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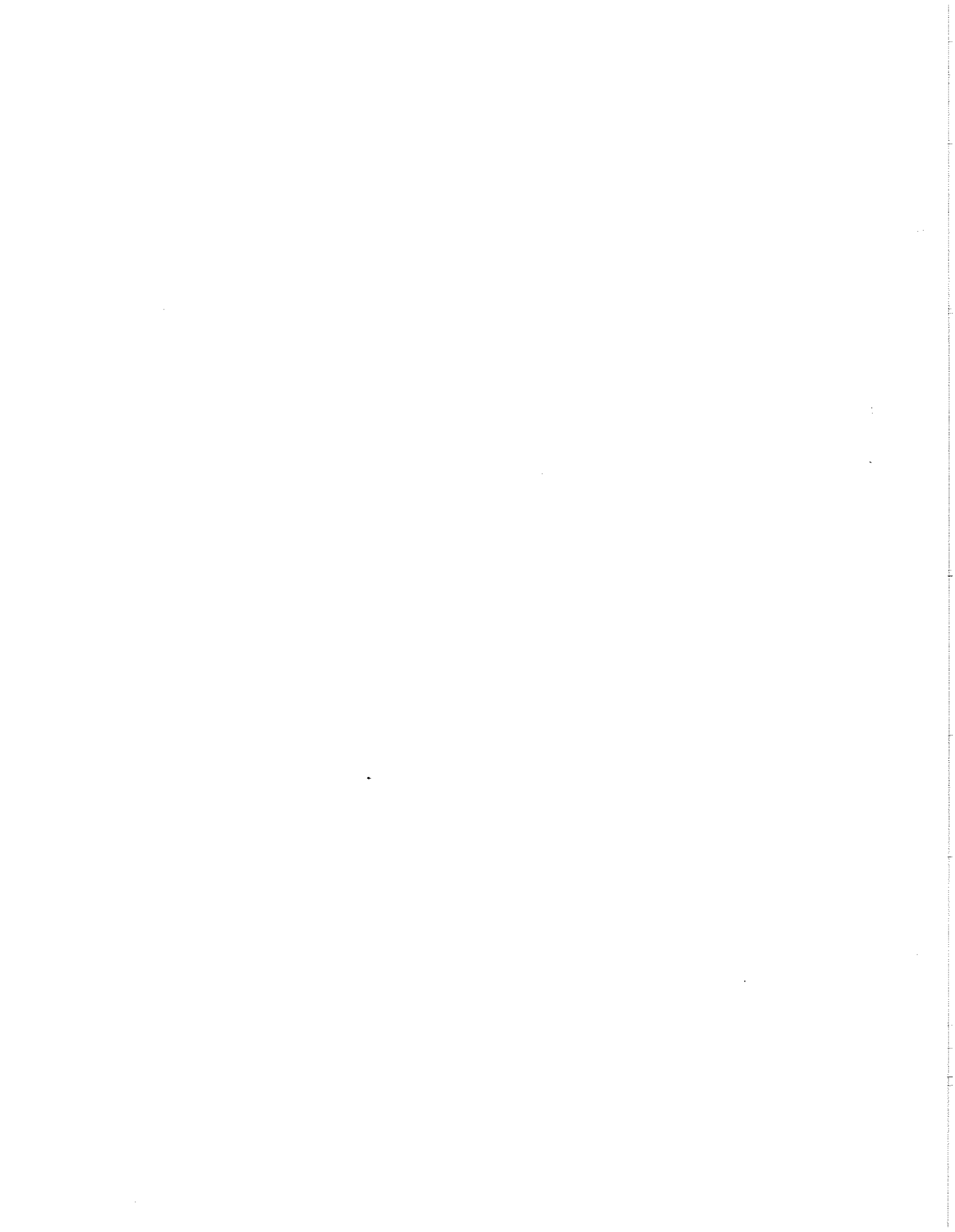**Trends and Cycles in Foreign Lending**

Barry Eichengreen

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July 1990

ABSTRACT

Over the past century, the world economy has passed through a succession of phases characterized by very different levels of international capital flows. This paper asks what accounts for these dramatic shifts in the extent of capital movements across national borders. Three categories of explanation are considered. The first emphasizes the policy regime, attributing the unusual extent of capital flows prior to 1914 to the operation of the international gold standard. The second focuses on the stages-of-indebtedness sometimes thought to characterize the process of economic development. The third ascribes changes in the extent of capital flows to the boom-and-bust cycles through which international capital markets are thought to pass. Though each approach contributes something to our understanding of the phenomenon, none is totally satisfactory. I therefore suggest an alternative explanation, which lays stress on the increase in the magnitude of real interest rate and real exchange rate variability that has occurred over the last 100 years.

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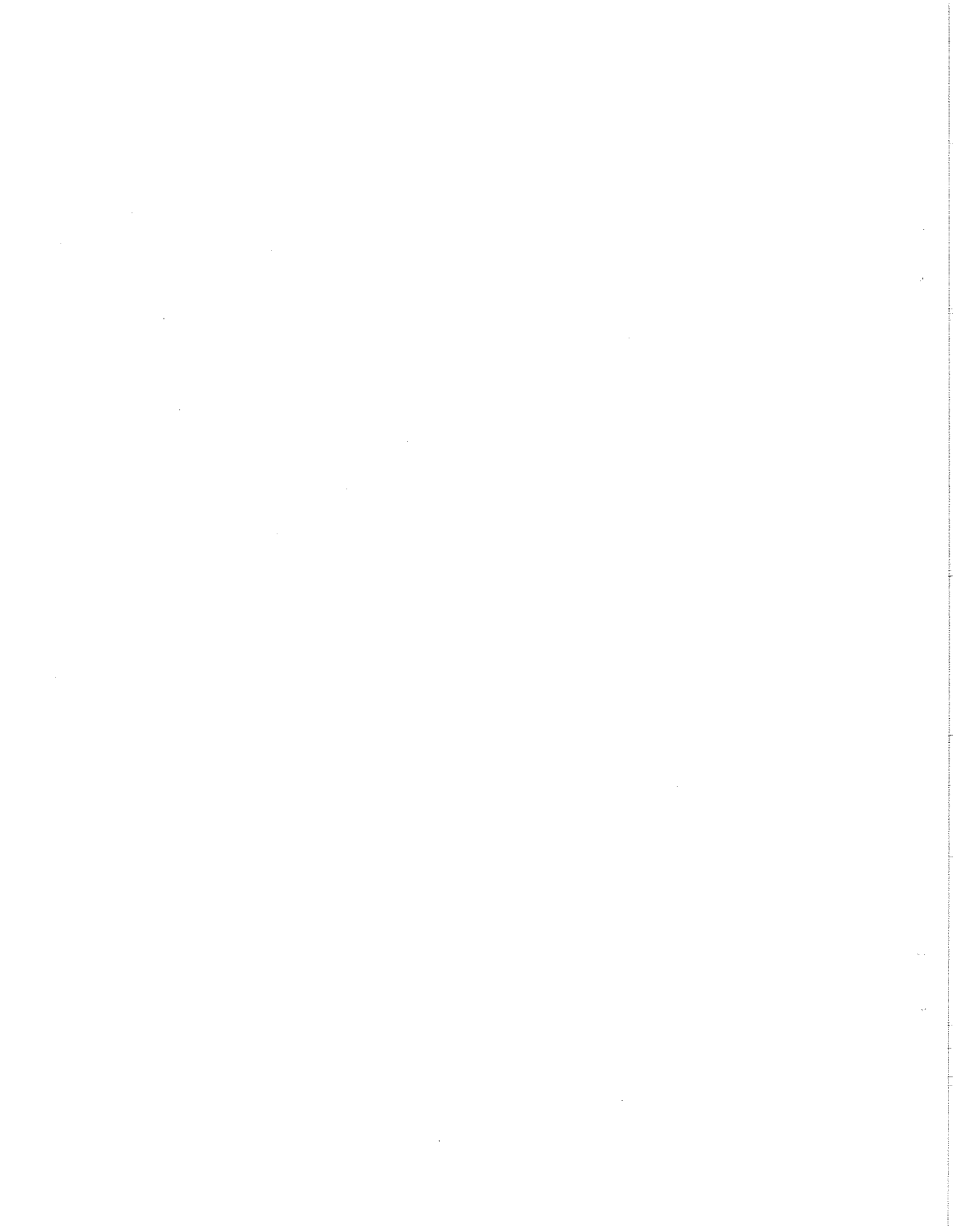
I. Introduction

Over the past century, the world economy has passed through a succession of phases characterized by very different levels of international capital flows. This paper asks what accounts for these dramatic shifts in the extent of capital movements across national borders.

The broad trends to be explained are as follows. Between 1880 and 1913, capital movements among industrial and industrializing countries reached heights never scaled subsequently. The absolute value of the current account of the balance of payments averaged 2.9 per cent of GNP for a sample of 9 rapidly industrializing countries. Between 1924 and 1936, current account balances were very considerably smaller; for the same sample of countries they averaged 0.8 per cent of GNP. Between 1965 and 1986 they recovered slightly, to an average of 1.3 per cent of GNP.1/

These broad trends conceal other facts that require explanation. Each of the three epochs, for example, contained a shorter period of 5 to 10 years marked by a dramatically higher volume of international capital flows. Between 1902 and 1913, the absolute value of the current account balance for our sample of 9 countries averaged 4.0 per cent of GNP. Between 1925 and 1928, the comparable figure was 1.4 per cent; between 1973 and 1981, it was 1.7 per cent. The 20th century has also been marked by repeated shifts in the composition of foreign investment. Between 1900 and 1913, U.S. direct foreign investment (DFI) consistently exceeded foreign portfolio investment. Then from 1914 through 1928, portfolio investment took the lead. For the next four decades, DFI was once more consistently greater than portfolio investment abroad. After 1973, the relationship between the two magnitudes reversed again.

The literature contains no wholly satisfactory explanation for these shifts in the extent of capital flows. Three schools of thought may be distinguished. The first focuses on the international financial and monetary regime. The exceptional volume of international capital

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flows in the three decades prior to 1913 is attributed to the operation of the international gold standard (McKinnon, 1989; Bayoumi, 1989). Exchange rate stability under the gold standard minimized currency risks that otherwise discourage investment abroad. The price-specie flow mechanism smoothly absorbed shifts in the volume of foreign lending through accommodating changes in prices and/or spending and hence in the balance of trade. Policymakers took no steps to regulate foreign lending or to minimize current account imbalances, so long as the current and private capital accounts were roughly offsetting and central banks did not gain or lose significant reserves. Since the 1960s, in contrast, exchange risk has discouraged investment abroad. In this view, the surge of lending in the 1970s took place despite, not because of, the increased volatility of exchange rates.

The second school of thought focuses on the stages of indebtedness through which countries are thought to pass (de Vries, 1971; Siebert, 1989). Nations at the earliest stages of development, according to this theory, lack the political and economic infrastructure necessary to borrow abroad. As soon as those preconditions are put in place, borrowing commences. The return on investment is high in the early stages of development, while little saving is undertaken by households whose current income is less than their expected future income. Hence there is considerable incentive to import financial capital from abroad. As development proceeds, incomes rise, as do savings. The stock of high-return investments is depleted. Domestic saving comes to exceed domestic investment, and the infant capital importer becomes a mature capital exporter. This model suggests that epochs of large-scale foreign lending are those characterized by pronounced divergences among countries in their stages of development.

The third school focuses on the boom-and-bust cycles through which international capital markets ostensibly pass. Lending seems to be characterized by 20 year cycles marked by, in succession, a surge of lending, a sudden halt, severe debt-servicing difficulties

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culminating in default or rescheduling, and an extended period of inactivity (Kindleberger, 1986; Eichengreen and Lindert, 1989). Each cycle is initiated by financial innovation or a disturbance to the pattern of international settlements. The innovation or disturbance provokes excessive enthusiasm which raises lending to unsustainable heights. Eventually, a shock to financial or commodity markets curtails lending abruptly, revealing the difficulties the borrowing countries will face in servicing their debts. Reckless enthusiasm gives way to extreme caution. International capital markets remain becalmed for a decade or more, until another displacement reinitiates the process. Epochs of large-scale lending are those characterized by long, heated booms and short, shallow busts.

The three main sections of this paper assess these three explanations for changes in the volume of foreign lending. Though each approach has something to contribute to the discussion, none of them is totally satisfactory. In the conclusion, I therefore suggest a new direction in which research will have to proceed if it is to provide an adequate explanation for the differences in the volume of international capital flows that have characterized the last 100 years.

II. The Policy Regime

A standard way of analyzing international capital movements, following Feldstein and Horioka (1980), is through savings-investment correlations. Recently, Bayoumi (1989) has replicated Feldstein and Horioka's analysis of recent decades for the classical gold standard period. His finding of a lower correlation between domestic saving and investment before 1913 has been taken as evidence that the fixed exchange rates of gold standard encouraged capital mobility and enhanced the efficiency with which resources were allocated internationally.2/ In this section I reassess his findings and provide some additional results.

As those who have worked with Feldstein and Horioka's data know, measurement problems arise when one attempts to compare savings and investment rates across countries. Domestic investment is commonly taken as the sum of fixed and inventory investment. Different depreciation conventions prevail in different countries, creating different wedges between gross and net capital formation. Data on inventories are gathered or imputed in different ways. For developing countries, domestic saving is constructed typically as the sum of domestic investment and the current account of the balance of payments. Not only will errors in measuring investment therefore contaminate measures of saving, but the current account is itself measured with error. (Witness the failure of global current account balances to sum to zero.)

These problems are compounded when one attempts to utilize historical statistics. The underlying data base is fragile. Historians who use it to retrospectively estimate national income accounts are forced to adapt their accounting conventions to the imperatives of data availability. Lack of information on stocks makes it all but impossible estimate inventory investment for some countries, for example.

Data problems pose special difficulties for comparisons over time. As the underlying data base changes, so do the methods used to construct the national income accounts. I attempt to minimize these problems by using, insofar as possible, components that are constructed in similar ways and by combining the same components to construct aggregates. Except where noted otherwise, I take investment as the sum of gross domestic fixed capital formation (GDFCF) and net inventory investment. I take saving as the sum of investment and the current account of the balance of payments, even for those portions of the 20th century for which alternative savings measures exist.3/

Bayoumi drew estimates of investment and the current account from Mitchell (1980) for Denmark, Germany, Italy, Norway, Sweden and the U.K., and from Mitchell (1983) for

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Canada and Australia. He averaged annual data, except for Canada prior to 1924, where for investment and GNP it was necessary to interpolate between the estimates for the first year of each decade.

A problem with these investment data is that inventories are not included for the U.K., Denmark, Sweden, Australia and Canada.4/ For the U.K., estimates of inventory investment are in fact available in Feinstein (1972). Inventory investment is small relative to GDFCF but highly variable. Between 1880 and 1914 its extreme values are on the order of -20 per cent and +35 per cent of GDFCF. In what follows, I combine inventory investment with GDFCF for the U.K.

In addition, subsequent work has improved earlier estimates of capital formation. I have substituted recent figures from Feinstein (1988) for the U.K. and Urquhart (1986) for Canada, and used some alternative estimates of U.S. savings constructed by Ransom and Sutch (1983).5/ I have extended these data using IMF (1988) for 1965-86.

Bayoumi omits data for the U.S. on the grounds that American savings and investment rates are higher and more correlated than those for other countries. The correlation presumably reflects the fact that the U.S. current account was a small and stable share of GNP throughout the period. There are no obvious grounds for challenging either of these properties of the series. It is not clear why U.S. investment rates should be more suspect than analogous figures for other countries, since they are constructed using similar methods. I have therefore included the U.S. throughout, although I utilize in addition to the standard series an alternative measure of U.S. savings rates constructed by Ransom and Sutch (1983).

Table 1 reports regressions of investment on savings (expressed as shares of GDP) for various subperiods. The slope coefficient of 0.63 in the basic regression for 1880-1913 is nearly twice as large as Bayoumi's and, in contrast with his results, significantly different from zero at the 90 per cent confidence level. The next three lines show that essentially the

Table 1
Cross-Section Regressions for Nine Countries
(Dependent Variable is Investment/National Income)

Period	Data	Constant	Savings/National Income	R^2
1880-1913		0.06 (1.44)	0.63 (2.00)	.36
1880-1890		0.06 (1.68)	0.59 (1.94)	.35
1891-1901		0.04 (1.58)	0.71 (3.10)	.58
1902-1913		0.05 (0.65)	0.72 (1.36)	.21
1880-1913	RS	0.07 (2.24)	0.50 (2.13)	.39
1924-1936		-0.01 (0.22)	1.06 (7.83)	.90
1925-1930		-0.02 (0.90)	1.22 (6.32)	.85
1924-1936	RS	0.05 (1.36)	0.57 (2.14)	.39
1925-1930	RS	0.06 (1.15)	0.58 (1.78)	.31
1965-1986		0.01 (0.02)	1.04 (6.93)	.87
1973-1981		-0.05 (1.23)	1.29 (7.51)	.89

Notes: t-statistics in parentheses. The countries are Britain, Germany, Italy, Sweden, Norway, Denmark, Australia, Canada and the United States. Unless otherwise noted, equations are estimated by ordinary least squares and savings is measured as the sum of investment and the current account. RS denotes that Ransom and Sutch savings figures have been substituted for the U.S.

same result holds for the individual decades that comprise the period. The savings-investment correlation is highest before 1900; only for the final decade preceding World War I is it impossible to reject the null of a zero coefficient at standard confidence levels.

While these results weaken Bayoumi's conclusion of no savings-investment correlation for the gold standard period, the contrast with recent decades remains. For the period 1965-86, using data for ten industrial countries, Bayoumi estimated a slope coefficient of 0.97 with a standard error of 0.11. My estimate of 1.04 with a standard error of 0.15 for the same 9 countries considered for the gold standard period is consistent with Bayoumi's and Feldstein-Horioka's results. Although domestic savings appears to have mattered for investment in both periods, international capital movements did more to weaken the savings-investment correlation in the earlier era.

An objection to these inferences is that savings is an endogenous variable. A rise in investment will plausibly raise income and observed savings. When both savings and investment are expressed as shares of GNP, however, the extent and perhaps even the direction of the bias is unclear. Frankel (1989) finds that correcting Feldstein and Horioka's regressions for simultaneity has little impact on the coefficients. The same result obtains here.6/

But is the contrast between 1880-1914 and 1965-86 properly attributable to the policy regime? Table 1 also provides results for the interwar gold standard period (1925-31). The savings-investment correlation is considerably stronger than prior to 1913. Thus, it does not appear that institution of the gold standard is sufficient to reduce the savings-investment correlation to 1880-1913 levels.

One could argue in rebuttal that the interwar regime was not a true gold standard. I am not sure what such an objection would mean. Certainly the interwar system was universal in

scope; at its height in 1931, 47 countries participated. It combined the three distinguishing features of a gold standard: fixed prices of gold, freedom to import and export gold, and rules linking central bank liabilities to their gold reserves. True, a number of countries had to intervene to defend convertibility early in the period, and the system collapsed starting in 1931. But similar problems characterized the prewar gold standard. Latin American countries were repeatedly forced off the gold standard in the final decades of the 19th century. In 1895 the U.S. came close to suspending convertibility, events of which investors were fully aware (Garber and Grilli, 1986). The interwar gold standard reduced the exchange risk premium to low levels, the effect ostensibly so conducive to international capital mobility.[7]

What then accounts for the smaller volume of capital flows under the interwar gold standard compared to the gold standard of prewar years? A plausible explanation lies in the measures taken by governments to discourage lending and borrowing after World War I. The British government discouraged long-term overseas lending, especially outside the Commonwealth, when Britain's balance-of-payments position was weak. The German government discouraged long-term foreign borrowing starting in 1927. Overseas borrowing by the Australian Commonwealth and States was strictly controlled by a centralized Loan Council starting in 1928. The U.S. State Department screened foreign loans prior to their issue and occasionally raised objections, although these were not always effectively enforced. Thus, a likely explanation for the decline in overseas lending and borrowing after World War I is capital-market intervention by governments.

Such interference in the operation of the market was not unknown prior to 1913. Then too the Bank of England had discouraged lending when capital outflows threatened to exacerbate a balance-of-payments crisis, as in 1906-07. The French and German

governments consistently regulated the direction and level of foreign lending (Fishlow, 1985). Still, intervention was less prevalent before World War I than it became thereafter.

The observation that official management of overseas lending was more prevalent in the 1920s than before 1913 only pushes the question back a step further. Why did governments find it necessary to defend convertibility by regulating international lending in the 1920s but not before 1913? This raises the complicated issue of why the interwar gold standard seemed to operate less smoothly than its prewar predecessor. The popular hypothesis that the ratio of international reserves to monetary liabilities was lower after World War I, making disturbances more difficult to abosorb, does not withstand scrutiny.8/ More important was the international distribution of reserves: the U.S. and France were in strong surplus throughout the period, draining gold reserves from other central banks and intensifying the balance-of-payments pressure on countries like the U.K. The international monetary policies of the U.S. and France placed balance-of-payments pressure on other nations, to which their governments responded by curtailing capital flows. Insofar as the scale of lending prior to 1913 was possible only given a smoothly-operating international monetary system, the explanation lies in the absence of significant asymmetries between surplus and deficit countries and specifically in the willingness of surplus countries to adjust.9/

Three additional explanations for the contrast between the prewar and interwar gold standards warrant mention. First, it is argued that foreign lending was encouraged before 1913 by linkages between capital and commodity markets. Countries that borrowed from Britain imported capital goods from British suppliers. Hence a debit to the British balance-of-payments due to a capital outflow was quickly offset by a credit due to increased merchandise exports. Though these linkages operated, the induced increase in merchandise exports was small.10/ Foreign lending typically financed population-sensitive investments in

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infrastructure, notably housing, which did not generate a significant demand for British capital goods. Insofar as a country like Canada used foreign finance to import capital goods, it purchased them from the United States. There is little evidence that the U.S. used its revenues from merchandise exports to Canada to purchase commodity imports from the U.K. There is even less evidence of the operation of these linkages in the case of the other creditors. French lending to Russia generated little demand for French commodity exports, for example (White, 1936).

Second, a less turbulent political environment may have encouraged lending prior to 1913. Default on sovereign debt typically was associated with political revolution, after which a new government repudiated or renegotiated the debts incurred by its predecessor. British lending to Canada, Australia, New Zealand and the United States was lending to regions of exceptional political stability. Aside from the U.S. Civil War, which came toward the end of the period of large-scale U.S. foreign borrowing, there were few notable instances of political instability in the regions to which Britain lent. Local administrations were run by British emigres. Members of the British Commonwealth of Nations retained formal political ties to the mother country which surely reduced the likelihood of sovereign default. This argument does not carry over, however, to countries like Argentina and Brazil, to which Britain also lent heavily. Nor does it apply to the loans to Russia, Turkey and Latin America undertaken by France and Germany.

A third possibility is that overseas lending was encouraged in the final decades of the 19th century by exceptional rate of return differentials between domestic and foreign investment. This is the hypothesis suggested by the stages of indebtedness approach, to which I now turn.

III. Stages of Indebtedness

The simplest way of exposing the logic of the stages of indebtedness approach is with the model of Blanchard (1983). Assume no growth of population L, no depreciation of the capital stock K, no repudiation of foreign debt B, and no technical change. Assume further that the subjective discount rate is equal to the world interest rate θ.

A social planner maximizes welfare:

$$\max_{\{C,I\}} \int_0^\infty e^{-\theta t} U(C_t) dt, \tag{1}$$

subject to:

$$\dot{B}_t = C_t + I_t [1 + \psi(I_t)] + \theta B_t - F(K_t, \bar{L}),$$
$$\dot{K}_t = I_t, \tag{2}$$

$$K_0, \ B_0, \ \text{given}; \ \psi' > 0, \ F_K > 0, \ F_{KK} < 0.$$

where C is consumption and the capital stock can be adjusted through investment I subject to convex costs of adjustment ψ. To prevent the country from accumulating debt indefinitely, the transversality condition:

$$\lim_{t \to \infty} e^{-\theta t} B_t = 0. \tag{3}$$

is assumed to hold. First order conditions are:

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$$1 + \psi(\dot{K}_t) + \dot{K}_t\psi'(\dot{K}_t) = q_t \, ,$$

$$\dot{q}_t = \theta q_t - F_K(K_t, \bar{L}); \ \lim_{t\to\infty} e^{-\theta t} q_t = 0 \, ,$$

$$q_t = \int_t^\infty e^{-\theta(s-t)} F_K(K_s, \bar{L})ds \, ,$$

$$\hspace{10cm} (4)$$

$$C_t = \bar{C} \, ,$$

$$\dot{B}_t = \theta B_t + C_t + \dot{K}_t[1 + \psi(\dot{K}_t)] - F(K_t, \bar{L}).$$

The solution takes a simple form. In each period, the country invests to the point where the marginal product of capital, net of adjustment costs, equals the world interest rate. This determines the capital stock, which determines output. From the assumption that the discount rate equals the interest rate, consumption is constant over time.

Starting from a position where its marginal efficiency of capital is high relative to the world interest rate, a country borrows abroad to finance a high level of current investment in addition to its constant level of consumption. When the backlog of unusually profitable investment opportunities is exhausted, foreign borrowing stops. From this point domestic output must exceed domestic consumption to service debt to foreigners.

Note that this gets us only part way to the debt cycle result. Although the current account of the balance of payments swings from deficit to surplus, debt is not repaid. It is simply serviced for the rest of time (Siebert, 1989). Were we to make the subjective rate of discount a declining function of contemporaneous utility, however, the shadow price of consumption would fall over time and debt would be repaid. (Note that this assumption is the opposite of the Uzawa (1968) formulation.) If this effect is sufficiently strong, the infant debtor will become a mature creditor.

The model suggests that one should observe large capital flows across borders when the marginal efficiency of investment and the propensity to save are very different across countries. The marginal efficiency of investment will differ most markedly across countries that are at very different stages of development. The incentive for international capital flows therefore increases with the gap between income and productivity in the leading country -- Britain prior to 1913, the U.S. in the 1970s -- and the rest of the world.

Table 2 shows Kravis et al.'s estimates of incomes per capita in 1970 U.S. dollars for a selection of countries, along with Crafts' (1983) estimates for 1870 constructed using similar procedures. Russia, Italy and (for the beginning of the period) the United States are the main 19th century capital importers included in the table. Russia and Italy's incomes per capita are estimated to have been 30 and 50 per cent, respectively, of Britain's in 1870. Per capita incomes in the U.S. were 80 per cent of those in Britain by these calculations.[11] Per capita incomes in Canada were probably slightly lower than this, while those for Australia were quite close to those of the United States.[12]

In 1970 the gap between borrowers and lenders was considerably larger. According to Kravis et al., Colombian GNP per capita was 18 per cent of that in the United States. Other estimates include 23 per cent for Brazil, 28 per cent for Mexico and 30 per cent for Chile. Of the major Latin American borrowers, only Argentina and Venezuela, with 39 and 41 per cent of U.S. per capita incomes respectively, overlap with the range occupied by the leading 19th century borrowers.[13] This implies that the incentive to reallocate capital internationally was greater in the 1970s than a century before. Of course, only under restrictive assumptions is output per capita an appropriate proxy for the marginal efficiency of investment. Still, the available statistics do not readily support a stages-of-indebtedness explanation for the extent of capital flows.[14]

Table 2
Purchasing-Power-Parity-Based Incomes Per Capita
(in 1970 U.S. dollars)

	1870 Britain = 100	1970 United States = 100
Great Britain	100.0	63.5
United States	79.4	100.0
Belgium	81.6	71.1
Denmark	62.3	79.1
Germany	64.0	77.8
France	62.7	73.5
Sweden	38.8	91.9
Norway	48.8	74.8
Finland	43.1	64.4
Italy	51.7	54.6
Russia	27.9	na
Venezuela	na	41.2
Argentina	na	39.4
Chile	na	29.9
Mexico	na	28.3
Brazil	na	22.8
Colombia	na	18.1

Note: na signifies not available.

Source: Crafts (1983), Table 1; U.S. Department of Commerce (1976), p. 224; Kravis et al, (1978), Table 4, col. 2.

This discussion has focused on investment. The magnitude of international capital flows depends on international divergences in savings rates as well. It may be that capital movements were encouraged prior to 1913 by an unusually low level of savings in the regions of recent settlement. Figures 1-4 provide some support for this hypothesis. Figure 1 shows that the savings rate in Australia rose steadily from less than 5 per cent in the second half of the 1860s to roughly 13 per cent by the end of the 1870s.[15] Capital inflows financed approximately a third of domestic investment in this period but considerably less after 1895. Other movements in savings rates, notably the 1895-1900 decline, are less easily reconciled with the model. Savings and investment rates fluctuated sympathetically over the period, as if the former remained an important determinant of the latter. (The correlation coefficient between the two series plotted in the figure is 0.33.)
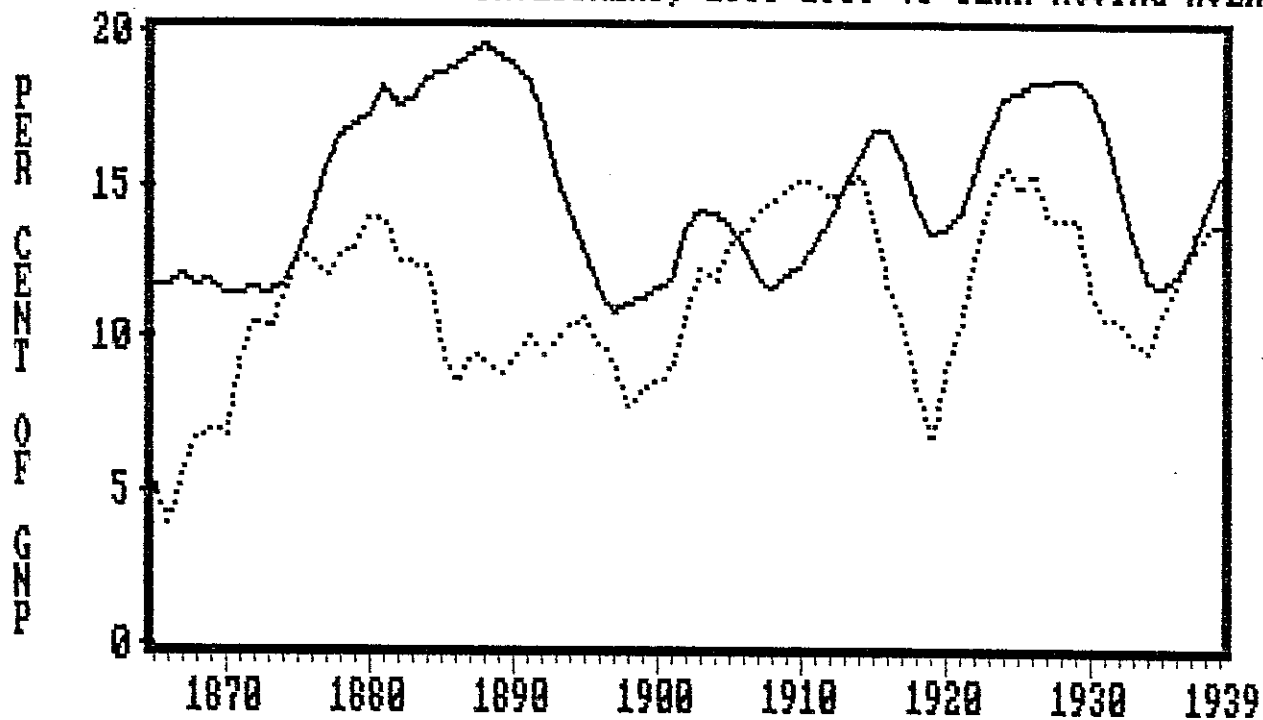
Figure 2 shows the same series for Great Britain. There was no comparable rise in the savings rate over the half century prior to 1913. The figure's most notable feature is the Kuznets-cycle-like fluctuation of domestic investment, a phenomenon familiar to economic historians.

Canada experienced a dramatic rise in savings around the turn of the century, as shown in Figure 3. The rise in the rate from roughly 10 per cent of GNP to nearly 20 per cent is consistent with the stages model. As in Australia, however, there are periods early in the development process, such as the late 1880s, when the savings ratio declines. As in Australia, savings and investment rates are positively correlated. The period of largest capital inflows (1905-13) was also the period when domestic saving was highest.

Figure 4 shows the behavior of these series for the United States.[16] Annual estimates have not been published for the antebellum period, when the U.S. was most plausibly in the low-savings stage of development.[17] Nonetheless, the data for the 1870s are revealing, since incomes were unusually low in the wake of the Civil War due to the destruction of

Figure 1

AUSTRALIAN SAVING AND INVESTMENT, 1865-1939 (5 YEAR MOVING AVERAGES)

PER CENT OF GNP

20

15

10

5

0

1870   1880   1890   1900   1910   1920   1930   1939

—— INV/GNP   ······ SAVING/GNP   Source: Butlin (1962)

Figure 2

BRITISH SAVING AND INVESTMENT, 1865-1913 (5 YEAR MOVING AVERAGES)

PER CENT OF GNP

—— INV/GNP   ······ SAVING/GNP   Source: Feinstein (1972, 1979)
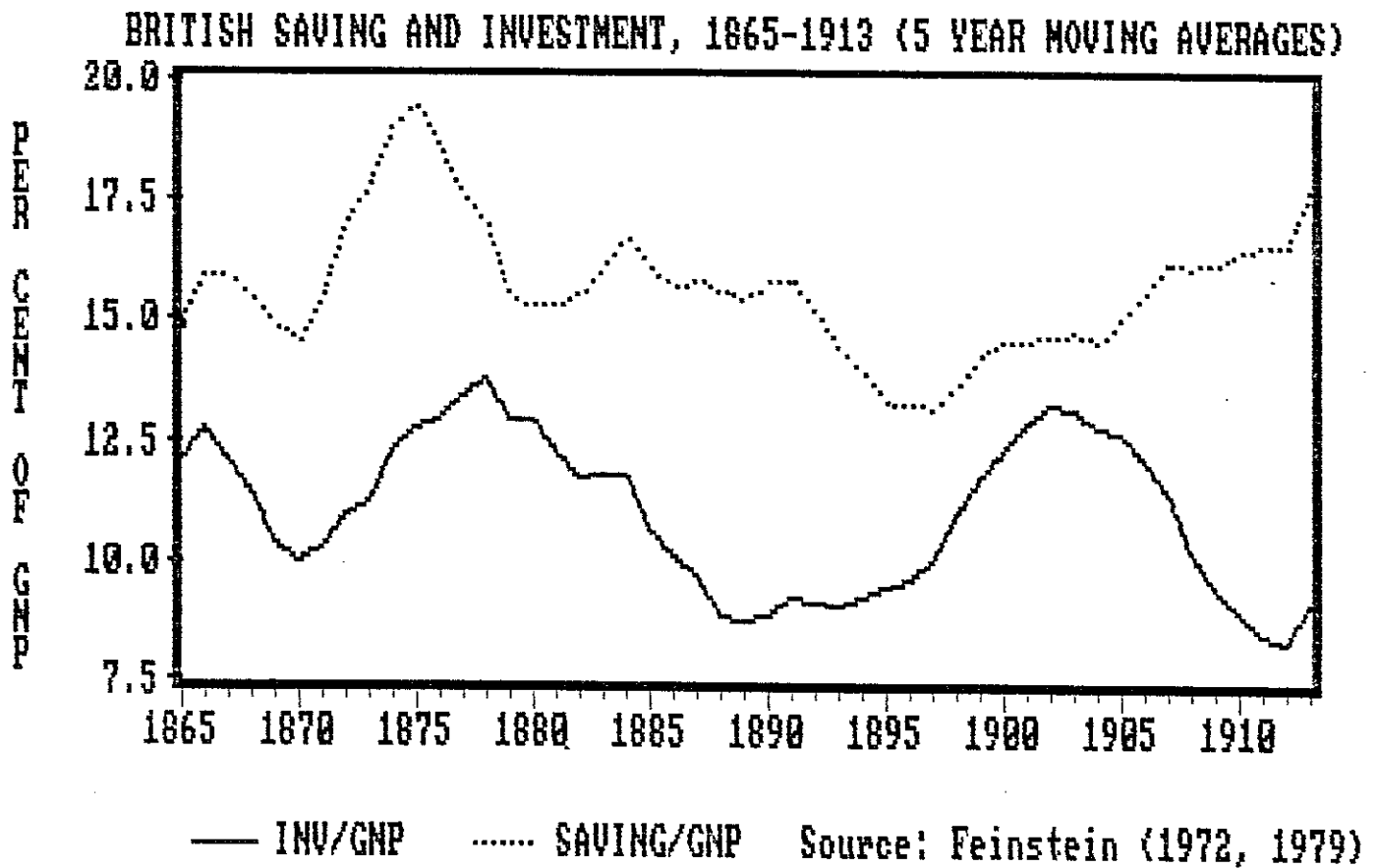
capital. Suggestively, savings rates were unusually low. An unusually large share of domestic investment was financed by foreign borrowing. The U.S. savings rate then rose in steps to a peak around the turn of the century. U.S. net foreign borrowing came to an end, setting the stage for America's shift from net foreign debtor to net foreign creditor during World War I. As in Canada and Australia, however, other fluctuations in the savings rate are not easily reconciled with the model. Notable among these are declines in the ratio during the 1880s and in the first decade of the 20th century.

This evidence suggests that savings rates, and by implication international capital movements which are a function of savings among other variables, have significant determinants other than the relationship of current to permanent income emphasized in the stages model. The determinant of savings highlighted in much of the literature (e.g. Edelstein, 1982) is population structure. When there is a high proportion of dependent children and young workers in the population, savings rates will be low. Conversely, when there is a high proportion of persons in their prime savings years (ages 40-49), savings rates will be high. By this interpretation, savings rates were low in early 19th America and late 19th century Canada and Australia not simply because these countries were in the early stages of economic development, but because they were regions of recent settlement populated by immigrants who had not yet reached their prime savings years. Evidence in Table 3 on population structure is consistent with these trends. There is a more pronounced downward trend in the share of population under the age of 15 in the U.S., Canada and Australia than in Great Britain, consistent with the hypothesis that there should have been a more dramatic rise in savings rates.

These same demographic factors go some way toward explaining cyclical fluctuations. In Australia, population composition was driven by the arrival of immigrants in their 20's in response to the gold rush of the 1850s. As these immigrants aged, the share of the
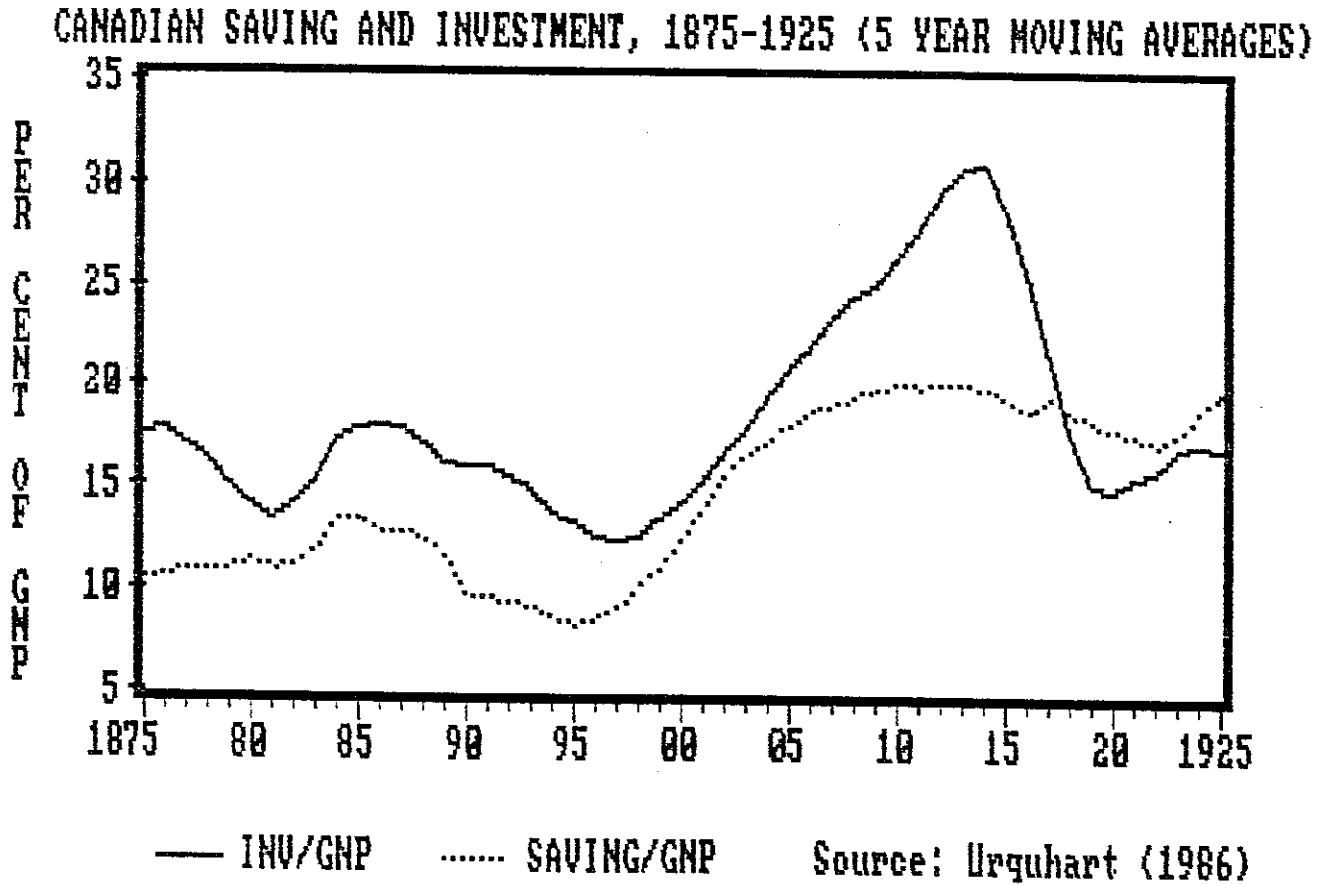
Figure 3

CANADIAN SAVING AND INVESTMENT, 1875-1925 (5 YEAR MOVING AVERAGES)

—— INV/GNP   ······ SAVING/GNP   Source: Urquhart (1986)

Figure 4

U.S. SAVING AND INVESTMENT, 1873-1918 (5 YEAR MOVING AVERAGES)

PER CENT OF GNP

27.5

25.0

22.5

20.0

17.5

15.0

1875 1880 1885 1890 1895 1900 1905 1910 1915
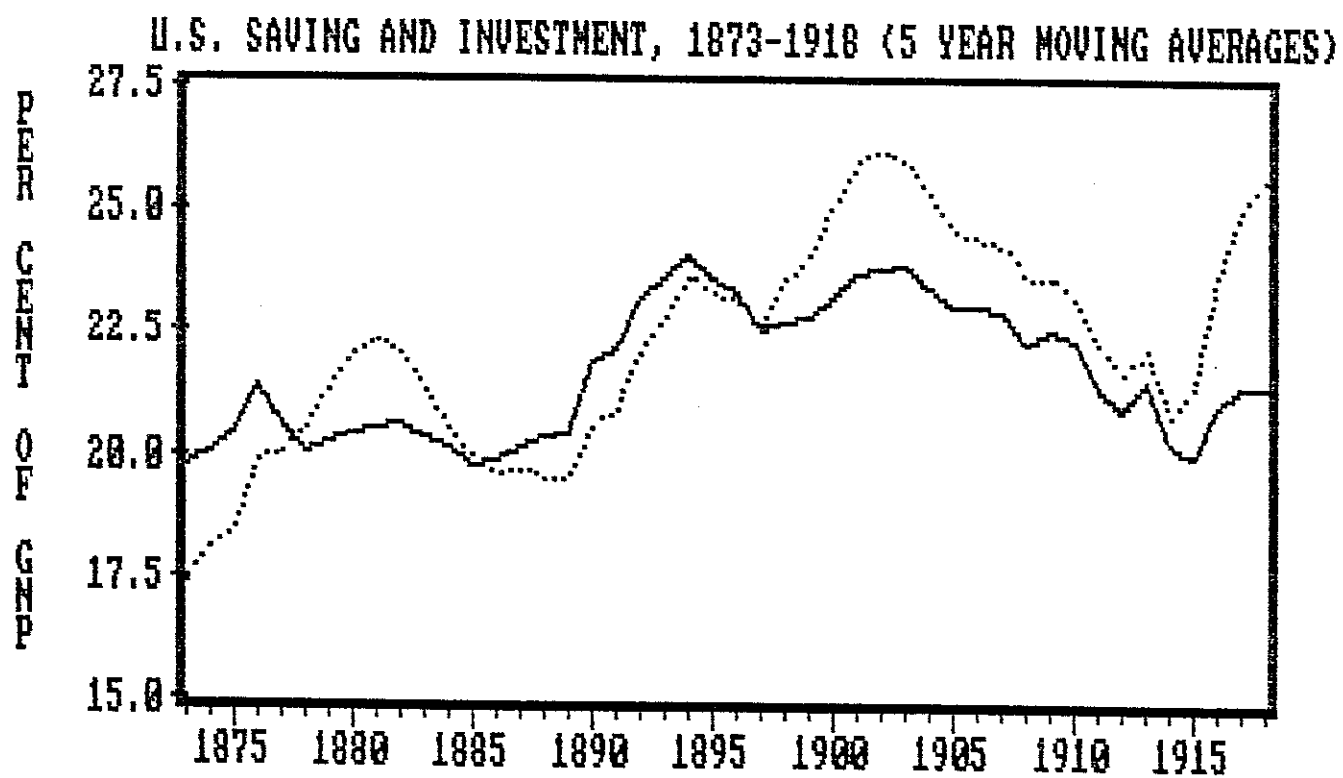
——— INV/GNP   ······· SAVING/GNP

Table 3
Share of the Population Under Age 15 and Over Age 60
and in the Prime Saving Years 40 to 49

A: Percent of Poulation less than 15 or over 60
B: Percent of population aged 40 to 49

	United States		Australia		Canada		Britain	
	A	B	A	B	A	B	A	B
1851	45.6	7.9			49.1	7.5	42.7	9.9
1861	44.8	8.3	29.5	7.5	47.3	7.6	43.1	10.3
1871	44.2	9.1	36.3	8.4	47.2	8.1	43.6	10.1
1881	43.7	9.1	35.1	8.4	45.1	8.4	43.8	9.8
1891	41.7	9.4	42.0	8.3	43.5	8.9	42.5	9.9
1901	40.8	10.1	41.3	10.0	42.0	10.0	39.2	10.5
1911	38.8	10.6	38.2	11.5	41.0	10.1	38.7	11.5

Notes: Figures for the U.S. are for 1850, 1860, 1870, 1880, 1890, 1900, and 1900. Figures for Britain are for England and Wales only.

Source: Mitchell (1980, pp. 8, 52; U.S. Department of Commerce (1976), Series A119-134.

Australian population aged 40 to 49 peaked in the late 1870s and early 1880s. Kelly (1968) notes that the subsequent decline in Australian saving was associated with a rise in the dependency ratio and a fall in the share of the population aged 40 to 49. As these ratios reversed themselves in the 1890s, the savings rate recovered. Similar fluctuations are evident in Canada and the United States. The rise in Canadian savings rates around the turn of the century, for example, was associated with a decline in the share of population under 15 and, more importantly, in the share over 65. The share in the prime earning years of 40-49 peaked between 1901 and 1913, coincident with the peak in savings rates.

Still, Canadian population structure does not seem to fluctuate enough to produce so dramatic a rise in savings behavior as occurred after the turn of the century. Nor is there an obvious demographic explanation for the fluctuation of U.S. savings rates. This serves to remind that other factors contributed to trends and fluctuations in savings. The development of financial intermediaries which rewarded savers for thrift and reduced the riskiness of financial assets, a factor emphasized by Davis and Gallman (1973) for the United States, surely operated in the other countries as well. Table 4 suggests that its influence was likely to be felt in Britain up through 1880 and in Canada as late as 1913.18/ Shifts in the distribution of income between industry and agriculture and in its concentration within the population may have also played a role.

Perhaps most importantly, changes in the profitability of investment and hence in the rate of return may have stimulated savings. Only this can explain why foreign borrowing and domestic saving covaried positively in the regions of recent settlement. Domestic savings would have crowded out capital inflows and vice versa, producing a negative correlation, unless both were driven by fluctuations in domestic returns. The literatures on the opening of the frontier, the westward expansion of the railways, and induced technical change in labor-scarce, land-abundant economies provide ample basis for analyzing

Table 4
Assets of Financial Institutions as a Share of GNP
(in per cent)

	United States	Australia	Canada	Britain
1860	28	na	na	57
1880	49	na	43	95
1900	86	108	87	93
1913	91	96	96	103

Notes: na signifies not available.

Source: Goldsmith (1969), p. 209.

fluctuations in the rate of return that were autonomous from the point of view of saving and investment.

Yet the extent of the correlation -- in other words, the responsiveness of capital inflows to the same factors that heightened the incentive for domestic saving and investment -- seems to have varied over time. This brings us to the third school of thought which emphasizes boom-and-bust cycles in international capital markets.

IV. Boom-and-Bust Cycles

The boom-and-bust approach extends to the international setting Minsky's (1972) model of financial instability. Incomplete information combines with departures from rationality to produce excess volatility in financial markets.19/ The result is decades of large-scale foreign lending alternating with periods during which little if any lending takes place.

The process is set off by a disturbance to the markets which focuses investors' attention on foreign opportunities. A decline in the rate of return on domestic investments or a rise in returns abroad causes them to redirect their attention to opportunities overseas. A financial. innovation, such as the rise of securities affiliates of commercial banks in the 1920s or the growth of international loans by banks themselves in the 1970s, may stimulate the supply of foreign loans. Alternatively, a disturbance to the pattern of balance-of-payments settlements, such as war debts and reparations in the 1920s or the oil shock in the 1970s, may stimulate the demand.

Whatever the displacement, lending, once underway, quickly reaches unsustainable heights. During the period of excessive enthusiasm, virtually any overseas issue is enthusiastically subscribed. So long as lending continues, the situation is sustained. Borrowers obtain new loans to service existing obligations. Problems arise when some event intervenes to stem the free flow of capital. That event might be a political upheaval in a

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borrowing country, as in 1890, or the increased attractiveness of domestic investments, as in 1928.20/ Once lending is curtailed, the debt-servicing difficulties of the borrowers are revealed. Interest payments are interrupted. Default and extended negotiations over a new repayment schedule then follow. Excessive enthusiasm in the international financial centers gives way to extreme pessimism. Debtors are unable to secure long-term external finance at any price. Creditors search out alternative investment vehicles that are less risky than foreign loans. Little international lending takes place for a decade or more, until the crisis is forgotten and another displacement sets off the process anew.

The first modern debt cycle is usually placed at the beginning of the 19th century. U.S. states and Latin American republics borrowed heavily in the 1820s. Latin American independence set off a speculative mania in London, as scores of companies were formed to exploit the natural resources of what had previously been a Spanish domain. When the prices of raw materials slumped in 1825 and banks with links to commodity markets experienced distress, lending ground to a halt. All but one of the newly-independent Latin American states quickly defaulted on their debts, followed by many U.S. states in the 1830s. Renegotiation of these obligations took 20 years or more. In the meantime, potential borrowers found themselves bereft of external finance.

With the passage of a quarter century, the problems of this earlier era were forgotten. By the late 1860s, large-scale lending to Argentina, Brazil, Peru, Chile and the United States had resumed. Financial crises in Vienna, Berlin and New York in 1873 then brought this second cycle to a halt. Another wave of Latin American defaults ensued. Turkey and Egypt suspended debt service. The collapse of the bond market reinforced the financial and commercial crisis of the European financial centers. Once more the international capital market lapsed into inactivity.

Figure 5

U.S. DIRECT AND PORTFOLIO INVESTMENT ABROAD AS SHARES OF GNP
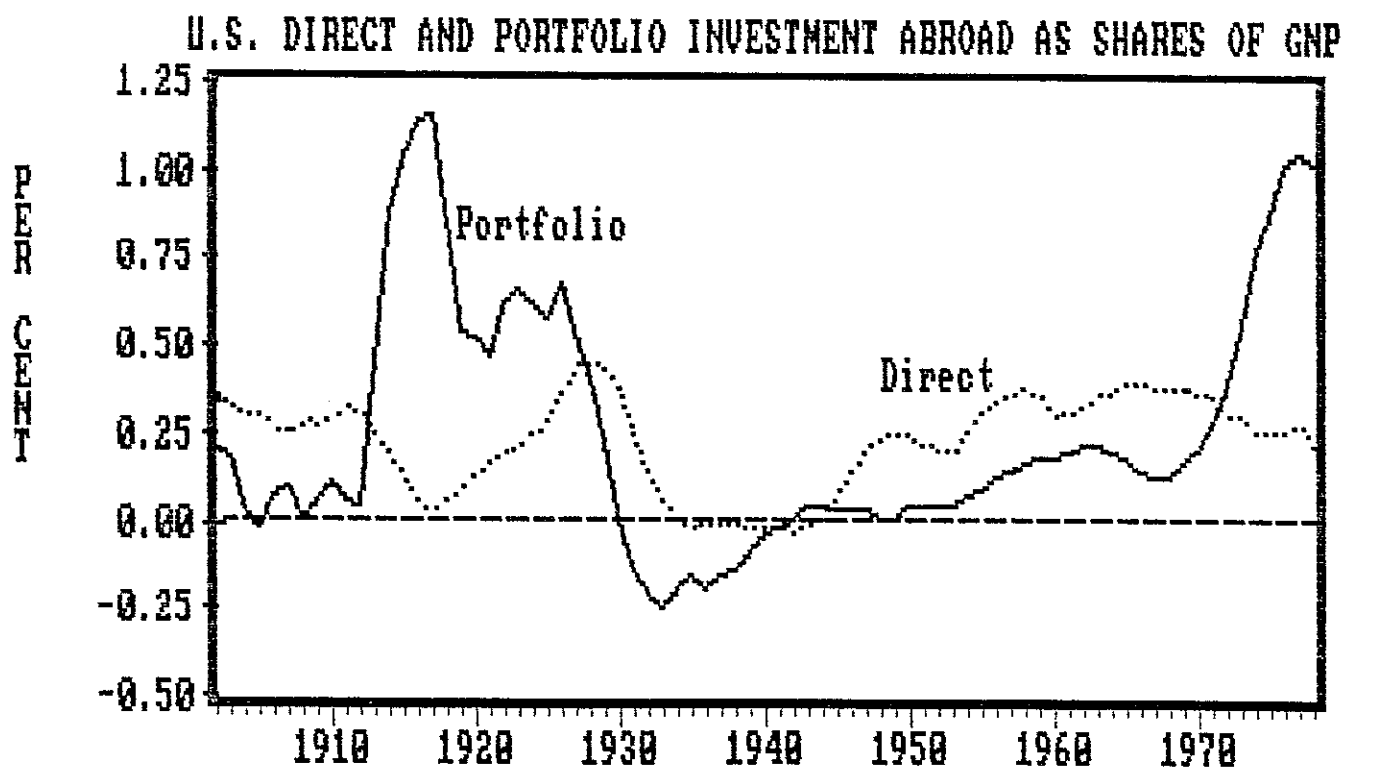

Note: five year moving averages   Source: Stallings (1987)

youth of the typical bank loan officer. Even bankers who studied the past would not have concluded that sovereign lending did not pay. Even when defaults intervened, creditors typically recovered their principal and enjoyed a return comparable to that on low-risk assets (Eichengreen, 1989c; Lindert, 1989). In other words, interest-rate premia adequately compensated investors for the special risks of foreign lending. If the borrowing countries were the same, the governments were of a totally different complexion from those that had defaulted on their obligations 40 years before. Changes in political and economic regime gave little cause for concern that previous experience, however disastrous, would be repeated.

Ultimately, however, the model does not provide a satisfying explanation for variations in the volume of lending across historical epochs. It implies that the volume of lending was large in the half century prior to 1914 because the period contained three boom phases (the early 1870s, the late 1880s, and the first decade of the 20th century). In contrast, the lending boom of the 1920s lasted only four years and that of the 1970s only a few years more, while the two 20th century lending booms were separated by a 40 year interval in which little foreign portfolio investment took place. Yet the institutional changes highlighted by the model (development of bondholders' committees, the Paris Club and the International Monetary Fund, all of which presumably reduced the costs of rescheduling) suggest that the lulls between booms should have grown shorter, not longer. They provide no obvious explanation for variations in the magnitude of lending during the boom periods themselves. Thus, while this approach captures the cyclical character of the lending process, it does not adequately explain the contrasts between epochs.
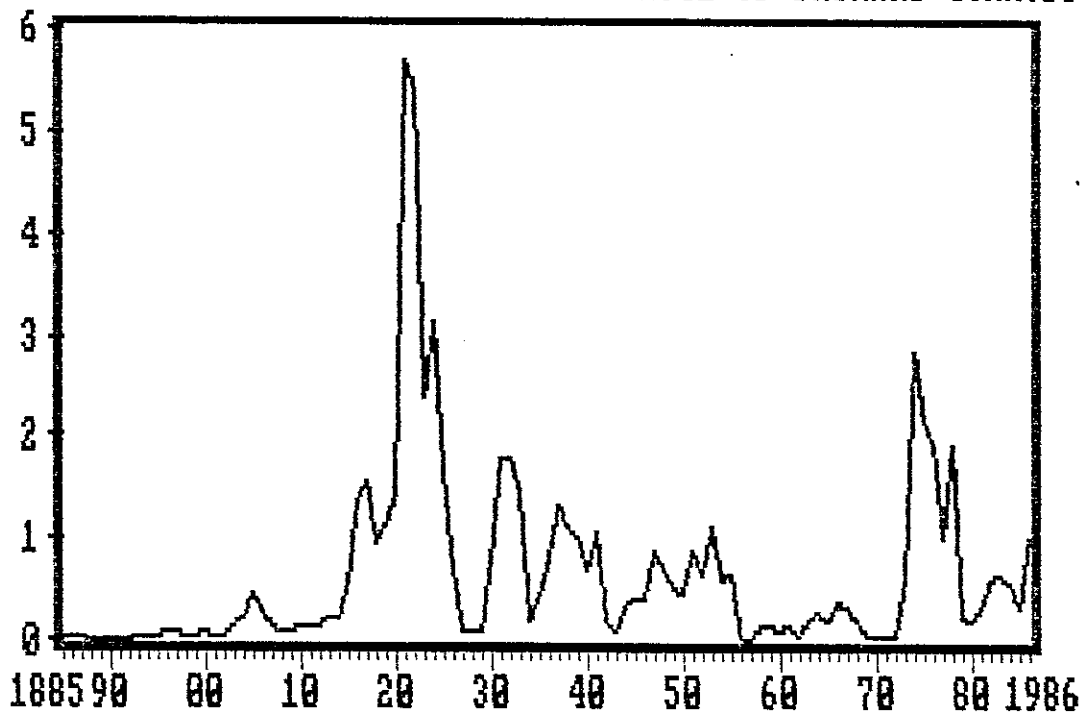
Figure 6

INDICES OF RELATIVE PRICES OF PRIMARY COMMODITIES
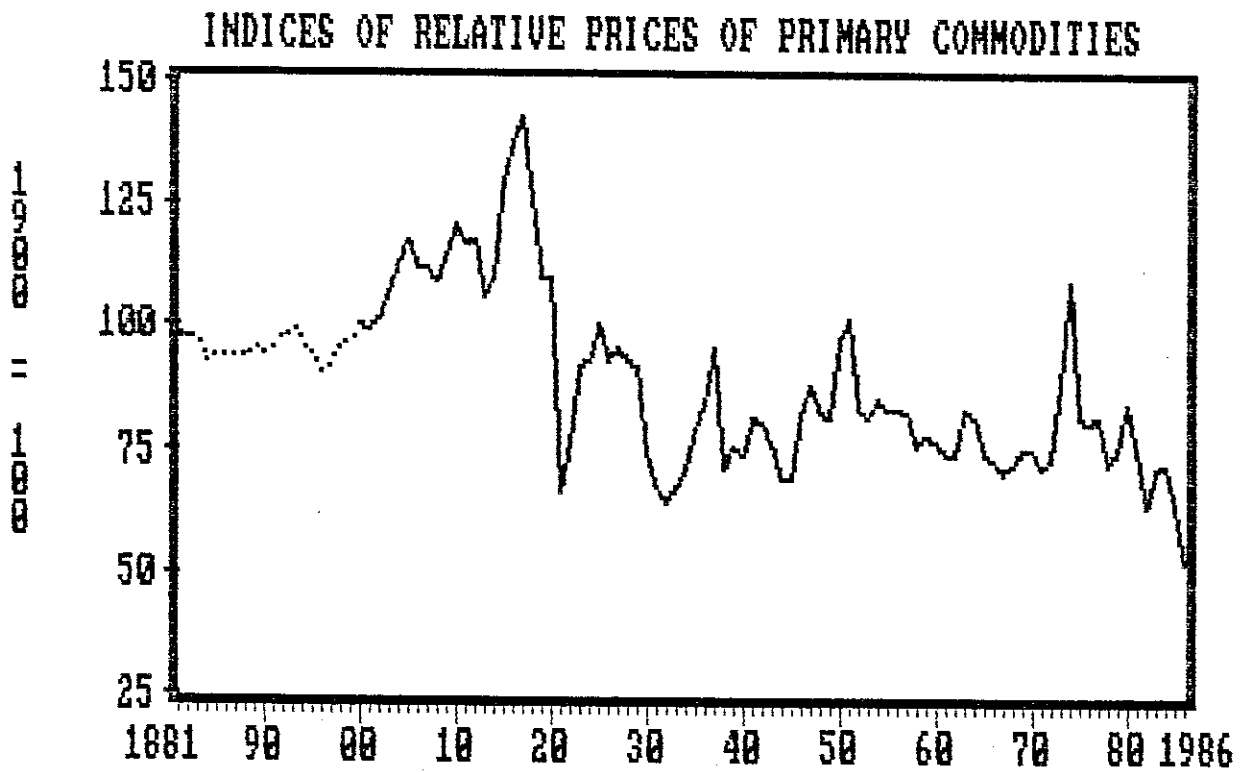
Source: Lewis (1978), Grilli and Yang (1988).

Figure 7

COEFFICIENT OF VARIATION OF RELATIVE PRICE OF PRIMARY COMMODITIES

Note: coefficient of variation based on observations t to t-4.

V. Conclusions and Speculations

None of the standard explanations for shifts over time in the volume of foreign lending accounts adequately for the phases through which international capital markets have passed over the last 100 years. Minsky's model of financial instability captures the boom-and-bust character of lending but does not explain why the booms are sometimes more pronounced, more extended and more frequent. The stages-of-indebtedness model, by focusing on domestic savings and investment, speaks more directly to the question of why the volume of lending has changed so markedly over time. But its prediction, that the volume of lending should be greatest when international divergences in the stage of development and hence in incentives for savings and investment are greatest, is not clearly supported by the data. Factors other than the incentives for savings and investment associated with countries' stages of development seem to play a dominant role in determining the volume of foreign lending.

Analyses that focus on the policy regime come closest to providing a satisfactory answer to the question. But the contrast between the classical and interwar gold standards suggests that it was not exchange-rate stability per se that promoted international lending prior to 1913, but minimal current-account targeting by the authorities. As noted above, this finding only transforms the question into another: why did governments find it unnecessary to defend exchange rate stability by regulating international lending prior to 1913, whereas they found such intervention essential thereafter?

Perhaps these explanations are incomplete because each one neglects another critical determinant of the volume of foreign lending. Lending proceeds for extended periods and reaches high levels when it is not interrupted by crisis. One determinant of the frequency and severity of debt crises, emphasized by authors such as Marichal (1989), is the instability of commodity prices and interest rates. Interest-rate shocks and cyclical instability in the developed world disrupt the free flow of capital to borrowing regions. When disruptions to

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Figure 8

EX POST REAL INTEREST RATES, 1880-1970
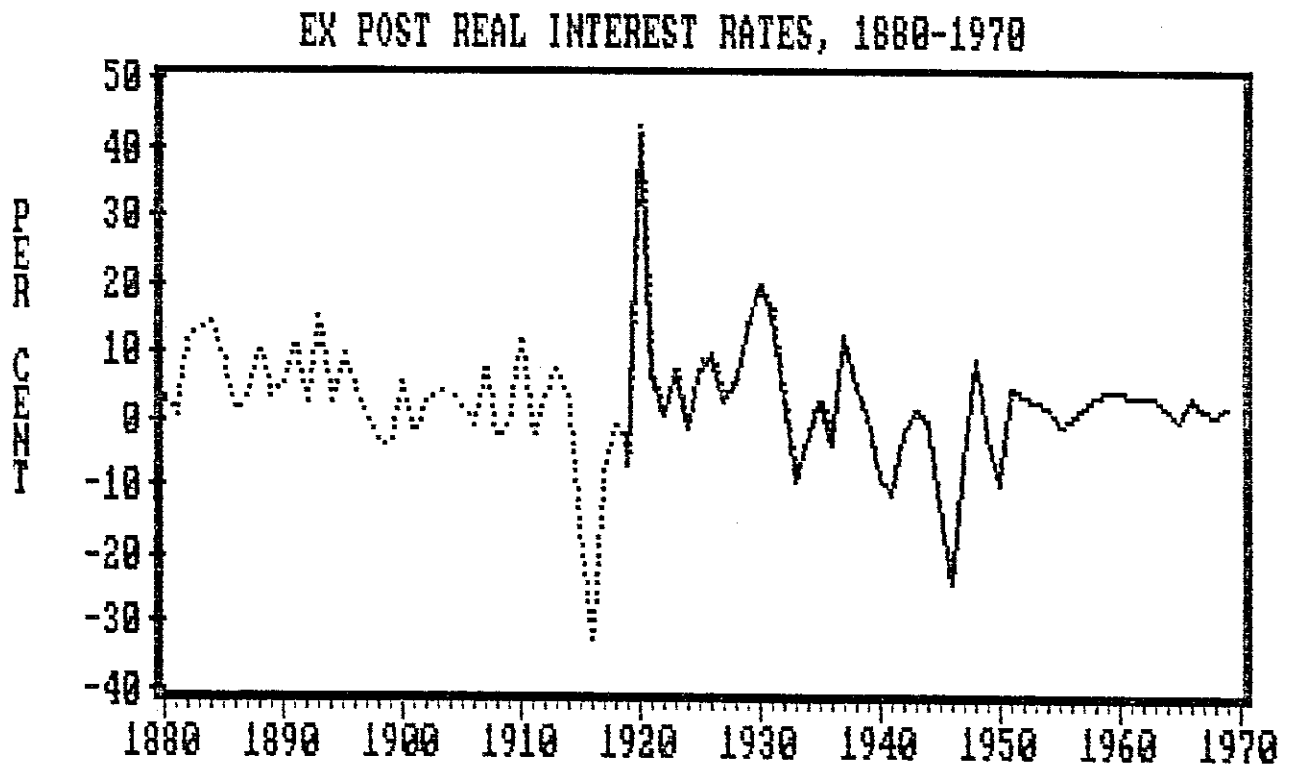
Municipal (——)& railway (······) bonds minus annual wholesale price inflation

the supply of external finance coincide with a slump in the prices of developing-country exports, default ensues, leading to a sustained collapse of long-term lending. Insofar as these shocks impact unevenly on the creditor countries, those suffering balance-of-payments deterioration intervene to discourage foreign lending.

Hence the greater volume of lending prior to 1913 may reflect a lower incidence of interest-rate and commodity-price shocks that disrupt the lending process. Figures 6-8 are consonant with this hypothesis. Figures 6 and 7 display the level and variability of the Lewis (1978) and Grilli-Yang (1988) indices of the relative price of exports of nonfuel primary commodities and exports of manufactures. It is clear that this relative price was more stable prior to 1913 than it became subsequently. Figure 8 shows two measures of the real interest rate. Again, it appears that this series was more stable prior to 1913 than subsequently.22/

At a minimum, these series are not inconsistent with the notion that the increased prevalence of interest-rate and commodity-price shocks has contributed to the relative decline of international lending in the 20th century. Understanding the exceptional volume of foreign lending in periods like 1880-1913 therefore requires an explanation for the exceptional stability of commodity prices and interest rates. Perhaps this brings us back to the operation of the international monetary and financial system, although it is now more than the singular stability of exchange rates under the gold standard that is at stake.

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FOOTNOTES

1. The countries are Australia, Canada, Denmark, Germany, Italy, Norway, Sweden, the U.K. and the U.S. The figures in the text are unweighted averages of country statistics. The underlying data are described in Section II. The rationale for focusing on these countries will become clear below. Note that this introduction refers to "the extent of capital flows" rather than to "the degree of capital mobility." The volume of capital flows across borders depends both on the costs of capital movements (transactions costs and border taxes, factors commonly thought to determine "the degree of capital mobility") and the benefits thereof (rate of return differentials and other factors that provide capital an incentive to move). In other words, capital may be highly mobile but may not move if it has no incentive to do so.

2. Bayoumi (1989) is appropriately cautious in interpreting his results. Others (viz Economist Magazine, 1989) have, however, attributed his findings to the operation of the gold standard, and specifically to its reduction of exchange risk. "So today's global capital market might be divided after all -- not by factors such as sovereign credit risk, legal differences and what have you, but by sheer uncertainty over currencies. Governments have boldly dismantled their capital controls, but in tolerating exchange-rate volatility they may have left an equally effective -- and equally harmful -- barrier in place." See also Bayoumi (1990) for another description of his results which attaches more weight to the exchange-risk view.

3. Exceptions to these rules and the rationale for each are detailed below.

4. Analogous problems arise when attempting to measure national savings in developing countries today. See Aghevli et al. (1990), p. 57. An additional problem is that for Germany the data measure net investment and net national product rather than figures gross of depreciation. The fact that depreciation is netted out of both the numerator and denominator of the ratio minimizes the bias.

5. For Canada, Urquhart's new annual estimates of capital formation remove the need to interpolate between figures for the beginning of each decade.

6. Instruments included letters posted, working age population, total population, coal consumed, and the infant mortality rate. The use of instruments tended to alter the standard errors but to have little impact on the point estimates.

7. In Eichengreen (1989) I estimated the risk premium using monthly data for seven currencies against sterling. It was on average only 20 per cent as large during the gold standard period as during the period of managed floating in the 1930s and only 17 per cent as large as during the free float of 1922- 26.

8. The evidence is discussed in Eichengreen (1989a).

9. This is not to argue that the system was symmetrical, only that the entire burden of adjustment was not placed on the deficit countries. Evidence on this question is discussed further in Eichengreen (1987). New developments in the 1920s which reduced the willingness and ability of the surplus countries to adjust are discussed in Eichengreen (1989a).

10. There is some evidence that foreign lending stimulated merchandise exports and an improvement in the trade balance in the case of Britain, as shown in Eichengreen (1989b). The increment to merchandise exports and the improvement in the trade balance were small, however, compared to the capital outflow.

11. Comparing the U.S. Department of Commerce (1976, p.224) estimate of per capita U.S. income in 1869-78, converted to 1970 dollars, with Crafts' figures for Britain for 1870 and 1880 yields 79 per cent.

12. Urquhart (1986) provides new per capita income figures for Canada, although the lack of purchasing power parity conversions renders direct comparisons difficult. Similarly, while it is often argued that Australian incomes per capita in the late 19th century were higher than those for the U.S. (or even for Britain), it is likely that the available figures are inflated by inadequate price indices that fail to capture the high cost of Australian nontraded goods.

13. Figures quoted in this paragraph are drawn from Kravis et al. (1978), Table 4, col. 2.

14. Assume for example, following Lucas (1990), that production in all counties obeys the same Cobb Douglas production function $y = Ax^\beta$, where y is output per capita, x is the capital/labor ratio, and A is the common intercept. If $\beta = 0.4$, then the marginal product of capital is approximately $(3)^{1.5}$ as large in a country where $y = y_0$ as in another country where $y = 3y_0$.

15. The five year moving averages are for years t-4 through t. The figure for 1875 is a five year average of the data for 1871-75, for example.

16. The annual estimates of gross domestic fixed capital formation and GNP are from Kuznets (n.d.), variant 1. Data on the current account are from U.S. Department of Commerce (1976). There is a break in the current account series in 1900. I have averaged the two figures for that year designed to be consistent with the pre-1900 and post-1900 series. I use the Kuznets GNP series because it was constructed in a manner consistent with the capital formation series. Recent work has questioned the cyclical properties of the Kuznets series but not their level. Taking five-year moving averages filters out cyclical movements of less than this periodicity, which should eliminate most of the bias.

17. Robert Gallman has constructed estimates of capital formation by decade, however. These can be combined with independent estimates of the current account to gauge broad trends in U.S. savings. Edelstein (1982, p.234) calculates that they imply a rise in the U.S. savings rate from 9.1 per cent in 1834-43 to 10.9 per cent in 1839-48, 12.5 per cent in 1944-53, and 14.4 per cent in 1849-58.

18. One worries, of course, that the positive association between the savings rate and the financial asset/income ratio reflects the impact of savings on financial deeping as well as the converse.

19. The version of the model described in the text is essentially that of Kindleberger (1986). An application to sovereign lending in the 1970s is Guttentag and Herring (1985).

20. In both instances it can be argued that declining primary commodity prices undermined the debt-servicing capacity of the borrowing regions and contributed to the slump in lending. See Eichengreen (1990).

21. One can argue that borrower country preferences also mattered for the composition of lending. In the 1970s, for example, bank finance was viewed as more permissive and less politically onerous than DFI. One can argue similarly that this preference was reversed in the 1980s.

22. Though the 1950s and 1960s are an exception to this rule, the 1970s and 1980s again fit the pattern. The ex post real interest rate is shown in Figure 8. The two interest rates and the wholesale price index underlying this figure are from U.S. Department of Commerce (1976). McKinnon and Robinson (1990) analyze nominal interest rates (in contradistinction to the real rates analyzed here) and argue similarly that (i) rates were less volatile under the gold standard, and (ii) foreign investment was promoted by this stability of interest rates.

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