few official institutions reporting mark holdings (Table 2) could lay claim to 46 per cent of these reserves at short notice. Germany's total short-term borrowings abroad, to judge from those few "guesstimates" made, were several times greater than the reported gold and vault cash of all German banks. In light of these rough indications, the country's external position may have resembled that of Britain, but the best assumption would be that the external-liquidity ratio of Germany was less unfavorable. France's liquidity position appears to have been much stronger. The Bank of France's gold and exchange holdings (\$805 million) were almost three times the official franc reserves reported for other countries. Whether the full amount of foreign franc balances could have exceeded the value of the Bank's gold and exchange holdings cannot be determined, but any excess of francs outstanding over French reserves, if one existed, would

⁵⁹ Seventy-six banks reported £31.1 million (\$150 million) in gold coin late in June 1913 and £44.5 million (\$220 million) a year later. 1914 Mint Report, as cited in W. Edwards Beach, *British International Gold Movements and Banking Policy, 1881-1913* (Cambridge, Mass.: Harvard University Press, 1935), p. 90n.

probably not have matched the mark or sterling overhangs. What evidence there is further suggests that reserves in all other countries were adequate to cover their liquid foreign indebtedness, with the possible exceptions of the lesser creditor countries—Switzerland, Belgium, and the Netherlands. Having greater amounts of liquid foreign obligations than official reserves⁶⁰ was apparently characteristic only of creditor nations.

A similar picture could have been painted by using current definitions of payments surplus and deficit. Of the two concepts applied here, the liquidity measure, by focusing on the relationship between reserves and liabilities to private as well as official foreigners, is more appropriate to an era in which both private and official holders could convert foreign exchange into gold. The official-settlements balance will nonetheless be applied to the peripheral countries⁶¹ in the next chapter as a proxy indicating the general magnitude of their liquidity balances.

Minimum estimates of British, French, and German deficits are derived for the period 1900-1913 in Table 5. Since the sterling, franc, and mark liabilities not measured here were apparently increasing from the turn of the century on,⁶² the true deficits in each case exceeded the estimates shown. England's imbalance was by far the largest of the three.⁶³ In the case of Germany, it cannot be immediately established whether the country incurred surpluses or deficits over the period as a whole. The outcome, like the magnitude of the British and French

⁶⁰ Private short-term assets have not been added to official reserves here, both because the liquidity and official-settlements definitions of overall balance set changes in them "above the line" (rather than as a deficit-financing item "below the line") and because they were not assets of the institutions directly responsible for currency management. They were, of course, partially manipulable by corrective policies, but the effectiveness of such policies will be taken up separately in the next section of this chapter.

⁶¹ Official-settlements balances are also displayed for the center countries in Table 5 for reference purposes. Though less relevant than liquidity balances for the reasons cited, they are easier to determine.

⁶² The reader is again referred to the discussion of the missing data in Lindert (1967), Chapters 2-4.

⁶³ Even if changes in her liabilities to India and Ceylon were excluded from the calculations on the grounds that these countries would never lose faith in sterling, Britain's annual deficit would be reduced by less than \$9 million and would still be far larger than that of any other country. The findings presented here do not necessarily contradict the statements of other authors to the effect that the "autonomous" items on the British accounts yielded rough balance or surpluses. Their references seem to be either to the sum of current-account and new issues of foreign securities or to all items other than gold flows.

TABLE 5
SUMMARY INTERNATIONAL ACCOUNTS OF GREAT BRITAIN, FRANCE, AND GERMANY, 1900-1913
(annual averages in millions of dollars)

	Great Britain	France	Germany	3 countries combined
(1) Trade balance	-736.6	-51.6	-320.7	-1,108.9
(2) Private specie transactions	-25.2	-47.6	-47.6	-143.0
(3) Invisibles balance	1,330.6	261.9	NA	NA
(4) Current-account balance	568.8	140.1	NA	NA
(5) Long-term capital movements, net decrease in short-term capital abroad, and many errors and omissions	[-589.7] [-E (27.6)]	[-142.1] [-F (27.6)]	NA	NA
(6) Increase in central-bank gold, silver, and foreign-exchange holdings (increase=)	-2.0	-15.7	-15.7	-33.4
(7) Known increase in liquid foreign liabilities	[22.9] [+E (27.6)]	[17.7] [+F (27.6)]	[8.1] [+G (27.6)]	[48.7] [+27.6 (E+F+G)]
(8) Of which, known increase in liquid liabilities to foreign official institutions	[22.9] [+e (10.1)]	[17.7] [+f (10.1)]	[8.1] [+g (10.1)]	[48.7] [+10.1 (e+f+g)]
(9) Minimum liquidity deficit	[20.9] [+E (27.6)]	[2.0] [+F (27.6)]	G (27.6)-7.6	[15.3] [+27.6 (E+F+G)]
(10) Minimum settlements deficit	[20.9] [+e (10.1)]	[2.0] [+f (10.1)]	g (10.1)-7.6	[15.3] [+10.1 (e+f+g)]

SOURCES: (a) For trade, private specie movements, invisibles, and capital movements—Albert H. Imlah, *Economic Elements of the Pax Britannica* (1958), Table 4; Harry D. White, *The French International Accounts, 1880-1913* (Cambridge, Mass.: Harvard University Press, 1933), Tables 5, 16-24; and Harold G. Moulton and Constantine E. McGuire, *Germany's Capacity to Pay* (New York: McGraw-Hill, 1923), p. 27.

(b) For changes in foreign liabilities—Table 3 above.

(c) For changes in gold, silver, and exchange reserves—Bank of England (gold in Issue Department plus gold and silver in Banking Department): U.S. National Monetary Commission, *Statistics for Great Britain, Germany, and France, 1867-1909* (1910), pp. 90ff., and *Bankers' Magazine*, various years. Bank of France: White, *op.cit.*, Table 51. Reichsbank: *Die Reichsbank, 1901-1925* (1926), pp. 16, 17.

NOTES: Rows (4) through (7) and up to zero, Row (5) being the residual.

E = England's share of the unallocated total holdings.

F = France's share of the same.

G = Germany's share.

e, f, g, = the corresponding shares of the unallocated official holdings.

Row (2) = private production of gold and silver minus consumption plus the net decrease in private metal holdings, or, exports minus imports plus the net increase in official specie holdings. The net debit (negative) balances in this row are known to be exaggerated, particularly for France, because the import-biased customs statistics of each country have been used in their derivation.

deficits, depends on the currency distribution of the unallocated holdings and also on the magnitude of the missing liability increases. Complete statistical coverage would probably reveal a liquidity deficit (though perhaps not an official-settlements deficit) for Germany. The country was definitely in deficit for the period 1900-1912 but experienced a large surplus and increases in metallic reserves during 1913.⁶⁴

It is intriguing to note that the ratio of Britain's liquid debt to foreigners to the Bank of England's gold reserves on the eve of World War I could be considered comparable to that prevailing a decade and a half later, on the eve of the collapse of sterling. The 1913 ratio, it will be recalled, exceeded $2\frac{1}{2}:1$ even when only the confirmed sterling holdings of a few foreign institutions were included, and would have loomed much larger had the full extent of private foreign sterling claims been known. In the late 1920's, to judge from the figures of the Macmillan Committee on foreigners' sterling deposits and bill holdings, the same ratio reached a peak of $4\frac{2}{3}:1$ at the end of 1928.⁶⁵ The data are not quite comparable to those for 1913, but when allowance is made for the various differences in coverage and the fact that the December 1928 ratio was apparently a peak value for the period 1927-1930, the conclusion remains that the Bank of England's specie reserves may have compared no more favorably with the country's liquid liabilities in 1913 than on the eve of the interwar financial crisis.

Nor does a statistical comparison with the current position of the dollar provide a basis for nostalgic recollection of sterling's 1913 status. After eight years of serious deterioration in this country's external position, foreign holdings of liquid assets in the United States at the end

⁶⁴ An inspection of the available data suggests that the three-country deficits measured for the period 1900-1913 are truly representative of the annual rates of deficit sustained throughout the years from 1895 on. That is, the figures available for such periods as 1895-1913 or 1900-1912 do not show radically different average balances. Britain individually, and the three countries collectively, may have run surpluses in the late 1890's and in 1908. On the other hand, the deficits in some of the remaining years were considerably above the averages shown in Table 5.

⁶⁵ The figures of the Macmillan Committee include some sterling holdings of London branches of foreign-based banks, which are not strictly international claims, but they may have excluded liabilities to dependent territories (some of which were included in Table 2). The coverage of the 1927-1931 figures is reportedly incomplete (David Williams, "London and the 1931 Financial Crisis," *Economic History Review*, Vol. XV [April 1963], p. 527; and Peter M. Oppenheimer, "Monetary Movements and the International Position of Sterling," *Scottish Journal of Political Economy*, Vol. XIII [February 1966], p. 92), but surely not nearly as incomplete as the 1913 coverage in Table 2 above.

of 1967 still were under two and a half times the official reserves of gold and foreign currencies,⁶⁶ a lower ratio than that reached by Britain in 1913. The absolute dollar amounts involved today are, of course, much greater than the magnitudes before World War I, but the relationship of the growth and extent of the key-currency country's liquid obligations to the size of its official reserves has been broadly similar for the periods 1900-1913 and 1958-1967. Even the large annual payments deficits of the United States of recent years (whether of the liquidity or the official settlements variety) seem smaller when expressed as a percentage of the average reserve level than the true deficits for 1900-1913 must have been.

The pertinence of such numerical indicators to an understanding of prewar international finance remains to be clarified. However ominous the figures may appear out of context, the pound, franc, and mark survived. Although British reserves in particular were frequently labelled inadequate to meet the foreign demands that might be made on them,⁶⁷ confidence in the three key currencies remained unimpaired and no crisis atmosphere developed. The figures in Table 5 nonetheless serve to underline the importance of exploring further (1) the reasons for the ability of central bankers to preserve stability despite the magnitude of their countries' liquid external debts, and (2) the reasons for the persistence of the payments pattern just described, with consideration being given to the possibility that the nature of the key-currency system itself helps to account for this pattern. In addition, the numbers themselves stand as descriptive summary statistics characteristic of international monetary relations in those years. While economists and historians may ultimately agree that "there was nothing basically wrong with the pre-1914 world economy," no "real disequilibrium which [made] a painful and long drawn-out readjustment

⁶⁶ Office of Business Economics, *Survey of Current Business*, Vol. 48 (March 1968), p. 25. The inclusion of the IMF gold-tranche position would lower the liability/reserve ratio slightly.

⁶⁷ See, for example, Walter Bagehot, *Lombard Street* (London: John Murray, 1927 edition), Chapter XII; "Colonial and Foreign Banks in England and the Banking Reserve," *Bankers' Magazine*, Vol. LXIX (March 1900), pp. 353, 356, 363; "Colonial and Foreign Banks with Offices in England," *Bankers' Magazine*, Vol. 87 (March 1909), p. 368; and William F. Spalding, "The Foreign Branch Banks in England and Their Influence on the London Money Market," *Economic Journal*, Vol. XXII (December 1912), p. 620. See also the additional expressions of concern and proposals for international cooperation cited in Arthur I. Bloomfield, *Short-term Capital Movements under the Pre-1914 Gold Standard*, Princeton Studies in International Finance No. 11 (Princeton: International Finance Section, 1963), pp. 33, 88.

all but inevitable,"⁶⁸ any judgment to this effect should be made only in full recognition of Britain's deficits and declining liquidity ratio.

3.2 RESOURCES FOR CURRENCY DEFENSE

The familiar question "What made international monetary relations so tranquil before 1914?" is thus raised once again. Curiosity about this stability is just as valid as—and is enhanced by—curiosity about the instability and breakdown of the interwar system. Neither outcome is rightly regarded as an uninteresting normal result from which the other is an interesting deviation. Although a considerable volume of literature has already dealt with international payments adjustment before 1914, there is reason to feel that our understanding of the subject can be extended further, and some steps in this direction will be attempted here. Like most previous explorations into this realm, the present investigation dwells primarily on the British case, though the implications of British actions for German monetary policy will be examined.

It is on "corrective" and "adjustment" measures,⁶⁹ rather than on additional "financing" or "accommodating" expedients, that one must focus in explaining the control of key central banks over their reserve levels and their respective national currencies. One could, to be sure, choose to add private gold holdings to official reserves as resources for "financing" or "accommodating" temporary deficits, to allow for the possibility that each central bank could have secured emergency authorization to call in domestic gold in exchange for its own liabilities. Such extreme contingencies aside, private gold was not at the direct disposal of central bankers and thus not appropriately included in measuring the "accommodating" asset movements in the balance of payments. In the British case, furthermore, the deficit would remain even if the \$150 million increase in private gold holdings were treated as though it accrued to the Bank of England.

Corrective policy measures before 1914 consisted primarily of the monetary policies of central banks, which in turn relied heavily on changes in discount rates. In the case of England, increases in bank

⁶⁸ Gottfried Haberler, "Integration and Growth of the World Economy in Historical Perspective," *American Economic Review*, Vol. LIV (March 1964), p. 6.

⁶⁹ The semantic distinction sometimes drawn between "corrective" and "adjustment" measures (cf. William Fellner, Fritz Machlup, and Robert Triffin, eds., *Maintaining and Restoring Balance in International Payments* [Princeton: Princeton University Press, 1966], pp. 243-254) is suppressed here, and the two terms are used synonymously. Further clarification of this section's special use of these terms is given in the following footnote.

rate are typically described as improving the balance of payments through some combination of the following four main channels:

- (1) by promoting an inflow of short-term capital;⁷⁰
- (2) by discouraging new issues of long-term foreign securities in London;
- (3) by curtailing London credits to suppliers of imports into Britain, thus forcing them to liquidate inventories at lower prices; and
- (4) by reducing aggregate demand throughout England, thereby lowering prices and incomes and improving the trade balance.

Of the four, the last has generated the most discussion and controversy. The relative importance of price and income effects has been debated, with the latter being given greater emphasis after the onset of Keynesian macroeconomics. Questions have also been raised about the importance of interest rates in affecting real aggregate demand, and about the impact of the resulting changes in prices and incomes on the trade balance.⁷¹ Many authors have also rightly stressed that no major country was compelled before 1914 to subject itself to serious wage cuts for the sake of its competitive position and fixed gold parity. There is little reason to doubt, however, that domestic activity and the trade balance did respond, with varying lags and in varying amounts, in the directions usually assumed.⁷² The main argument against emphasizing this adjustment mechanism is simply that it operated only with lags too great and too uncertain to account for the remarkable smoothness and rapidity with which exchange rates, international gold

⁷⁰ Encouraging the inflow of foreigners' short-term funds is actually a financing measure and not an adjustment measure, according to current payments definitions. The present section, however, focuses on the kinds of short-run adjustments sought most directly by prewar central bankers. That is, "adjustment" here refers to the restoration of desirable exchange rates, the regulation of gold flows, and the maintenance of confidence. The first half of this chapter and the next chapter, by contrast, focus on the measurement and explanation of the rise in liquid foreign liabilities relative to reserves that helped to make speed and delicacy of adjustment essential.

⁷¹ See Alec G. Ford, *The Gold Standard, 1880-1914: Britain and Argentina* (Oxford: Clarendon Press, 1962), Chapters 1, 3, and 4 (especially pp. 11-12).

⁷² This qualified conclusion is consistent with the annual data cited and analyzed by other authors. The most comprehensive works on adjustment and related issues are Ford, *ibid.*, and Alec K. Cairncross, *Home and Foreign Investment, 1870-1913* (Cambridge: Cambridge University Press, 1953). The linkages from bank rate to domestic investment and from domestic spending to the trade balance have been quantified in single-equation regressions by Jan Tinbergen, *Business Cycles in the United Kingdom, 1870-1914* (Amsterdam: North-Holland, 1951), though the standard errors of each coefficient and the degree of serial correlation are not shown.

flows, and the gold reserves of central banks seem to have been altered. The apparent swiftness of adjustment argues instead for concentrating on the short-run (subannual) effects of bank-rate changes. The short-run focus is all the more appropriate because it was the ability of the Bank of England to make its rate increases effective without delay that was crucial in protecting its slim reserves and restoring order in periods of crisis (e.g., the autumns of 1906, 1907, 1910, and 1911).

The third link listed above, the credit squeeze on importers, would presumably have manifested itself more promptly than the overall income and price effects. Since the bill credits being closed tended to be of three months' maturity, the ensuing liquidation of inventories would have had its depressing effect on import prices within, say, six months. In this way, the rest of the world, especially the primary-producing countries, allegedly bore part of the burden of adjusting Britain's position.⁷³

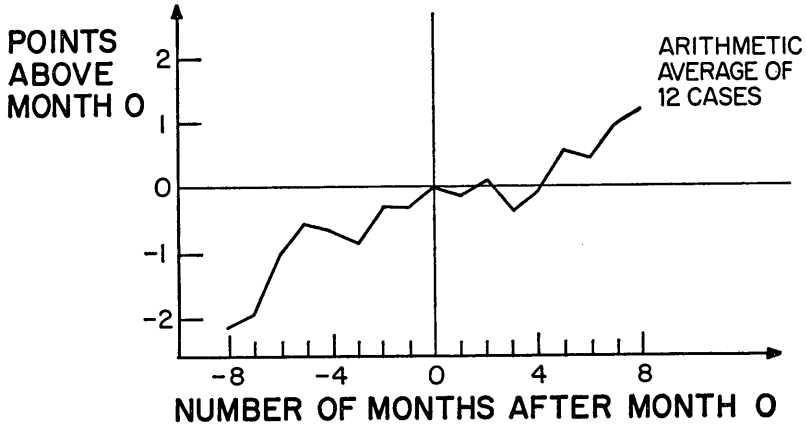
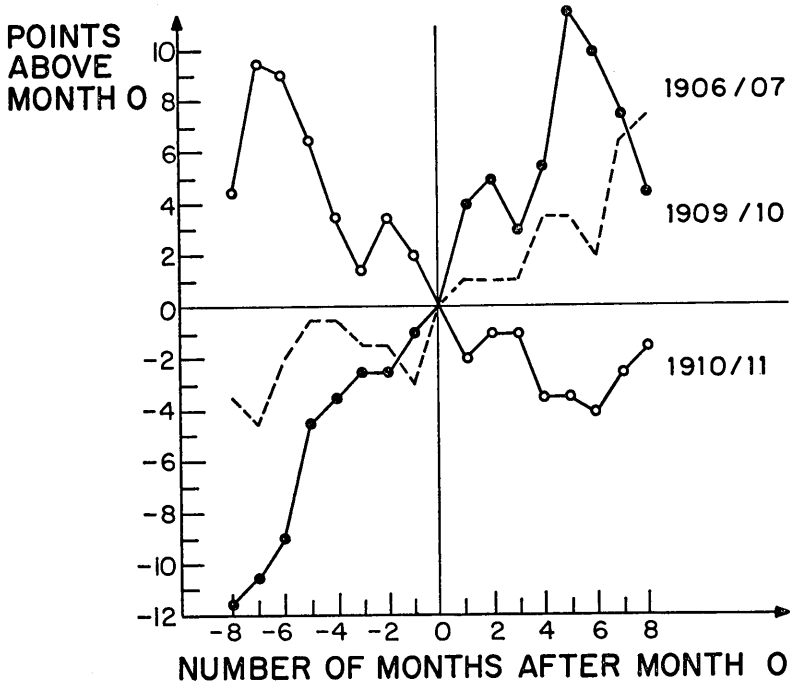
The monthly (and annual) movements of British import prices⁷⁴ fail to reveal the mechanism described. An inspection of a dozen instances in which two extended periods of bank-rate stability were separated by roughly one month in which the rate jumped by 1 per cent or more have uncovered only a minority of (four) cases in which import prices were lower after the increase than before. The average behavior for all of these occasions in fact displays over the months a rising trend on both sides of the rate increase. This import-price average and the diversity of behavior that has contributed to it are plotted in Figure 2.⁷⁵ Even reverting to annual movements uncovers only

⁷³ Robert Triffin, "National Central Banking and the International Economy," in Lloyd A. Metzler, Robert Triffin, and Gottfried Haberler, *International Monetary Policies* (Washington: Federal Reserve Board, 1947), pp. 59-63; also, Triffin, *The Evolution of the International Monetary System*, p. 6; and Peter B. Kenen, *British Monetary Policy and the Balance of Payments* (Cambridge, Mass.: Harvard University Press, 1960), pp. 60-62.

⁷⁴ A. G. Silverman, "Monthly Index Numbers of British Export and Import Prices, 1880-1913," *Review of Economics and Statistics*, Vol. XII (August 1930), pp. 139-148.

⁷⁵ One of the occasions supporting the inventory-liquidation hypothesis was the jump of bank rate from 4½ per cent to 7 per cent in November of 1907, although Professor Ford has noted that import prices had already peaked in September. Ford, "Bank Rate, the British Balance of Payments, and the Burdens of Adjustment, 1870-1914," *Oxford Economic Papers*, Vol. 16 (March 1964), p. 37. Also disconfirmed by first differences in both monthly data and the annual indices of Silverman, Schlotte, and Imlah for 1880-1913 is the related assertion (Triffin, *The Evolution of the International Monetary System*, p. 6) that import prices were more volatile than export prices.

FIG. 2 MONTHLY BRITISH IMPORT PRICES BEFORE AND AFTER SELECTED BANK RATE INCREASES, 1880-1913



(SEE NOTES ON FOLLOWING PAGE)

positive correlation between bank rate and the import-price indices.⁷⁶ If the primary-producing countries bore a large part of the burden of British adjustment, their hardship was apparently not imposed through short-run price declines necessitated by restrictions on the financing of primary-product inventories.⁷⁷

The short-run impact of changes in bank rate on Britain's external payments thus seems to have hinged almost exclusively on capital movements. That funds and gold were attracted from abroad in response to monetary tightening by the Bank is hardly doubted, but few

NOTES: (1) One point equals 1 per cent of the average price level over the period 1890-1904.

(2) All price figures have been adjusted by a seasonal index derived, for each month of the year, from 1880-1913 data.

(3) The 12 cases selected were those between 1880 and 1913 for which an increase of 1 per cent or more in bank rate resulted from rises that tended to occur in a single month, designated as "Month 0," dividing two periods in which the rate was practically stable for eight months. The twelve key months all coincided with the famous "autumnal drain":

October	1884	October	1906
September	1889	November	1907
October	1906	October	1909
October	1899	October	1910
October	1902	September	1911
September	1905	October	1912

The specific dates for rate changes are listed in John H. Clapham, *The Bank of England* (Cambridge; The University Press, 1945), Vol. 2, Appendix B. The four cases supporting the import-liquidation hypothesis are those of October 1884, September 1889, November 1907, and October 1910.

(4) The import price data were taken from Silverman, *op.cit.*

⁷⁶ For breakdowns of the overall import-price index into major commodity classifications, see Silverman, *op.cit.*, and Werner Schlote, *British Overseas Trade*, translated by W. O. Henderson and W. H. Chaloner (Oxford: Blackwell, 1962), Table 26.

⁷⁷ Appreciation of this point seems to have been marred by an inappropriate reliance on annual data and by a tendency to turn too quickly from a discussion of import prices to an examination of the net barter terms of trade. The fact that export prices rose by even more than import prices over a year in which bank rate rose does not demonstrate that tighter money forced overseas traders to offer imports for less.

The possibilities for empirical confirmation of the import-liquidation hypothesis have not been entirely exhausted, however. It may be possible to generate a significantly negative coefficient relating monthly import prices to bank rate in a multi-equation model that allows for several outside influences. Such a test might determine whether the mechanism described was essentially nonexistent or simply small enough to be swamped by the cyclical forces with which bank-rate hikes were usually associated. See Ford, "Bank Rate, the British Balance of Payments, and the Burdens of Adjustment, 1870-1914," p. 30.

of the specifics are firmly established. Regarding the role of London flotation of long-term foreign securities (the second channel mentioned above), it is believed that a rate increase was a sufficient "hint from headquarters" to induce banks⁷⁸ to postpone new issues for extended periods. This link appears to have been operative during the tightness of 1899-1900 and again in 1906-1907.⁷⁹ The timing and extent of the balance-of-payments relief provided in this way are not clear. Cur-tailing the flow of new issues may have reduced placements and sub-scriptions immediately, but the changes in "money calls" and in dis-bursements by the borrowers may have occurred with varying lags. Only when shifts were realized in the extent to which loan proceeds were being exchanged for other currencies and gold would the ex-change rates and gold flows scrutinized by central bankers be af-fected.⁸⁰

The explanatory power of the new-issues link is also mitigated by the geographical separation of the recipients of long-term British cap-ital from the sphere that seems most important to short-run British adjustment. Reduced borrowing opportunities in the Western Hem-isphere, Japan, and the colonies—the principal overseas borrowers—cannot account for the fact that it was the exchange rates and gold flows between England and the Continent that responded most quickly and favorably to bank rate.⁸¹ For this pattern the best explanation seems to be one emphasizing the movement of short-term funds be-tween London and European financial centers.

The consensus that exists regarding the ability of a high bank rate to draw short-term capital from other centers leads to a series of un-answered questions: From what centers did the funds and gold come? What countries' liabilities were offered at lower sterling prices after a higher rate was posted on Threadneedle Street? The tendency of an-

⁷⁸ The greater part of the value of new foreign issues was supervised and under-written by the banking sector. See the figures cited in Thomas Balogh, *Studies in Financial Organization* (Cambridge: Cambridge University Press, 1950), p. 233.

⁷⁹ Ford, *The Gold Standard, 1880-1914*, Chapter IV.

⁸⁰ Two different types of payments improvement are at stake when long-term lending is being cut. Improvements in formal payments accounts occur as soon as the flow of funds into the hands of foreign residents abates, whereas improve-ments in the foreign-exchange market wait upon the other changes mentioned.

⁸¹ The data for regional gold flow are shown in Ford, *The Gold Standard, 1880-1914*, Chapter II; exchange rates are treated below. To be sure, triangular trans-actions could link reductions in overseas borrowing with changes in gold flows to the Continent. But such a link would have involved greater time-lags than those exhibited by the response of exchange rates.

nual net gold flows across the Channel to be especially responsive to bank-rate averages raises the question whether adjustment in London was carried out at the expense of Berlin and Paris, the other two principal centers. If so, severe strains would have been passed from center to center in a short-run crisis as central banks competed for internationally mobile funds. If, on the other hand, tightening in one or more of the principal financial centers led to a large enough inflow from the periphery to all three to prevent serious reserve losses in each center, this characteristic of the financial structure would help to account for the resilience of the system in the face of Britain's annual "autumnal drain," several war scares, and the American financial crisis of 1907.

If movements in bank rate exercised great power over international short-term capital, was it great enough to outweigh the opposite force of equal discount-rate changes elsewhere, or was the attractive power of tightening by the Bank of England dependent on relative inaction on the part of other central banks? Even in the periods in which Britain raised bank rate most strenuously, accompanying Continental rate hikes, many of them defensive reactions, kept changes in international interest differentials well below the changes in England's bank rate.⁸² The question of international asymmetry in the pulling power of discount rates is made even more interesting by the fact that the usual expositions of theoretical and empirical connections between interest rates and short-term capital movements reach conclusions somewhat at odds with the descriptions of the position of London before 1914. On the one hand, it is typically either assumed or shown that short-term capital and exchange rates respond to interest-rate differentials, the implication being that the influence of an increase of 1 per cent in one country's interest rate would be exactly offset by an equal increase in that of the other country. On the other hand, most of the

⁸² The principal European exceptions were France, Italy, Spain, and Portugal, whose discount rates were seldom changed. In these countries special institutional barriers limited outflows of short-term funds.

The focus on Anglo-European interactions in what follows does not imply that short-run financial connections with other continents can be ignored. The fact that several important American, Asian, and Australian countries lacked central banks and discount policies indeed suggests that London may have gained significant inflows of short-term capital from them on occasion (especially from the United States in 1908). Aside from the dollar, however, the currencies most actively traded in London, Berlin, and Paris were the European currencies, which seem to merit the most attention here.

literature on the workings of the gold standard before World War I explains that the undeniable dominance of London meant that "other countries had, therefore, to adjust their conditions to hers."⁸³ One reason offered for the latter view is that London as a lending center had more control over flows to each borrowing country than that country. Another explanation, consistent with the first, is that England was a heavy net short-term creditor by the last prewar decade, and that a general monetary tightening would bring more funds back to London than would be repatriated by other centers.

These issues deserve further investigation, despite the paucity of data. Some tentative and incomplete answers are attempted here, some of which have been anticipated by other writers. The short-run influence of discount rates on the movement of funds should be investigated by examining movements in short-term claims, in exchange rates, and in gold flows. Unfortunately, only exchange-rate figures can be employed here. None of the data on currency holdings referred to in Chapter 2 were published for more than one date per year. In addition, most of the series on foreign-exchange assets measure official holdings, which are not likely to reflect the aggregate response to changes in discount rates. Annual data on bilateral gold flows are notoriously inaccurate, and casual examination of the *Economist's* weekly data on gold shipments suggests that no more precision can be expected of these.

It is thus monthly data on exchange rates that will be related to discount rates in order to test for the existence of inequalities in the pulling powers of different central banks. Resorting to exchange-rate data implies greater concern over the extent of central bankers' ability to move the exchanges toward the gold import point than over the amount of short-term funds being transferred. Although it is assumed that the initial response of exchange rates to discount rates⁸⁴ represents a shifting of short-term capital, there is no direct way to confirm this.

Since no instances could be found in which discount rates in most European centers simultaneously rose by the same percentage,⁸⁵ linear

⁸³ Great Britain, Committee on Finance and Industry, *Report* [the "Macmillan Report"] (London, H.M.S.O., 1931), Command 3897, p. 125.

⁸⁴ Monthly averages for discount rates themselves will be used, instead of market bill rates, both because the issues raised concern policy effectiveness and because it has been asserted that part of the influence of discount-rate increases on international capital was psychological and independent of the response of private rates.

⁸⁵ A case approaching this description is shown in Figure 4 below.

regressions have been employed. For any pair of countries in Month t the bilateral exchange rate is assumed to be governed by the equation

$$E_t = a_0 + a_1 R_{1t} + a_2 R_{2t} + u_t,$$

where E is the price of the first country's currency in the units of the second, the a 's are constants, the R 's represent the discount rates of each country, and u is a disturbance term. Reliance on time-series data requires that the hypothesis allow for autocorrelation. It is thus hypothesized that

$$u_t = r u_{t-1} + e_t,$$

where r is an autocorrelation coefficient estimated from a preliminary regression not adjusted for serial correlation, and e is a well-behaved random error. If one of the two central banks commanded greater influence over the exchange, a significant difference would appear between a_1 and a_2 .

To facilitate concentration upon this issue of inequality, the hypothesis can be conveniently restated as

$$E_t = b_0 + b_1 R_{1t} + b_2 D_{21t} + u_t,$$

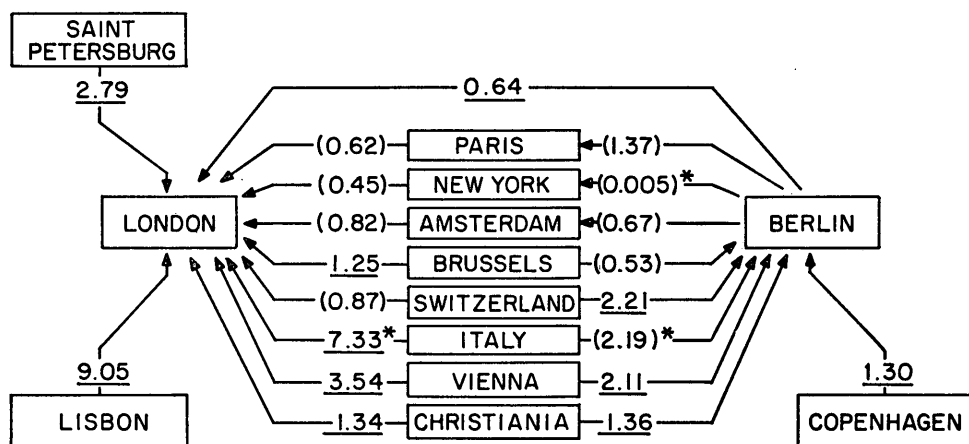
where $D_{21} = R_2 - R_1$ is the discount-rate differential and the b 's are new constants such that $b_0 = a_0$, $b_1 = a_1 + a_2$, and $b_2 = a_2$. If b_1 proves significantly positive, the first country's discount policy holds greater sway over the exchanges; if it is significantly negative, the second country possesses more power. If b_1 is not significantly different from zero, one cannot reject the hypothesis that discount rates affect the exchange rate with equal power, through the differential D_{21} .⁸⁶

The b_1 coefficients from twenty such regressions are displayed in Figure 3. The issues of prime concern are whether the b_1 coefficients displayed were significantly different from zero, and whether a pattern can be observed in the ranking of their magnitudes (measured in thousandths of par). To answer these limited questions, it is not necessary to "explain" a large percentage of the total variation in monthly exchange rates. More serious is the fact that the asymmetry coefficients (the b_1 's) relating London and Berlin to centers other than Paris and

⁸⁶ One would expect the coefficient b_2 to be negative, although estimation bias prevents confirmation of this in several cases.

An appendix presenting and discussing the regressions cited in Figure 3 has been omitted in order to conserve space. It may be obtained from the author upon request.

FIG. 3 ASYMMETRIES IN THE INFLUENCE OF DISCOUNT RATES ON EXCHANGE RATES, VARIOUS PAIRS OF COUNTRIES AND SAMPLE PERIODS, 1899 - 1913



NOTE: Each figure represents the extent to which the exchange rate would tend to move in favor of the center to which the arrow points if all discount rates were raised by 1 per cent. Numbers in *parentheses* were not significant at the 5 per cent level, whereas those *underlined* were significant. The figures given *asterisks* come from regressions still containing some positive autocorrelation of residuals, with the result that their variances have been underestimated. All figures are measured in thousandths of par.

New York⁸⁷ are probably underestimates. Central banks in smaller countries were repeatedly compelled to post higher rates when the key-currency rates had become unfavorable. This unspecified positive dependence of peripheral discount rates on high, previous prices of sterling and marks would impart a downward bias in the size of exchange movement to be credited to rate increases by the Bank of England and the Reichsbank. The likelihood of such downward bias in the estimates of b_1 , however, does not invalidate the few limited inferences to be drawn here.

⁸⁷ In the cases of New York, where no central bank existed, and Lisbon, where the discount rate never changed in the sample period, the discount-rate differential term ($b_2 D_{21}$) was simply omitted.

The Bank of England clearly enjoyed a short-run command over most of the sterling exchanges even without changes in international interest-rate differentials. This was especially true of the exchange rates relating London to centers with very shallow money markets.⁸⁸ London also enjoyed hegemony among the three main centers, although her supremacy was less pronounced. She had a clear edge on Berlin, and a more ambiguous advantage over Paris. The behavior of the franc-mark rate suggests greater influence on the part of Paris, although the coefficient in question did not quite prove significant.

The England-France-Germany ranking (which happens to match their rankings according to size of liquidity deficit) prompts speculation that the inequalities among the three centers were related to the pattern of bill lending. English institutions typically carried a large volume of German bills,⁸⁹ and French banks extended credit to Germany *en pension*.⁹⁰ Less mention has been made of German holdings of sterling and franc bills, and a tendency to be a net debtor in short-term bills may have contributed to the weakness of the Reichsbank relative to the Bank of England and the Bank of France.

If periods of international tightness tended to cause Berlin to lose funds to London and perhaps to Paris, how were German money markets and reserves affected? The exchange rates for which data were available suggest that the link with the peripheral countries may have facilitated German adjustment to London-led credit squeezes. No center other than London possessed a clear drawing advantage over Berlin, which was able to evoke large shifts in exchange rates with small neighboring countries with shallow money markets (Vienna, Copenhagen, Christiania, and the Swiss centers). The coefficients in Figure 3, however, measure exchange-rate responses and not the gold and paper flows, so that one cannot determine the extent to which the losses of reserves and liquidity occasioned by outflows to London were offset by inflows from smaller countries. The available exchange-rate figures, at any rate, imply that tighter discount policy

⁸⁸ The high coefficient relating to the sterling-escudo rate seems to reflect the extraordinary width of fluctuations made possible by the fact that Portugal failed to maintain parity.

⁸⁹ Lord Brand estimated that London bill credits to Germany neared £70 million (\$340 million) in the last few prewar years. *War and National Finance* (1921), p. 25, as cited in Bloomfield, *Short-term*, p. 72, and E. Victor Morgan, *Studies in British Financial Policy, 1914-1925* (London: Macmillan, 1952). p. 333.

⁹⁰ See Bloomfield, *Short-term*, Chapter III.

in London, even when initiated elsewhere, set off waves of short-run (and presumably short-term) flows of capital toward the center of the international financial system from the periphery.⁹¹ This pattern of short-run adjustment complements the international distribution of long-run surpluses and deficits sketched in the following chapter (Table 6): the peripheral countries, virtually all of which ran payments surpluses between 1900 and 1913, also experienced shorter-run outflows of capital and deteriorations in exchange rates, which testified to the ability of the center countries to stem their own outflows.

Germany's intermediate position in the hierarchy of short-run command over the exchanges was illustrated in a specific instance in which discount rates in Germany and several other countries rose simultaneously. On September 19, 1911, late in the Moroccan crisis, the Reichsbank raised its discount rate by 1 per cent,⁹² and the Bank of England and over half a dozen Continental central banks quickly followed suit (some with only half-point hikes). Figure 4 charts the movement of eleven exchange rates in the wake of these increases.⁹³ The rates on London and Paris, already below par for some time, moved even further against Berlin over the following weeks. The rates on most of the other centers, however, were generally better than their positions of September 18 (before the discount rate increases) for at least a month, the exceptions being Brussels, New York, and Switzerland.⁹⁴ It would appear that the Reichsbank was able to turn peripheral rates slightly to Germany's favor while the

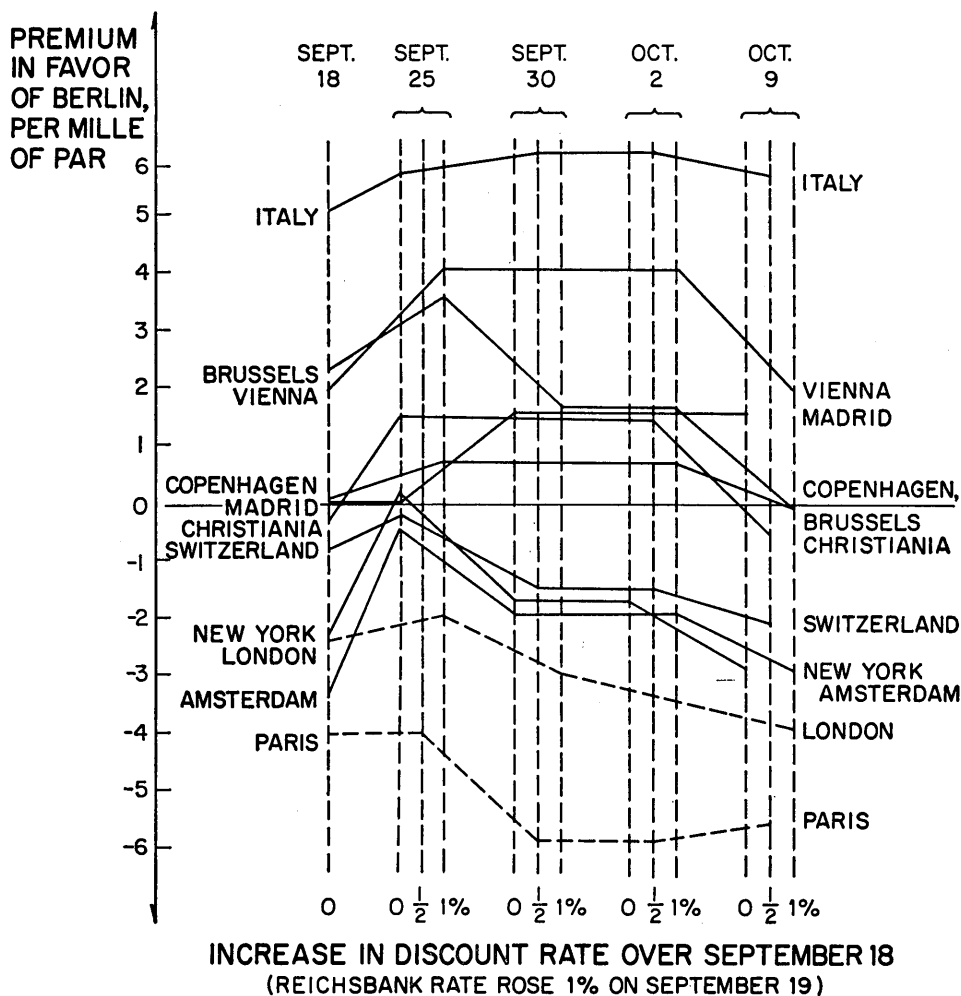
⁹¹ If the present hypothesis is correct, monthly data should also reveal asymmetries favoring Germany over Rumania, Finland, and Sweden, and France over Belgium, Switzerland, Italy, and Russia.

⁹² Probable key factors in the Reichsbank's decision were concern over actual and threatened withdrawals of French balances from Germany, and the perennial heavy dependence of German banks on advances from abroad at the end of the September quarter. See *Bankers' Magazine* (London), Vol. XCII (October 1911), p. 529; *Economist*, Vol. 73 (September 1911), pp. 571 and 615.

⁹³ The exchange-rate data in Figure 4 have been taken from *Die Bank*. The rates on London, Paris, and New York are sight rates. Interest components have been removed from the bill rates on the remaining centers with the use of weekly market bill-rate data for each borrowing center from the *Economist*.

⁹⁴ The rates for October 16 (not shown in Figure 4) corresponded more closely to the September 30–October 2 pattern than did the October 9 figures. The drop in Germany's position around the last date seems partly explained by the special unwillingness of Lombard Street to accept bills drawn on Germany that week, a temporary condition which threw a large volume of German bills back onto the Berlin market. It is possible that the drop in several exchange rates reflected reaction to this disruption. See *Bankers' Magazine* (London), Vol. XCII (November 1911), p. 649.

FIG. 4 BERLIN EXCHANGE RATES AND OFFICIAL DISCOUNT RATES, SEPTEMBER-OCTOBER 1911



NOTE: Bill rates have been converted into implied sight rates by removing an interest component. The Madrid rates are expressed per mille of the September 18 value, since the peseta was well below its nominal par value.

rates on the principal centers were deteriorating owing to the repatriation of credits from Germany.⁹⁵

Accounting for the extra short-run leverage of larger financial centers requires that the vague contemporary allusions to their cosmopolitan role be supplemented with some *a priori* reasoning. It is impossible to determine empirically which kinds of claims were most responsive to higher discount rates. In particular, little can be said with certainty about the relative amplitudes of response of finance bills, commercial bills, outstanding long-term securities, deposits, and current accounts.⁹⁶ More can be surmised, however, about the sources of international *asymmetry* in influence over short-term capital than about the absolute responsiveness of different kinds of claims to interest-rate differentials.

If interest rates were rising by the same percentages throughout Europe, nonbank asset holders would presumably find little reason to shift their short-term paper holdings from one center to another. That is, *a priori* theorizing would lead one to expect that the share of their liquid portfolios would not be significantly altered by rising interest rates as long as international differentials remained unchanged. It would be otherwise with bankers and acceptance houses, however, if discount-rate increases in all countries were involved. For the private banking sector, a rise in the official discount rate meant both that the cost of securing extra reserves by rediscounting bills was raised and also that a general scarcity of reserves might arise from supplementary central-bank measures designed to contract credit (central-bank borrowing, open-market sales of government securities, etc.). Such times would produce (and did in the period under investigation) a general cautiousness, a general tendency to shift toward more liquid holdings. If short-term foreign assets were viewed as liquid reserves, the banking sector would tend to increase their share of its (shrinking) portfolio as markets tightened; if foreign assets were considered less liquid and were held more for their high-interest yields, their share would fall.

The tendency to liquidate in periods of increasing tightness suggests that even if each major center had been neither a net short-term debtor nor a net short-term creditor, flows of capital toward

⁹⁵ See *Economist*, Vol. 73 (October 1911), p. 813; and Bloomfield, *Short-term*, p. 86.

⁹⁶ For a careful and balanced treatment of the meager evidence available on these matters, see *ibid.*, pp. 74-76.

larger and more prestigious centers should have been expected when discount rates rose together. The commercial and financial bills which predominated in the short-term foreign portfolios of London banks were less liquid (and less held as "reserves") than the sterling assets held by overseas banks.⁹⁷ Indeed, in every case in which Figure 3 above reveals a significant inequality in influence over an exchange rate, the available evidence seems to cast the country with the greater leverage in the role of a bill lender and deposit debtor vis-à-vis the other country.⁹⁸

If correct, such reasoning would make unnecessary a questionable but frequent assertion about the position of London just before 1914. A number of authorities, including the Macmillan Committee and Keynes, have stated categorically that the country was a net creditor by a wide margin in 1913, and that this position accounts for the short-term power that the Bank of England possessed over the exchanges.⁹⁹ Although it has seldom been argued that Britain was a net short-term debtor,¹⁰⁰ serious doubt has been cast on the view that her ready claims abroad greatly exceeded the corresponding liabilities.¹⁰¹ It is worth noting that other statements by the Macmillan Committee and

⁹⁷ The latter consisted primarily of deposits, which paid interest about 1½ per cent below bank rate, and current accounts, which generally paid no interest. By contrast, private foreign bills were discounted in London at or near bank rate. Balogh, *Studies in Financial Organization*, p. 90.

⁹⁸ That is, of the two sets of claims on one country by banks in the other, the one with a lower proportion of current-account and deposit claims was that held by the country with the advantage in influencing the exchanges. The one uncertain case is that relating Switzerland to Germany.

Consistent with the hierarchical patterns described in the text is a similar one relating to official foreign-exchange reserves: in each case of significant asymmetry in influence the less powerful center held a much greater share of its exchange reserves in Germany (and, of course, in London) than vice versa (see Table 2).

⁹⁹ Great Britain, Committee on Finance and Industry, *Report* (1931), p. 125; Morgan, *Studies in British Financial Policy, 1914-1925*, p. 332; Cairncross, *Home and Foreign Investment, 1870-1913*, p. 186 (citing Sykes, *Banking and Currency*); and Williams, "London and the 1931 Financial Crisis," p. 515n.

¹⁰⁰ London's holdings of bills on foreign places were estimated to have fallen far short of the level of foreign-held claims on London, by the sources cited in Karl Strasser, *Die deutschen Banken im Ausland* (Munich: Ernst Reinhardt, 1925), p. 49. The basis for these estimates is not clear.

¹⁰¹ Bloomfield, *Short-term*, pp. 73, 74; *idem*, *Monetary Policy under the International Gold Standard, 1880-1914* (New York: Federal Reserve Bank of New York, 1959), p. 42n; and Peter M. Oppenheimer, "Monetary Movements and the International Position of Sterling," *Scottish Journal of Political Economy*, Vol. XIII (February 1966), pp. 92-95.

Keynes reveal that these sources were far from certain on the matter.¹⁰² The evidence on England's net short-term creditor position¹⁰³ and the implication that such a position added to the potency of adjustment policies are generally unconvincing, and firm judgments are not warranted. Furthermore, as was just noted, it is not necessary to erect an argument based on supposed short-term creditor positions for England, France, and Germany when the very nature of their short-term assets and liabilities suggests a simpler and more plausible hypothesis. Their ability to adjust in the short run was no more dependent on an aggregate net short-term creditor position than it was on stability of official discount rates in other centers.

It is thus on manipulation of short-term flows of capital that the impressive ability of the major centers to adjust exchange rates and gold flows in the short run seems to have rested. Quantification of the influence of different countries' discount rates over exchange rates reveals that larger financial centers tended to have greater command over each exchange rate than each smaller center, the Bank of England controlling the sterling-mark exchanges more effectively than the Reichsbank, while the latter had greater power than peripheral Continental countries over their mark rates. Through this hierarchy, the impact of monetary tightness in London was promptly shifted to the same peripheral countries that will later be shown to have incurred long-run payments surpluses. The ability of the system to tap surplus-country funds in support of key currencies seems to have contributed to the stability of, and confidence in, the key-currency system before 1914.

¹⁰² See Committee on Finance and Industry, *Report*, p. 150; and John Maynard Keynes, *A Treatise on Money* (New York: Harcourt Brace, 1930), Vol. II, p. 317.

¹⁰³ See Lindert (1967) for further discussion of the stamp-duty returns sometimes used to estimate Britain's foreign-bill holdings (pp. 175-179), the relationship of the exchange movements of August 1914 to England's short-term balance (p. 256, note 25), and the short-term positions of France and Germany (pp. 243-244).

4. THE LONG AND THE SHORT: FINANCIAL INTERMEDIATION AND THE BALANCE OF PAYMENTS

The rough payments statistics presented for Britain, France, and Germany not only promote curiosity about the factors enabling the major centers to respond quickly and effectively to any reserve losses, but also raise the question of causes for the pattern exhibited. Why did Britain (and the three main creditor countries as a group) incur payments deficits and a declining ratio of reserves to liquid foreign liabilities? Is it possible to identify basic forces without which the deficit pattern would not have appeared? If so, through what credit and debit accounts was their payments impact transmitted? A prime reason for posing these questions here is, of course, the observation of a broad statistical similarity between the 1900-1913 payments position of Great Britain and that of the United States since 1958.

4.1 THE FINANCIAL-INTERMEDIATION HYPOTHESIS

Since the years 1900-1913 and the years since 1958 stand out as two periods in which an expansive and relatively integrated world economy revolved around a cosmopolitan financial center, it is natural to ask whether financial activities underlay the deficits of the center countries. Precisely this sort of connection has been singled out by a distinguished group of economists as an explanation of a decade of recent American deficits. Dollars flow out, the argument runs, because the United States performs the services of a "world banker" or "financial intermediary."¹⁰⁴ The characteristics of a world-banker nation are

¹⁰⁴ See Emile Despres, Charles P. Kindleberger, and Walter S. Salant, "The Dollar and World Liquidity: A Minority View," *The Economist*, Vol. 218 (February 5, 1966), pp. 526-529; Charles P. Kindleberger, *Balance of Payments Deficits and the International Market for Liquidity*, Essays in International Finance No. 46 (Princeton: International Finance Section, 1965); Kindleberger, "Capital Movements and International Payments Adjustment," *Konjunkturpolitik* (Berlin), 12 Jahrg., 1 Heft (1966), pp. 10-30; Walter Salant, "Capital Markets and the Balance of Payments of a Financial Center," pp. 177-196, in Fellner, Machlup, and Triffin, eds., *Maintaining and Restoring Balance in International Payments* (Princeton: Princeton University Press, 1966); the testimony of Despres and Salant in United States Congress, Joint Economic Committee, Subcommittee in International Exchange and Payments, *New Approach to United States International Economic Policy* (Washington: Government Printing Office, September 9, 1966); and Kindleberger, *The Politics of International Money and World Language*, Essays in International Finance No. 61 (Princeton: International Finance Section, 1967).

For different reasons George N. Halm has asserted that "it is a perfectly natural

considered analogous to those of a domestic bank or group of banks. The United States, like Britain before 1914, stands at the center of the world financial structure, intermediating between savers and investors. It lends on long-term, borrows on short-term, reaps interest and dividend incomes, and maintains (official) surveillance over the ratio of its liquid liabilities to its reserves. In the process, savers benefit by having convenient and liquid assets to hold, while investors find long-term credit more available than would have been the case in the absence of the financial intermediation.

From this financial pattern deficits seem to follow quite naturally. By lending long to European and other foreign investors and borrowing short from liquidity-minded savers, the United States has increased her liquid liabilities while becoming an even greater overall net creditor. The growth in liquid liabilities, not offset by corresponding inflows of gold, has meant that the country has been in deficit on the liquidity definition. The pairing of long-term outflows of capital with short-term inflows has been the result of (1) the greater efficiency (that is, lower margins) of financial intermediation in New York, and (2) the greater differentials between long- and short-term interest rates abroad, which reflects differences in rates of return on capital formation and differences in savers' liquidity preferences. Since the deficits have thus been generated by forces that operate through relatively free markets, they allegedly reflect an "equilibrium" condition. From these observations, Messrs. Depres, Kindleberger, and Salant have proceeded to a bold policy conclusion: "Since the U.S. 'deficit' is the result of liquidity exchanges or financial intermediation, it will persist as long as capital movements are free, European capital markets remain narrower and less competitive than that of the United States, liquidity preferences differ between the United States and Europe, and capital formation in Western Europe remains vigorous.

state for a key currency country to be in balance of payments deficit." "Special Problems of a Key Currency Country in Balance of Payments Deficit," in United States Congress, Joint Economic Committee, *Factors Affecting the United States Balance of Payments* (Washington: Government Printing Office, 1962), p. 548.

For more skeptical views, see Peter B. Kenen, "Toward an Atlantic Capital Market," *Lloyds Bank Review*, No. 69 (July 1963), pp. 15-17; and Robert Triffin, *The Balance of Payments and the Foreign Investment Position of the United States*, Essays in International Finance No. 55 (Princeton: International Finance Section, 1966), pp. 9-13.

In these circumstances, an effort to adjust the current account to capital outflow is futile."¹⁰⁵

A careful reader, however, should at this point react with a certain amount of healthy skepticism. The hypothesis seems too bold and obvious, and may be guilty of proving too much. Indeed, even the most casual recollection of past literature on the balance of payments of the United States encourages this suspicion. Before agreeing that the deficits are inherent or intractable, one should recall that our libraries are amply endowed with books and articles from the 1950's defending belief in the permanence of an equally serious "dollar shortage." The importance of the "dollar shortage" literature for present research has been aptly summarized by Professor Yeager: "If the whole discussion now seems hopelessly dated, this very fact suggests an object lesson worth emphasizing. Fashionable and excessively ingenious theories that read deep-seated significance into temporary conditions do not deserve quiet oblivion as soon as brute facts crush them; they should be remembered to permit recognizing their counterparts in the future."¹⁰⁶

If the financial-intermediation hypothesis is to avoid the fate of the "dollar shortage" theorizing, it must be stated with a subtlety and precision that is appropriate to the complexity of the issue. As it stands, the assertion that intermediation causes deficits can be either a truism, a significant empirical truth, or a fallacy. For example, if the phrase "financial intermediation" is interpreted as including a rise in liquid liabilities exceeding the absolute value of increases in reserves held against these obligations, deficits follow *by definition*. The hypothesis can be rendered meaningful only if financial intermediation is so defined as to avoid such truisms. Similarly, the assertion (quoted above) that persistent intermediation entails persistent deficits fails to stipulate how vigorous foreign-capital formation must be (or how narrow the foreign-capital markets must be, etc.) to assure the predicted imbalance. The reader is left with the unhelpful inference that if conditions produce enough financial activity to generate deficits, deficits will result.

Yet the question raised by this hypothesis is no less compelling because its answer remains uncertain. The durability of deficits of the

¹⁰⁵ "The Dollar and World Liquidity: A Minority View," *Economist*, Vol. 218 (February 5, 1966), p. 527.

¹⁰⁶ Leland B. Yeager, *International Monetary Relations* (New York: Harper and Row, 1966), p. 458.

United States in the face of repeated attempts to eliminate them, like the apparent magnitude of Britain's pre-1914 imbalance and the inter-war financial collapse, lends undeniable importance and appeal to the hypothesis advanced by Messrs. Despres, Kindleberger, and Salant. The scope of the issue is too great for thorough treatment in the present study, but some initial empirical results can be offered. The present chapter will concentrate on testing the financial-intermediation hypothesis by examining the 1900-1913 experience in broad outline.

A necessary first step is to clarify the empirical meaning for the phrase "financial intermediation." The clearest definition is the simple statement that "intermediation consists of the purchase of long-term securities and the provision of liquid assets."¹⁰⁷ Since nations performing this function on a large scale have also been the world's financial centers, the liquid assets provided have naturally been bills and banking claims against that country itself. But a useful definition of intermediation should focus upon the *provision* of liquid assets, rather than upon their retention by foreigners. The existence of intermediation should not depend critically upon the use to which the liquid funds are put. It is awkward to say that intermediation is being performed only as long as the liquid claims are still held abroad, and to say that when foreigners exchange the funds for goods and services from the center country international intermediation is transformed into a "real transfer" (exporting on credit). It seems more fruitful to concentrate on the original long-short exchanges and the motivations attending them, rather than upon the subsequent disposal of the proceeds of intermediation.

In other words, a distinction between "intermediation" and "lending" does not seem essential here.¹⁰⁸ Once this judgment is made, the

¹⁰⁷ Salant, "Capital Markets and the Balance of Payments of a Financial Center," pp. 179-180.

¹⁰⁸ Readers of an earlier draft have objected at this point that the intermediation hypothesis differs from the text's operational assertion about the payments impact of capital flows. Instead, their argument runs, what Despres, Kindleberger, and Salant wish to establish is simply that liquidity deficits are normal and respectable and imply no "disequilibrium" in the balances of payments of financial centers; a neutral liquidity balance is thus a poor indicator of "equilibrium."

This formulation evokes three responses: (1) It allows the hypothesis to remain a truism. I prefer the causally significant interpretation given here, which has the advantage of separating the effects of the capital transactions themselves from related but distinct characteristics of financial centers. (2) No attempt is made here to dispute the "normality" of center-country deficits. The data presented in this study are entirely consistent with such a description. Similarly, it is not denied

intermediation hypothesis becomes equivalent to the assertion that the capital exports of a world-banker nation are sufficient to explain its payments deficits. The remainder of this chapter, in testing this proposition, will reach three main conclusions:

- (1) When all repercussions are taken into account, the financial transactions undertaken by Britain in the pre-1914 years fail to explain the deficits she incurred between the turn of the century and World War I; similarly, the impact on long-run payments of private foreign lending by the United States has not been sufficiently negative to match the deficits experienced from 1958 on.
- (2) On the other hand, what evidence there is points to a positive correlation between capital exports and over-all deficits before 1914.
- (3) While financial exchanges have failed to account directly for center-country deficits, the larger financial-center nexus has contributed to a less direct explanation because it has created a deficit-biased adjustment mechanism, a weakening of "discipline" at the center, particularly before 1914.

4.2 THE QUANTITATIVE IMPACT OF CAPITAL FLOWS

To say that a deficit or surplus is "caused by," "the result of," or "produced by" any particular kind of international transaction necessarily implies a comparison with a hypothetical situation. A country's deficits can be blamed on a poor competitive position, a bad harvest, a rising debt-service burden, or any other factor only to the extent that it can be shown that the deficit would have been reduced if relative costs, harvest yields, debt-service outpayments, or some other variable had assumed some more favorable value. This principle holds whether a monocausal or a more complex explanation of the overall balance is offered. It also holds even when one is asserting only that the deficit would be changed by a given amount and not necessarily eliminated.

Economists have long recognized that causation cannot be determined by a direct reading of accounts. The mere fact that capital

that deficits can be labelled "equilibrium" balances on any of several definitions. (3) For all the defects and public misuse of the liquidity measure, it quantifies the rise of liquid claims relative to reserves, and thereby testifies to the increasing interdependence between depositors and bankers.

is flowing out of a lending country in an amount greater than that country's reserve losses and increases in liquid liabilities does not prove that reducing or eliminating the capital exports would remove the deficit unless the full set of income, price, trade, interest and dividend, and other effects has been carefully weighed. So it is with the assertion that financial-center deficits have been "a result of liquidity exchanges or financial intermediation":¹⁰⁹ a judgment can be rendered only after care has been taken to appraise the changes that would accompany a change in financial transactions.

A quantitative appraisal of the payments impact of transactions involving outflows of capital cannot establish firm conclusions until two questions of time reference are resolved: (1) Which time period's payments balance is under consideration? and (2) Which time period's capital transactions are relevant? The extent and direction of influence depends critically on the time-span selected, as a survey of a few simple cases can confirm.

The foreign investments of a single year (or any shorter period) affect the payments balance of that same year in a way that is fairly easily determined. The outflows of capital typically induce only smaller net merchandise exports. Investment-income effects require little attention, because interest and dividend reflows seldom become sizeable within the same year as the investment. Consequently, the effect of selecting a small period is to permit a straightforward answer: outflows of capital hurt the balance of payments. In fact, British outflows of capital in 1900-1913 and American lending in the postwar years have typically created net debits large enough to account for the liquidity deficits incurred in each of the same years.

The opposite result is obtained with equal clarity in the case of a single transaction's impact on all of the subsequent years. As long as the foreign investment is ultimately amortized and at all profitable, it must sooner or later improve the overall balance. The same can be said of a fixed amount of outflows of capital year after year, since the inflows of investment income grow at a compound rate.

A growing stream of outflows of capital, on the other hand, may or may not improve the lending country's external position, depending on whether the outflows grow fast enough to keep ahead of mounting investment-income receipts and any favorable trade repercussions, as

¹⁰⁹ Despres, Kindleberger, and Salant, "The Dollar and World Liquidity: A Minority View," p. 527.

well as on the length of time being considered. As fate would have it, this complex case is the one having the greatest empirical relevance.

Testing the financial-intermediation hypothesis calls for a measurement of the current payments effects of all of a country's past lending, e.g., an appraisal of the effects of an entire century of British foreign lending on the 1900-1913 balance.¹¹⁰ While there is no obvious reason to expect that flows extending so far into the past would or would not worsen the balance of payments, it turns out that the total prewar lending transactions of Britain not only failed to generate enough net debits in the last fourteen prewar years to account for the deficits incurred then, but even contributed a net improvement to the country's balances. The interest and dividend inflows on past British investment alone exceeded the new capital exports,¹¹¹ and the margin would appear wider if the favorable effects on the trade balance were included.¹¹²

A similar result emerges when recent data for American private foreign lending are surveyed. The excess of new private-capital exports over investment-income receipts between, say, 1958 and 1965

¹¹⁰ Alternatively, one might choose to quantify the impact of all past flows of capital on the overall balance for all past years, rather than just on the imbalance in some recent period. This broader measurement seems less appropriate, however, to the financial-intermediation hypothesis, which has focused only on recent deficits of the United States and not on the overall balance since independence or earlier.

¹¹¹ Britain's net annual investment income from abroad averaged \$692 million and her net capital outflows only \$567 million for the period 1900-1913. The corresponding French figures were \$233 million and \$125 million, respectively. However, because the increases in both countries' liquid liabilities have probably been understated in Table 5 above, the net capital outflows *above the line* could conceivably have exceeded the figures on net capital flows just cited by amounts large enough to make the above-the-line capital outflows greater than the corresponding investment incomes. Nonetheless, the extent of this underestimation would have been matched by an equal understatement of the overall deficits, which would still have exceeded any negative effects of capital exports by a wide margin.

¹¹² Rises in British capital exports were typically accompanied by greater rises in export values than in import values. The correspondence between capital and commodity exports has been observed by Jan Tinbergen (*Business Cycles in the United Kingdom, 1870-1914* [Amsterdam: North-Holland, 1951], pp. 30, 41), Brinley Thomas (*Migration and Economic Growth* [Cambridge: Cambridge University Press, 1954], Chapter VII, *passim*), and Alec G. Ford (*The Gold Standard, 1880-1914: Britain and Argentina* [Oxford: Clarendon Press, 1962], pp. 66-68), among others. Several crude multiple regressions run by this author confirm that export volumes and values were more strongly associated with outflows of capital than were imports for the years 1871-1913.

was insufficient to match the liquidity deficits¹¹³ of the same period, although such an excess did exist.¹¹⁴ But when the generally favorable trade effects are weighed into the balance, even this contribution to the liquidity deficits might be eliminated. The same can be said for this country's liquidity balance throughout the postwar era.

Flows of capital arising from the process of financial intermediation thus appear to have been inadequate to explain the deficits encountered in the two instances in which a country has acted as the chief financial intermediary in a rapidly expanding twentieth-century world economy. That is, the evidence presented so far suggests that the absence of the capital flows would have failed in the long run to eliminate or even reduce the deficits. If this judgment is accepted, the financial-intermediation hypothesis seems in need of revision.

One may object, however, that this analysis is too long-ranged. It can be argued that the outflows of private capital in, say, 1900-1913 should not be weighed against the entire interest and dividend inflows of that same period because the latter stem mostly from *previous* investments and not the capital currently going abroad. That is, only the investment income earned on the foreign assets acquired in the same period might be considered relevant for comparisons with capital outflows.

While this objection is not to be dismissed lightly, it seems to seek an arbitrary analytical separation of present from past capital flows that fails to do justice to the historical continuities that are basic to a nation's performance of the role of world financier. Financial intermediation on such a grand scale evolves only after decades of growing financial prestige and expertise, and affects the pattern of international flows far into the future. In order to judge the impact of financial intermediation, therefore, it seems most meaningful to examine the full effect of both past and current intermediation.

Nevertheless, there is at least some value in adopting a narrower

¹¹³ The present discussion concentrates on private lending and on the liquidity deficit because the financial-intermediation hypothesis has (correctly) chosen to focus on these magnitudes. Substituting government lending for private, or the official settlements or the "basic" balance for the liquidity concept, would yield different results.

¹¹⁴ Net annual exports of private capital from the United States averaged \$3.6 billion in this period, while investment incomes averaged \$3.1 billion. The difference between these two figures fell short of the average liquidity deficit of \$2.8 billion.

focus. However closely bound to the past the financial structure may be, policy questions may hinge on an appraisal of the impact of an exogenous change in capital flows on the balance of payments in the short run. By analogy, one may wish to ask what difference an altered volume of net capital outflows in, for example, 1900 might have made for Britain's external position over the following decade. As already noted, a question with an intermediate time span of this sort is a more severe test of our analytical abilities than were the extreme cases just discussed. It is easy to agree that capital flows aggravated deficits seriously in the very short run and not at all in the very long run, but what is the intermediate length of time for which the cumulative impact was roughly in balance?

If certain knotty complications are momentarily suppressed, a macroeconomic expression can be used to show roughly how the impact of Britain's prewar foreign investments on her overall balance vary with the investment time-period being considered. The formula employed is patterned after a similar expression already developed by Professor Bell,¹¹⁵ and need not be reproduced here. The cumulative impact of any period's outflows of capital is assumed to depend on the average rate of return earned on Britain's net foreign investments,¹¹⁶ and on the approximate marginal tendency of each year's capital exports to improve the (same year's) trade balance, as well as on the choice of time periods.

Calculations of this sort suggest three broad conclusions. First,

¹¹⁵ See Philip W. Bell, "Private Capital Movements and the United States Balance of Payments Position," in United States Congress, Joint Economic Committee, Subcommittee on International Exchange and Payments, *Factors Affecting the United States Balance of Payments* (1962), Appendix I. The two formulae differ in that the one used here: (1) considers the net trade stimulus to be proportional to outflows of capital and not to increases in the book value of the foreign concern, (2) uses a different average rate of return for each year rather than the same rate for all years, and (3) is basically a portrayal of a portfolio investment in that it assumes full repatriation of all earnings (i.e., Bell's $a = 1$ here). This last assumption seems justified because the chief estimates of Britain's net capital exports and net creditor position were derived by Imlah and others from figures on repatriated, rather than total, foreign earnings.

¹¹⁶ The average rate of return used in the calculations underlying the present discussion is that derived from Albert H. Imlah, *Economic Elements of the Pax Britannica* (Cambridge, Mass.: Harvard University Press, 1958), Table 4. It represents the ratio of Britain's foreign-investment income minus the returns earned by foreigners on investments in Britain to the difference between British foreign assets and liabilities at the start of each year, and should not be mistaken for the gross average yield on Britain's (gross) foreign investment, which it probably slightly overestimates.

Britain's capital outflows between any starting date earlier than the mid-1860's and the end of 1913 apparently had a favorable cumulative effect on the overall balance for the same period. Second, the outflows of capital for 1900-1913 seem to have added sufficiently to Britain's net debits to account for the minimum estimated deficits in this period,¹¹⁷ though this inference must be qualified by a number of complications to be taken up presently. Finally, a slight modification of the formula yielding these two conclusions suggests that the capital outflow for any period extending from 1873 or earlier through 1913 failed to have a sufficiently negative impact on the period 1900-1913 to account for the payments imbalance of the latter period.¹¹⁸

Two major complications suppressed above must be recognized. The first is the fact that, owing to limited data, the underlying calculations relating to Britain's capital outflows were restricted to only total net outflows and not to those falling "above the line." Since the latter measure is desired, its extent and negative impact have been underestimated. On the other hand, the amount of this error is matched by the underestimation of Britain's deficits, since placing the same unmeasured inflows of capital below the line would add to Britain's deficits. This inaccuracy in measurement therefore would not augment the ability of capital exports to explain British deficits.

More serious is the fact that the foregoing analysis has ignored a whole host of complications stemming from the simultaneity of macroeconomic relationships. Capital exports in general do not merely affect the trade balance directly. One must make additional allowances for their trade impacts transmitted through other variables. For example, capital exports may bring a secondary improvement to the

¹¹⁷ This conclusion is similar to Ragnar Nurkse's conjecture that "if British foreign lending had come to a complete stop in (say) 1890, a disequilibrium in the international balance of payments—a 'sterling shortage'—might have been felt in the succeeding quarter of a century." "International Investment To-day in the Light of Nineteenth-Century Experience," *Economic Journal*, Vol. XLIV (December 1954), p. 756n.

¹¹⁸ The trade-balance-effect parameter used in the calculations underlying this paragraph was 0.10, a value suggested by multiple regressions run by the author and by Tinbergen, *Business Cycles in the United Kingdom, 1870-1914*.

Similar estimates could be made in connection with postwar American experience. While it is not immediately clear whether the trade effects have been more or less favorable than for prewar Britain, the average rates of return are substantially higher today owing to the predominance and profitability of direct investment. A rough calculation suggests that liquidity deficits of the United States are inadequately explained by aggregate private-capital outflows above the line for any period extending from 1958 or earlier through 1965.

trade balance by reducing domestic investment or consumption. At the same time, there are secondary effects stimulating merchandise exports, since foreign investment helps to stimulate activity abroad. The initial stimuli to exports make matters still more complex by augmenting domestic incomes, thereby raising imports further, and so forth.¹¹⁹ In short, only an elaborate multi-equation macroeconomic model could do justice to the variety of possible repercussions.

These qualifications, however, should not obscure the more fundamental conclusion previously reached: the full amount of pre-1914 foreign investments improved rather than worsened Britain's overall balance for the last fourteen prewar years, since the total interest and dividend reflows were alone sufficiently large to establish this result.¹²⁰

4.3 SOME SIMPLE CORRELATIONS

Although foreign-lending transactions thus did not explain the magnitude of deficits experienced by Britain between the start of this century and World War I, the intuition lingers that a fundamental connection exists between the cosmopolitan financial role and the deficits shared by prewar Britain and postwar America. There remains the possibility of either a short-run correlation or a less direct long-run link between the volume of lending and the occurrence of deficits. Two additional sets of data, one cross section and one annual time series, serve to reinforce this impression.

The prewar international cross section of balance-of-payments measures presented in Table 6 and Figures 5 and 6 dramatizes the link between capital flows and the overall balance. An awareness of the imprecision of these data must precede any attempt at interpretation. All of the payments balances are based on an incomplete recording of changes in liquid obligations, and for the debtor countries so few data were available on liquid liabilities to private foreigners that only the official-settlements balances could be struck and presented under the assumption that they approximated the unknown liquidity

¹¹⁹ Alternative assumptions about the multiplier effects accompanying capital exports are given in G. C. Hufbauer and F. M. Adler, *Overseas Manufacturing Investment and the Balance of Payments* (Washington: Government Printing Office, 1968), Chapter IV.

¹²⁰ This assertion assumes that the net effect on the merchandise balance was not significantly unfavorable. Such an assumption is not inconsistent with the preceding paragraph's uncertainty regarding the direction of secondary trade effects. It implies only that any negative net secondary effects were outweighed by the *initial* stimuli to commodity exports.

TABLE 6

TRADE BALANCES, CAPITAL FLOWS, AND OVERALL BALANCES OF SELECTED COUNTRIES, ANNUAL AVERAGES FOR VARIOUS PERIODS, 1880-1913

(in millions of dollars)

<i>Country</i>	<i>Period</i>	<i>Trade balance</i>	<i>Capital flows above the line (outflow = -)</i>	<i>Overall balance</i>
United Kingdom (i.e., 1900-1913)	00-13	- 736.6	- 589.7	- 20.9
France	00-13	- 51.6	- 142.3	- 2.2
Argentina	11-13	+ 37.3	+ 320.0	+ 10.0
	95-00	+ 27.2	+ 30.8	+ 1.3
Australia	00-13	+ 8.9	+ 2.9	+ 5.4
	90-99	- 0.6	+ 26.3	- 3.1
	80-89	- 4.8	+ 79.1	+ 5.1
Austria-Hungary	02-12	- 9.1	- 4.8	+ 0.8
	92-01	- 40.7	+ 15.6	+ 29.6
Bulgaria	06-11	- 4.7	+ 12.1	+ 1.4
	96-05	+ 2.5	+ 3.0	+ 0.7
	86-95	- 1.4	+ 2.7	+ 0.1
Canada	00-13	- 96.4	+ 169.0	+ 15.3
India	98/99-			
	13/14	+ 119.5	+ 43.0	+ 10.2
Italy	05-13	- 161.5	- 4.1	+ 20.4
	95-04	- 26.5	- 53.8	+ 9.1
	85-94	- 54.5	+ 24.2	- 1.1
Japan	00-13	- 25.1	+ 48.2	+ 11.3
Norway	00-13	- 34.2	+ 10.8	+ 0.9
	90-99	- 24.8	+ 10.3	- 0.05
Rumania	08-13	+ 15.3	+ 15.9	+ 2.4
Russia	00-13	+ 148.1	+ 106.7	+ 67.9
Sweden	00-13	- 2.7	+ 15.9	+ 1.7
	90-99	- 12.3	+ 6.9	- 0.03
U.S.A.	00-13	+ 487.4	- 59.9	+ 25.9
	90-99	+ 210.2	+ 7.3	+ 8.4
	80-89	+ 66.6	+ 114.0	+ 15.6

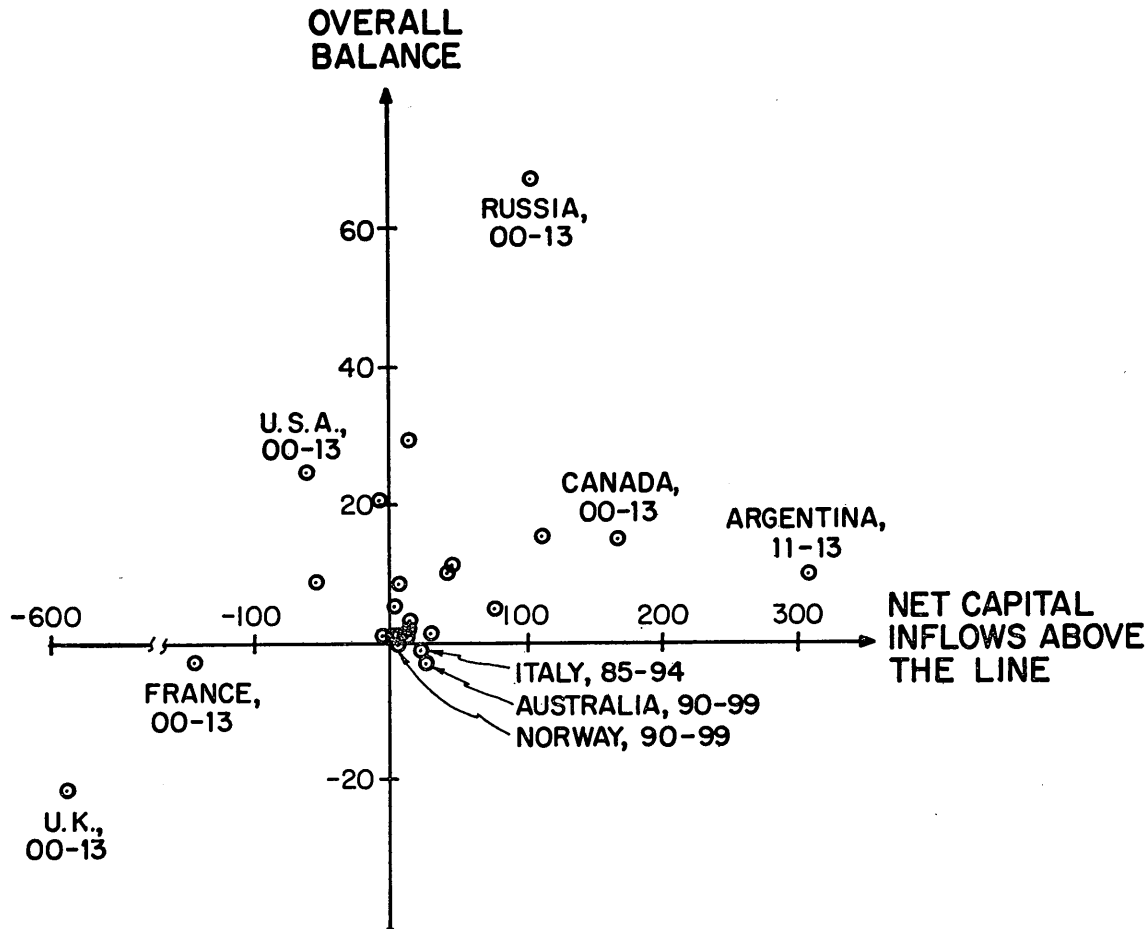
NOTES: The British and French figures are from Table 5 above, the two overall balances being the minimum estimates of liquidity deficits without inclusion of any increases in holdings not allocated by currency. Official settlements balances are shown for all other countries except Sweden, whose overall balance approaches the liquidity definition. See Lindert (1967), notes to Table 7-2.

balances. The measurements of net capital flows above the line are susceptible to large errors, some omitting the long-term capital exports of debtor nations altogether.¹²¹ For all the roughness in estimation, however, the data presented suffice to establish general magnitudes,

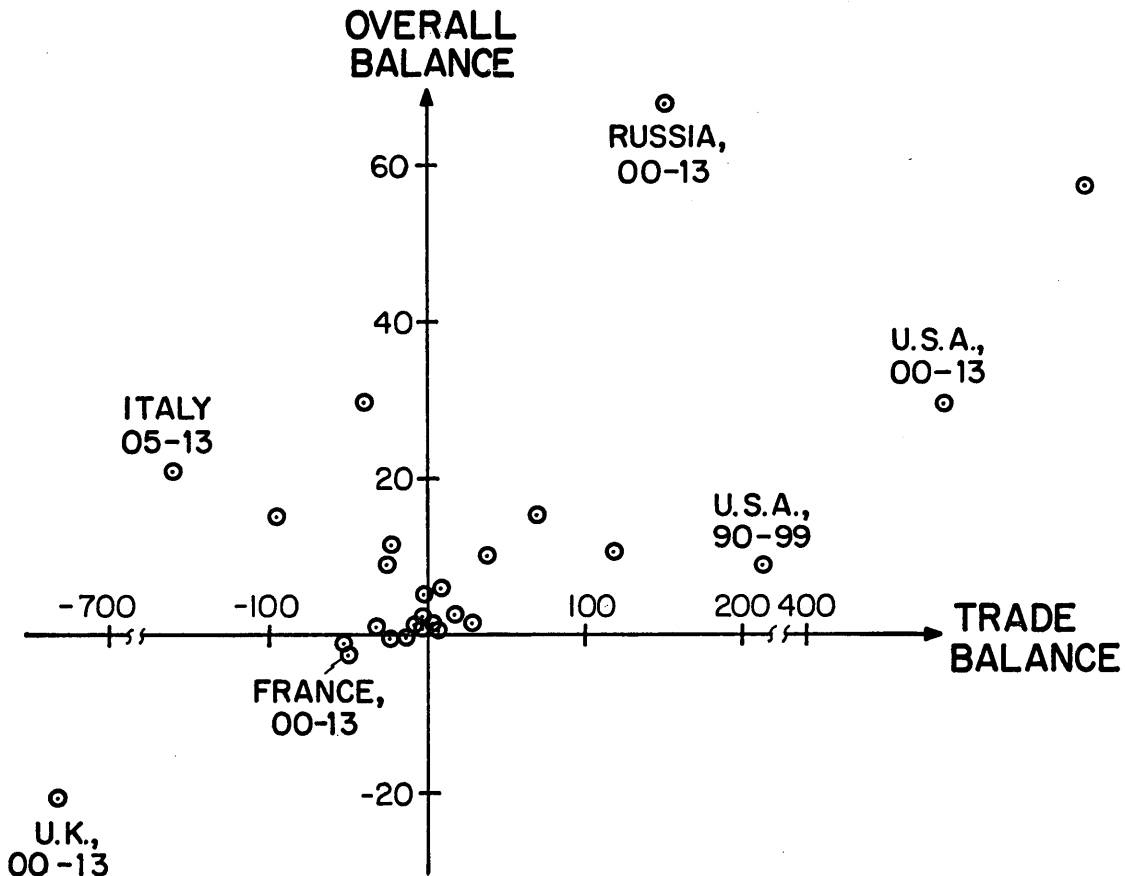
¹²¹ The discrepancies in coverage and the data sources used in Table 6 are discussed in Lindert (1967), pp. 269-270.

**FIG. 5 CAPITAL FLOWS AND OVERALL BALANCES,
SELECTED COUNTRIES, 1880-1913**

(ANNUAL AVERAGES IN MILLIONS OF DOLLARS;
FOR UNLABELLED POINTS, SEE TABLE 6)



**FIG. 6 TRADE AND OVERALL BALANCES,
 SELECTED COUNTRIES, 1880-1913**
 (ANNUAL AVERAGES IN MILLIONS OF DOLLARS;
 FOR UNLABELLED POINTS, SEE TABLE 6)



directions of flow, and each country's rank in the sample according to size of capital, trade, and overall balances.

A revealing pattern emerges from a study of Figure 5. The world economy appears to have been made up of a multitude of borrowers in surplus, a handful of lenders in surplus, and three large deficit lenders (Britain, France, and Germany). Not one of the capital-importing countries for which satisfactory data are available failed to add to its reserves (and run official-settlements surpluses) after the turn of the century. The secondary capital exporters also experienced moderate surpluses, though special factors can be identified in some cases. The Italian figures, for example, do not lend themselves easily to any international pattern, since their meaning is clouded by fluctuating exchange rates, a costly tariff war with France, the collapse and reform of the note-issue system in the mid-1890's, and repatriation of government bonds from abroad. The United States, though still a debtor nation (in the stock, and not the flow, sense), became a net exporter of capital after the turn of the century and began the transition to creditor-nation status. While satisfactory figures are lacking for Belgium, the Netherlands, and Switzerland, all three countries apparently experienced small-to-moderate net exports of capital and overall surpluses.

Polarization into the first and third quadrants seems somewhat more pronounced in Figure 5 than in Figure 6,¹²² suggesting that surplus and deficit countries tended to be capital importers and exporters, respectively, more consistently than they tended to have merchandise-export surpluses and deficits, respectively, especially after the turn of the century.¹²³ There was, nevertheless, some tendency for both lending and overall deficits to be associated with net imports of merchandise.

¹²² Several countries for which adequate data cannot be reproduced can nonetheless be placed in quadrants in Figure 5 for 1900-1913: in Quadrant 1—Ceylon, Chile, Denmark, Finland, Greece, Netherlands Indies, Philippines, Spain, and Serbia; in Quadrant 2—Belgium, Netherlands, and Switzerland, as noted in the text; and in Quadrant 3—Germany. This would bring the total number in Quadrant 1 up to nineteen (for 1900-1913), the Quadrant 2 total to six, and the Quadrant 3 total to three.

¹²³ This inference is supported by comparing two coefficients of rank correlation. For a sixteen-nation sampling from the period 1900-1913, Kendall's coefficient is .500 between capital flows and the overall balances, and .467 between the trade and overall balances. Both coefficients are significant, their standard deviations measuring 2.656 and 2.476, respectively. Germany was included in this sample, her capital exports ranked between those of France and the United States. She ranked second in trade deficit and third in overall deficit.

The absence of any fourth-quadrant observations extending beyond 1899 identifies one important feature of the 1900-1913 world economy that enabled almost every country in the world to remain tied to gold. The fact that surpluses were being experienced and reserves accumulated by the vast majority of countries must have contributed in no small way to their ability to maintain fixed gold parities. The whole world was adding to its gold reserves, only the center countries incurred rapid increases in their liquid liabilities, and almost no notice was taken of these increases. Whether or not one chooses to consider the prewar gold standard a shaky "fair-weather" success, it must be noted that the weather was fair for almost all monetary authorities after the turn of the century. This observation illustrates once more the general point that a unique combination of favorable conditions kept the pre-1914 gold standard from being put to a severe test.¹²⁴

What few pre-1900 figures there are suggest that both the concurrence of large outflows of capital with deficits (Britain and France) and the pairing of heavy net borrowing with surpluses were more characteristic of the early years of this century than of the 1890's. If more complete data would confirm this comparison between periods, capital flows and center-country deficits would appear correlated over time, even though the preceding section has demonstrated the absence of a direct long-run causal link between capital-account outflows and deficits.

A temporal correlation is also suggested by a second set of estimates, which utilizes a proxy measure of the combined balance of Britain, France, and Germany for the years from 1881 through 1913. This combined-deficit proxy followed surges in capital exports above the line rather closely for the years 1886-1912.¹²⁵ Deficits thus appear to have been confined to the main creditor countries and were largest in the years of greatest international financial activity. But if the financial exchanges themselves ultimately failed to generate large net deficits, what was the long-run causal connection between the lending activities and the payments positions of the principal creditor countries?

¹²⁴ For a discussion of other favorable conditions see (among others) Robert Triffin, *The Evolution of the International Monetary System: Historical Reappraisal and Future Perspectives*, Princeton Studies in International Finance No. 12 (Princeton: International Finance Section, 1964), Chapter 1.

¹²⁵ See Lindert (1967), pp. 263-268, for a more complete presentation of the underlying annual data.

4.4 IMPERFECT ADJUSTMENT

Long-term lending and the creation of liquid liabilities were both integral parts of a larger financial-center nexus. A closely related, though analytically separate, aspect of the same contest was the willingness of the international community to see growing amounts of these liabilities accumulate in foreign hands. This willingness, even if ultimately limited, implied an absence of desire to keep center-country liabilities from rising relative to the center's reserves.

Neither the international business community nor central bankers insisted that Britain's liquid foreign liabilities be either stabilized or measured. Foreign businesses and British banks, for their part, conspired to follow each short-run check on the foreign accumulation of sterling (and francs and marks) with a renewed acceleration of new London issues and finance-paper sales soon after credit became relatively easy. Private behavior of this sort seems to have been especially evident in the wake of bank-rate reductions in 1894-1895, 1902, 1905, and 1908-1909.

The Bank of England similarly condoned the spread of sterling liabilities abroad, as long as its own gold reserves seemed adequate in relation to its own liabilities. Indeed, there is reason to wonder what the Bank *could* have done within the prewar institutional setting had it desired to maintain equilibrium by today's definitions. In view of the magnitude of the deficits and the occasionally evident limitations on the effectiveness of Bank rate and the gold devices, the task may well have proved too great.¹²⁶

Thus the very centrality of Britain's financial position created a weakening of adjustment "discipline," a bias toward deficits by today's definitions. The very confidence in sterling that was the natural consequence of the triumph of the "gold standard" between 1873 and 1914 contributed to a foreign accumulation of sterling exceeding Britain's gold reserves. This position, which in more recent times has

¹²⁶ This pessimistic speculation is reinforced by the fact that any major attempt to improve an overall balance through restrictions on outflows of capital implies a cumulative commitment to these restrictions. A temporary reduction in outflows will generate growing net debits within a few years because of the loss of investment incomes, loan repayments, and favorable trade effects. Only if capital exports are reduced in continually growing amounts can the restrictions bring long-run payments relief. This being the case, a long-run policy of financial restrictions would have been extremely distasteful to the Bank and the government under any circumstances.

invited pressure on the reserve currency, was by (say) 1910 one that precluded any obvious escape.

It is difficult to see why Britain should have wished to escape from the special financial position. Key-currency status allowed her (and France and Germany to lesser extents) to postpone otherwise necessary contractionary adjustments. Britain's position just before World War I in fact provides the classic example of the "deficit without tears."

The weakness of "discipline" in the face of rapid sterling accumulation abroad after the turn of the century allowed bank rate to rise less than it otherwise would have. The relative ease of credit facilitated the expansion of domestic activity, merchandise imports, and capital exports. These developments augmented foreign purchasing power, and thus led to greater British exports. The consequent gains in British and world incomes in these years appear to have been considerable. In the last prewar decade Britain was allowed to bask in an "Indian summer" of expansion along old lines, with the production and export of textiles, textile machinery, coal, and loanable funds leading the way.¹²⁷ There is no reason to believe that raising bank rate and market interest rates in order to attract enough gold to prevent deficits would have promoted any profound rationalization within or among British manufacturing industries.

Britain's assumption of the role of world financial center, it should be stressed, was neither a necessary nor a sufficient condition, but only a permissive condition, for her payments imbalance. The appearance of the deficits condoned for so long cannot be explained without reference to the familiar story of Britain's loss of export markets and the steady advance of imports. A full explanation of Britain's overall payments balance could no more omit the rise of American and German industry, for example, than a treatment of the position of the United States today could exclude Japanese competition, the Common Market, or Vietnam. Once payments imbalance had set in, however, Britain's financial position helped to establish it firmly.

¹²⁷ On Britain's export performance in these years, see S. B. Saul, "The Export Economy [1870-1914]," *Yorkshire Bulletin of Economic and Social Research*, Vol. 17 (May 1965), pp. 5-18; Alfred Maizels, *Industrial Growth and World Trade* (Cambridge: Cambridge University Press, 1963); and a long list of sources cited by these works.

5. SUMMARY AND CONCLUSIONS

Incomplete but illuminating information assembled from a wide variety of sources has permitted several limited inferences about the role of key-currency holdings before 1914.

The practice of holding foreign-exchange reserves expanded rapidly after the start of this century and came to play an important role in the international financial relations of official as well as private institutions. By about 1910 the ratio of official foreign-exchange reserves to gold reserves had reached about 1:4, as high a level as that prevailing in 1924 and 1925. The similarity in the composition of reserves between the last prewar years and the mid-1920's tends to undermine the frequent distinction between a "nineteenth-century (prewar) gold standard" and a "gold-exchange standard" of the interwar and postwar eras. The periodization of the history of international finance involved in such a semantic choice can obscure the continuity of the emergence of a key-currency system.

Neither the official practice of holding foreign currencies nor the currencies held were spread evenly over the world. Slightly over half of the known official foreign balances were held in Russia, India, and Japan, with some countries (most notably Britain and the United States) holding no official exchange assets at all. Many of the countries holding a large share of their reserves abroad were countries whose choices of reserve assets appear to have been influenced by the wishes of England, France, or Germany (e.g., India, Greece, Japan), and countries that failed to establish a firm gold parity until the 1890's (Austria-Hungary, Italy, Russia, Rumania, and again Japan, Greece, and India). Even less uniform, of course, was the distribution of the world's official foreign-exchange holdings by currency, over 90 per cent consisting of sterling, French francs, and German marks. While greater balances were held in London than in any other international financial center, a larger share was held in France and Germany than has been generally realized. The frequent portrayal of London as the only major reserve center before World War I exaggerates somewhat.¹²⁸ By 1913 Germany in particular had begun to challenge Lon-

¹²⁸ This conclusion is anticipated by a comment by Arthur I. Bloomfield in *Short-term Capital Movements Under the Pre-1914 Gold Standard*, Princeton Studies in International Finance No. 11 (Princeton: International Finance Section, 1963), p. 93.

don's position, the mark having become a more popular official reserve asset on the Continent than sterling.

Foreign holdings of sterling, francs, and marks were remarkably large in relation to the official reserves of the three center countries by 1913. Britain's liquid liabilities were several times greater than the Bank of England's gold stock (even when the sterling balances of the colonies are excluded), and the ratio between the two even compares "unfavorably" with today's troublesome dollar "overhang." Germany, too, apparently had liquid liabilities in excess of her official reserves, while France may not have. Applying present-day concepts of payments surplus and deficit to the major countries in the period 1900-1913 yields similar results. Over these fourteen years Britain, France, and probably Germany were each in deficit on the liquidity definition, and at least the first two countries incurred official-settlements deficits as well. Britain's imbalance was the most "serious," her average deficits assuming as high a ratio to average reserves as those of the United States since 1958.

Prewar monetary policies, of course, were not geared to contemporary concepts of overall payments balance. It was nevertheless recognized by monetary authorities that minimizing conversions of liquid foreign claims into gold for export was a prime policy concern. The very magnitude of the overhang of foreign holdings of sterling in particular underscores the importance of identifying the sources of the Bank of England's ability to evoke prompt improvement in exchange rates and gold flows. Since discount-rate changes were relied upon heavily for adjustment tasks, the examination of the means of stabilization revolves around the familiar issue of the effectiveness of bank rate.

In the short run, bank-rate increases worked on the balance of payments primarily through the capital account. Their impact on the balance of trade via contractions in aggregate demand was probably too delayed to account for the speed and smoothness with which the Bank of England improved the exchanges and attracted gold. The alleged tendency of tighter money in London to force prompt reductions in the prices and values of British imports, thereby shifting the real burden of adjustment to countries producing British imports, is not borne out by the available data.

That bank-rate increases could summon funds from abroad is clear enough from the behavior of exchange rates. This strength did not require discount-rate inertia in other central banks. Continental au-

thorities often matched increases with the Bank of England, and often as a direct defensive reaction. Several tests conducted in Chapter 3 above confirm that tighter money in all financial centers entailed a shift of flows of capital toward London even if the interest-rate differentials between countries remained unchanged. This asymmetry in favor of Britain was especially pronounced for exchange rates between sterling and peripheral currencies.

The extra control of the Bank of England over the sterling-mark exchange might conceivably have placed excessive strain on German reserves as money grew tighter in London. The financial structure was such, however, as to give the Reichsbank a similar advantage in moving the exchange rates on smaller neighboring countries in favor of Germany. This hierarchy of short-run financial influence, through which funds moved from lesser to greater financial centers as interest rates rose everywhere, helped to minimize monetary friction among major centers by passing the short-run financial-adjustment burden along to the peripheral countries. It provides a striking contrast to the tendency of New York and London to compete for the same mobile funds in later years without either center's having decisive drawing power over funds from Continental countries in payments surplus.¹²⁹

The reasons for international asymmetry are not immediately obvious, since most theoretical discussions relate exchange rates to interest-rate differentials, implying that equal changes in all interest rates would not shift funds from one center to another. Indirect evidence and *a priori* reasoning single out the dependence of short-term bank lending on the banks' own reserve positions as a channel through which each central bank's discount policy possessed influence over certain short-term portfolios not matched by that of equal discount-rate changes elsewhere. The fact that tighter monetary conditions sent funds toward the center countries is largely explained by the tendency of their short-term foreign assets to be less liquid than their short-term liabilities: since tighter monetary policy tends to stimulate shifts toward liquid assets, banks would react by seeking greater key-currency balances at the expense of bills on lesser centers.

The superficial statistical similarity between the payments positions of Britain before 1914 and the United States in recent years naturally

¹²⁹ For a discussion of the shift in power over the exchanges in favor of the Continent in the late 1920's, see William A. Brown, Jr., *The International Gold Standard Reinterpreted, 1914-1934* (New York: National Bureau of Economic Research, 1940), Chapters 15, 19, and 26.

leads one to inquire into possible connections between the payments performance and the cosmopolitan financial role shared by the two countries. Prewar annual data confirm the existence of a correlation between capital exports and payments deficits for Britain, France, and Germany as a group. In addition, it was apparently only these three lending countries that registered payments deficits over the first fourteen years of this century.

The causal link between foreign-lending transactions and overall deficits is not a direct one, however. The transactions themselves ultimately failed to worsen the balance of payments of Britain (or France) sufficiently to explain the overall imbalance. It is not the role of long-term lender as such, but rather reserve-currency status that is basic to an explanation of the deficits experienced by the center countries. Over the years major financial centers have acquired a reputation for solvency and sophistication, and their short-term liabilities have gained general acceptance ("liquidity"), owing to their easy transferability. This financial evolution, however, has imparted a bias toward payments deficits as conventionally defined. Before 1914, the international community displayed an aggregate willingness to accumulate sterling, and the Bank of England likewise saw little wrong with the process as long as its own gold reserves were not declining relative to *its own* liabilities. Under these conditions the declining competitive position of certain British export industries and the rapid rise of imports were not countered so vigorously with deflationary measures as they would have been if the Bank had adopted the payments-equilibrium goals of the postwar era. British and world incomes were higher as a result.

The confidence that marks a successful regime of convertibility at fixed rates has weakened the adjustment mechanism by encouraged key-currency accumulation. When allowed to continue, this accumulation surpassed the reserves held by the center country. And the longer the process continued, the more difficult it became to undertake the contractionary measures that would have been required to restore payments "equilibrium." In the interwar and postwar contexts, furthermore, growing reserve deficiencies at the center have impaired the same confidence in key currencies that had previously promoted their accumulation in foreign hands.

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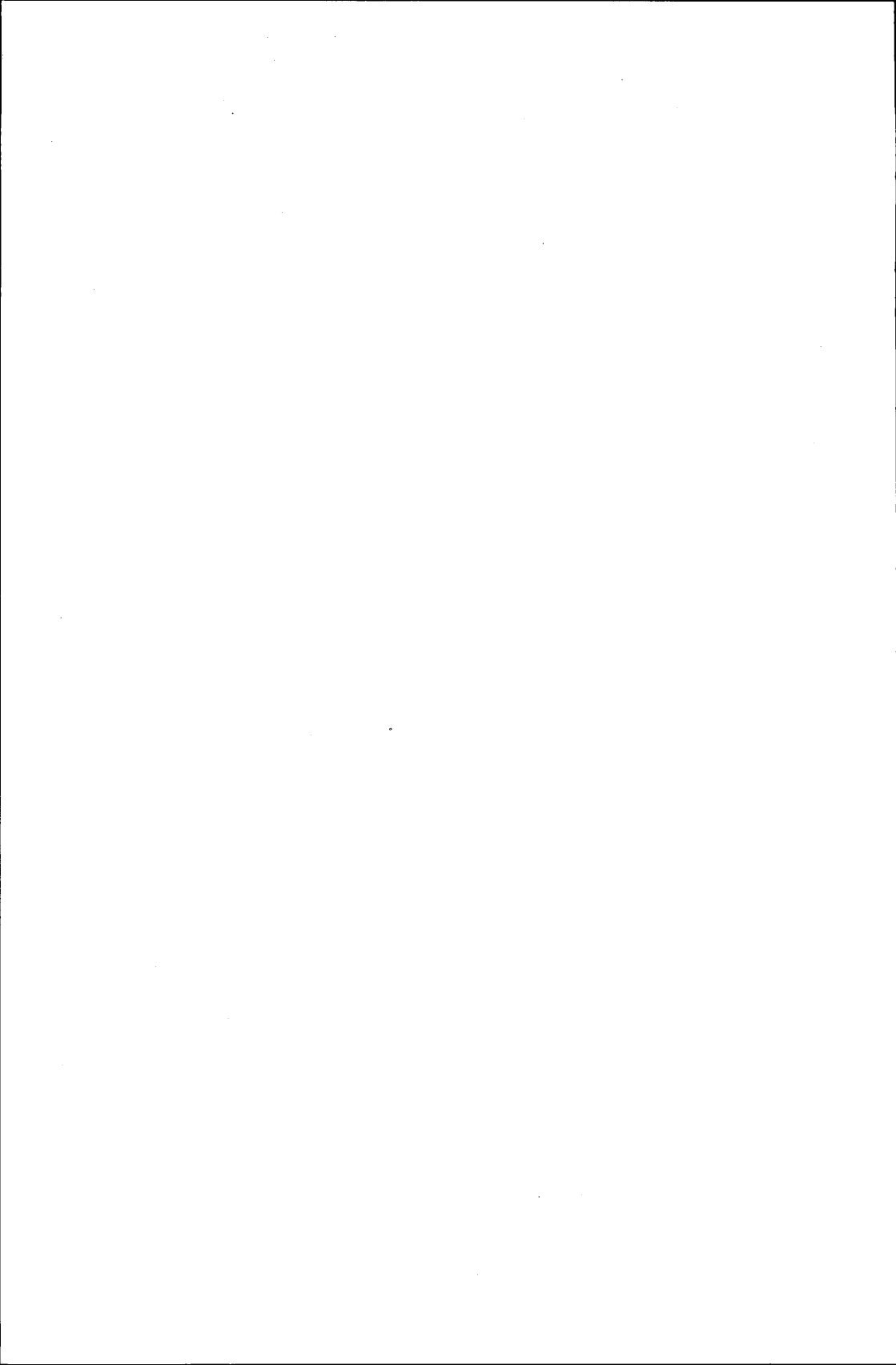
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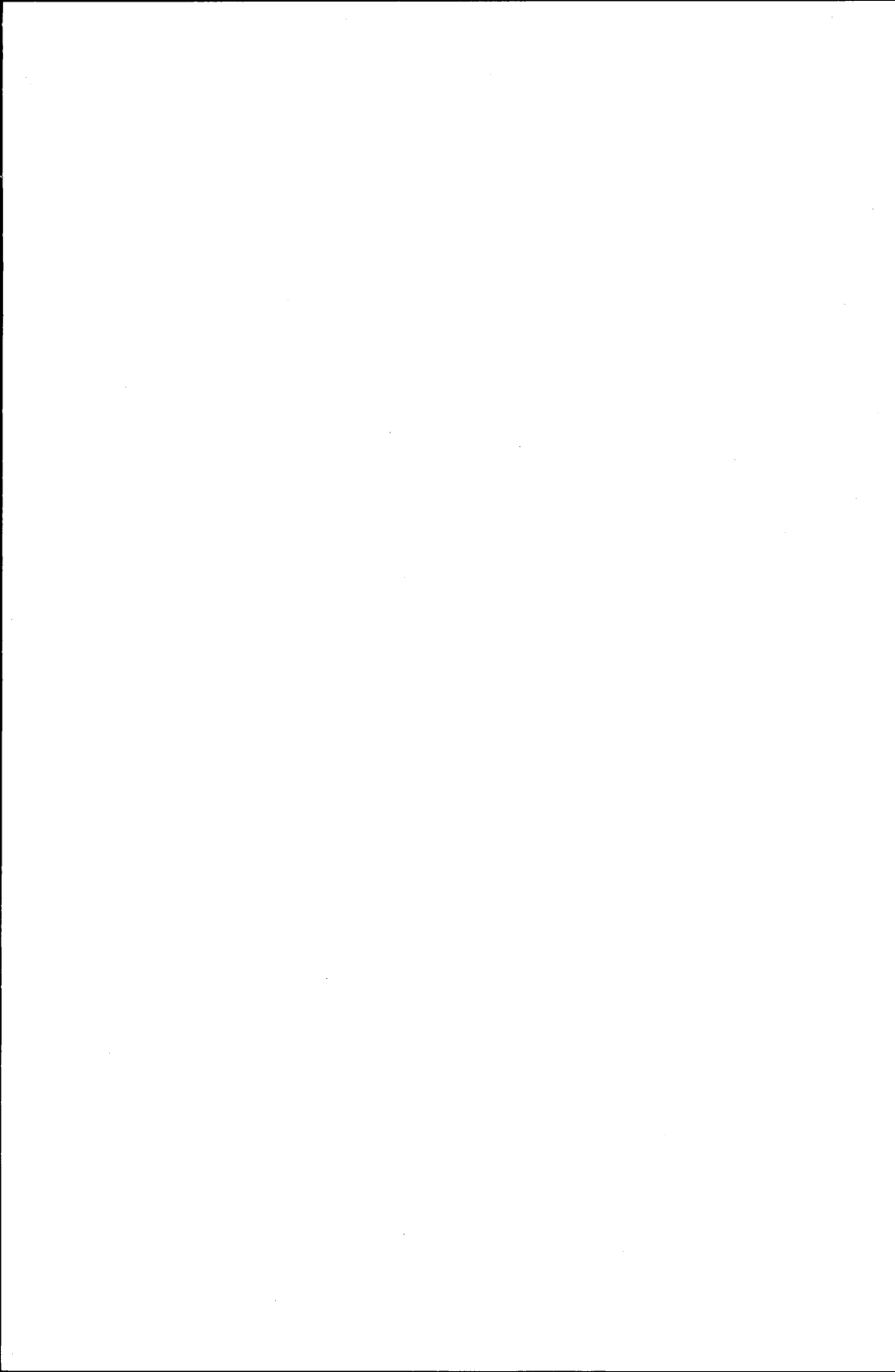
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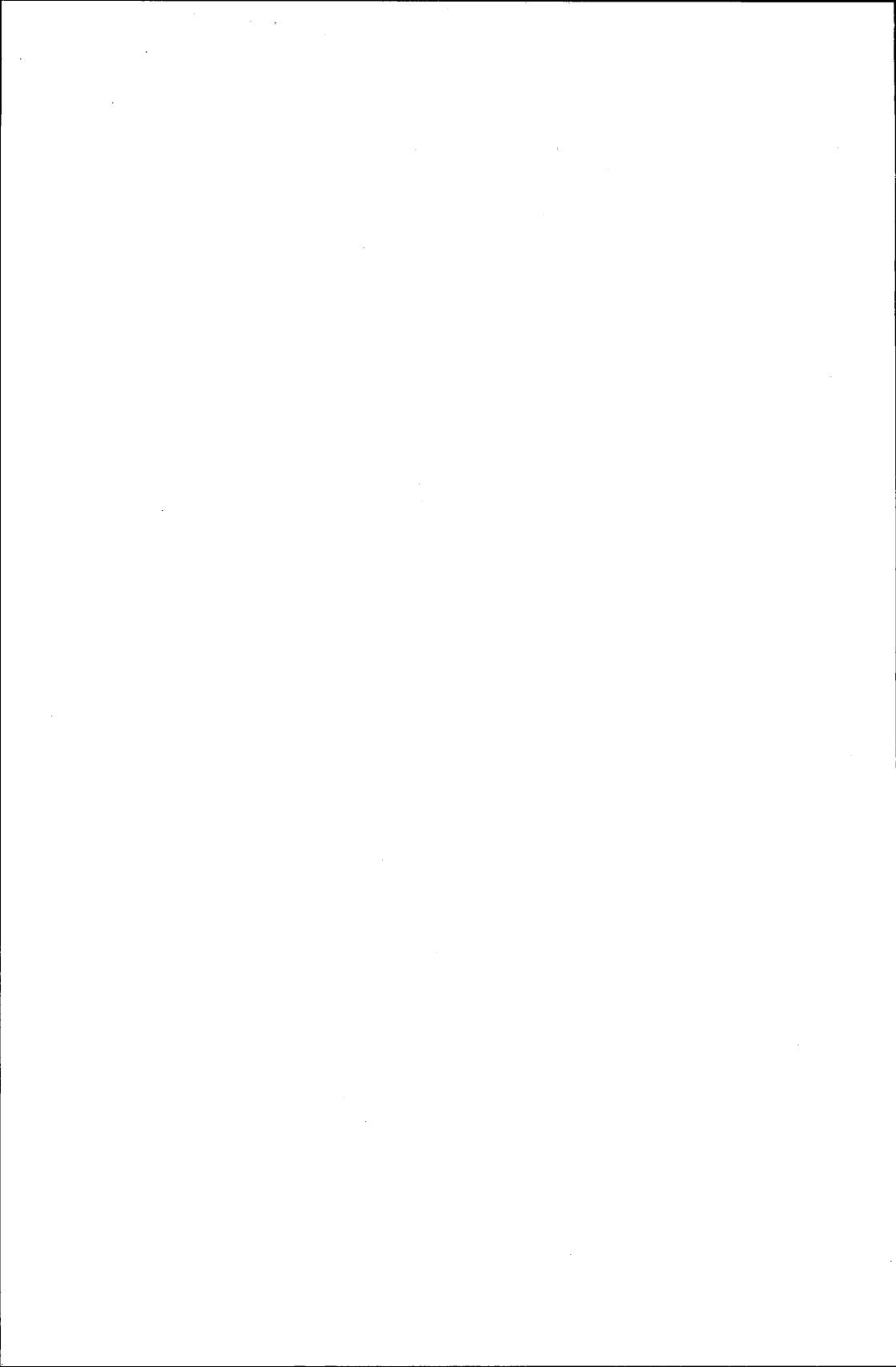
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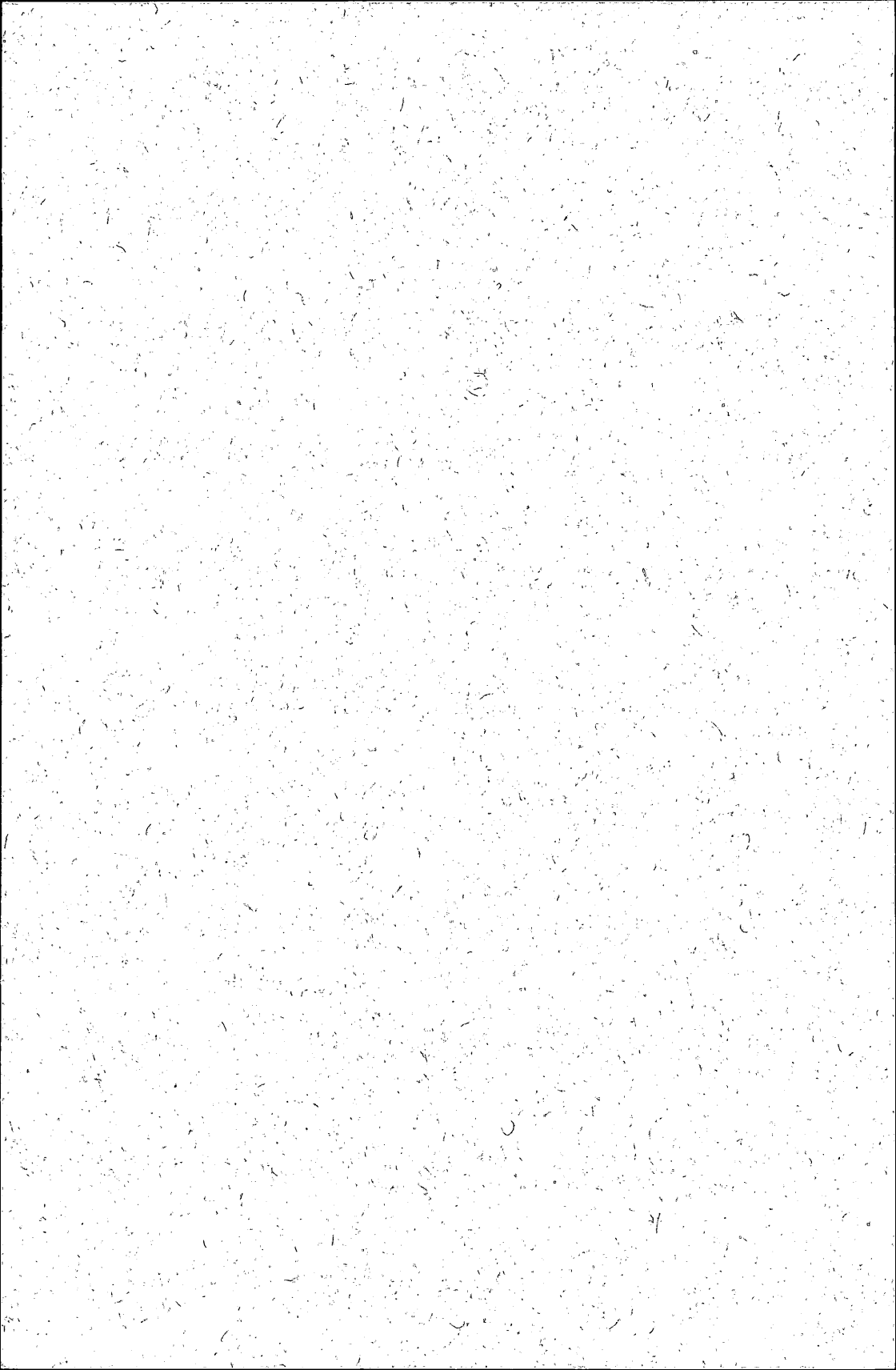
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Fritz Machlup, *Remaking the International Monetary System: The Rio Agreement and Beyond* (1968). [This volume may be ordered from the Johns Hopkins Press, Baltimore, Maryland 21218, at \$6.95 in cloth cover and \$2.45 in paperback.]









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