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# 6 Canada and the Interwar Gold Standard, 1920–35: Monetary Policy without a Central Bank

Ronald A. Shearer and Carolyn Clark

## 6.1 Introduction

In the literature on the pre-World War I international gold standard, Canada has a prominent place (e.g., Viner 1924); in the literature on the interwar gold standard, Canada is but a footnote. One reason is obvious. Between the wars Canada was only legally “on gold” for two-and-a-half years (1 July 1926–January 1929), and even during this period the government was not strongly committed to the gold standard as a monetary-control mechanism. In practice if not always in spirit, Canada was a flexible-exchange-rate country (Chisholm 1979; Knox n.d.).

Nonetheless, at least two aspects of Canada’s interwar monetary experience should be of interest to students of the gold standard. On the one hand, the restoration of gold convertibility at the prewar exchange-rate parity with the U.S. dollar was accomplished with none of the controversy and strife that accompanied, for example, the British return to gold. While the smooth return to gold was obviously conditioned by many factors affecting commodity and factor markets and the Canadian balance of international payments, appropriate monetary adjustments were crucial. These were accomplished without a central bank or other effective monetary control institutions. Indeed, Canada’s

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experience might be interpreted as evidence of the irrelevance of a central bank.

On the other hand, although the gold standard was reestablished painlessly, at the first sign of stress it was again abandoned. In terms of timing, Canada, not Great Britain, led the world off the gold standard. It has been argued that the 1929 suspension of convertibility was a result of the government's failure to control the money supply. There were institutional gaps in the Canadian financial system that severely limited the effectiveness of available instruments of monetary policy. We conclude, however, that the suspension of the gold standard was not a failure of monetary policy, but a plausible response to the virtual impossibility of operating a gold standard mechanism in the face of serious external stress with imperfect monetary-control institutions and very narrow gold points.

## 6.2 The Institutions

### 6.2.1 The Pre-World War I Canadian Monetary System

Canada adopted the gold standard in 1853. By 1913 it had crystallized into what Keynes called a "fixed fiduciary issue" system (Keynes 1930, p. 237). Legal tender was either gold coin or Dominion notes, a government-issued currency. Beyond a basic fiat issue (\$22.5 million), these notes were subject to a 100 percent gold reserve. Chartered bank notes circulated alongside Dominion notes, but were not legal tender, and bank deposits were of increasing importance. Banks were required to convert their notes and demand deposits into Dominion notes (or gold) on demand and for this purpose held substantial reserves of both Dominion notes and gold. However, there were no constraining cash-reserve requirements.<sup>1</sup>

The Bank of Montreal acted as the government's fiscal agent and on rare occasions performed some central-banking functions (for example, during the financial crisis of 1907). However, there was no central bank; indeed, the very concept was anathema to a large part of the banking industry (McIvor 1961, pp. 109–11).

### 6.2.2 The Suspension of Gold Convertibility, 1914

In early August 1914, following the outbreak of war in Europe and fearing a banking crisis and a run on its gold reserves, the Canadian government released the banks from their statutory obligation to convert bank notes into legal tender and suspended the convertibility of Dominion notes into gold (PAC Finance Records, group 19, box 105, p. 2893). However, the statutory price of gold was not changed, and the gold-reserve requirement for Dominion notes issued at the initiative of the

government was not suspended. These provisions meant that legally the government could not *directly* issue Dominion notes without purchasing their full gold backing, and hence could not *directly* use monetary expansion to finance government expenditures. While the suspension of gold convertibility relaxed the external discipline of the gold standard (the specie-flow mechanism was not allowed to work), a powerful discipline on direct money creation by the government remained which imparted a deflationary bias to monetary policy when Canada was off gold and thus contributed to the return to gold.

We must immediately qualify the statement that the gold-reserve requirement was not suspended. In part it was. The Finance Act permitted the banks to borrow Dominion notes from the Department of Finance, and notes issued at the initiative of the banks under this provision had no gold-reserve requirement. This was the institutional basis for allegations that the gold standard and the Finance Act were incompatible (Courchene 1969; Elliott 1934).

### 6.2.3 The Finance Act: The Government as Lender-of-Last-Resort

By permitting the minister of finance to make unlimited advances of Dominion notes to the banks, secured only by collateral “approved by the minister,” the Finance Act created a discount window, but made no provision for the other functions of a central bank. There was no board charged with comprehensive responsibility for monetary policies and no agency for conducting open-market operations (and no open market in which to operate).

#### *Lines of Credit*

Administrative arrangements for the discount window varied, but by 1920 the practice of operating within negotiated lines of credit was well established. The practice entitled banks to advances up to a specified limit, on demand, at the posted interest rates. Additions could be negotiated at any time, but all lines of credit expired on 1 May each year.

In general, lines of credit were not a constraint on the banking system. Between 1920 and 1935, on average, advances amounted to only 16 percent of aggregate lines of credit, and in 100 of the 180 months, to less than 15 percent. Borrowing reached 25 percent of aggregate lines of credit in only 30 months, and the maximum usage was 39 percent (November 1929). At no time did the banking system have less than 60 percent of authorized lines of credit available for immediate use.

#### *The Advance Rate*

Under the 1914 Finance Act, the interest rate on advances (the advance rate) could not be less than 5 percent, although a 1917 order-in-council permitted special advances to the banks, secured by British

treasury bills, at 3.5 percent per annum. These special advances aside, the advance rate was 5 percent for the duration of the 1914 act. In 1923 a new Finance Act removed the 5 percent floor. The record of interest rates on advances is set out in table 6.1. The rate was not adjusted flexibly. During the twenty-year history of the act, the ordinary advance rate (applicable to loans secured by any eligible collateral) was changed only eight times and provisions were made for special advance rates (applicable to loans secured by special issues of government securities) on only ten occasions. By contrast, over the same period the Bank of England changed its bank rate thirty-eight times and the Federal Reserve Bank of New York its discount rate forty-five times.

#### 6.2.4 Dominion-note Issues

The three components of the Dominion-notes issue for the period 1920–34 are plotted on figure 6.1, with periods when the Canadian dollar was at or above par distinguished by shading from periods when the dollar was at a significant discount. The behavior of these series tells much of our story.

Table 6.1 Advance Rate, 1914–34

	Ordinary Rate	Special Rate
22 Aug 1914–19 Oct 1917	5.0	
20 Oct 1917–1 Apr 1922	5.0	3.5
2 Apr 1922–31 Oct 1924	5.0	
1 Nov 1924–31 Oct 1927	4.25	
1 Nov 1927–30 Nov 1927	4.0	
1 Dec 1927–8 Jun 1928	3.75	
9 Jun 1928–31 Aug 1928	5.0	
	3.75 <sup>a</sup>	
1 Sep 1928–30 Nov 1930	4.5	3.75
1 Dec 1930–9 Oct 1931	4.5	3.75
10 Oct 1931–26 Oct 1931	4.5	3.75
26 Oct 1931–1 May 1932	3.0	
2 May 1932–13 Oct 1932	3.5	
14 Oct 1932–31 Oct 1932	3.5	2.5
1 Nov 1932–2 Nov 1932	3.5	2.5
		3.0 <sup>b</sup>
3 Nov 1932–30 Apr 1933	3.5	3.0
1 May 1933–31 Jul 1934	2.5	3.0
1 Aug 1934–31 Dec 1934	2.5	2.0
		3.0 <sup>b</sup>

<sup>a</sup>Advances outstanding as of 8 June were payable at 3.75 percent; the rate on new advances was 5.0 percent as was the rate for all advances by banks which withdrew gold.

<sup>b</sup>Applicable to advances which the banks were required to take by statute, 1 November 1932, renewed 1 November 1934.

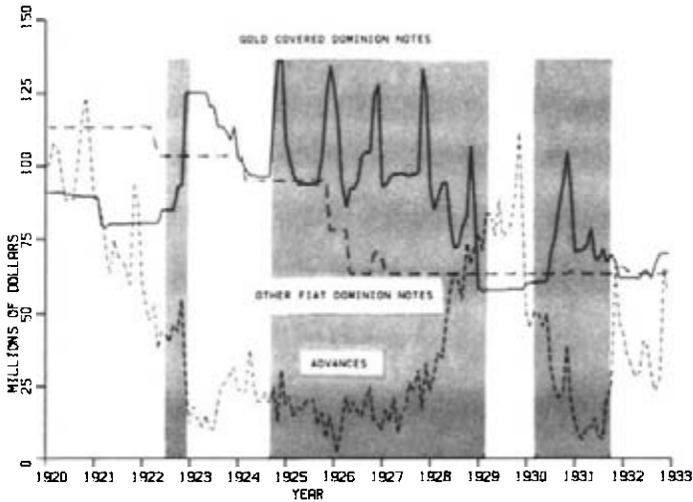


Fig. 6.1 Dominion-note issues, 1920–32.

The “other fiat note” series is comprised of the legal fiat issue and, until May 1926, notes issued as a special wartime loan to Great Britain. While this series shows several important drops early in the period, it is otherwise constant. The major variations are in notes issued as advances and in the gold-covered issue.<sup>2</sup>

The difference in the behavior of gold-backed notes and advances under the two exchange-rate regimes is striking. When the Canadian dollar was at a *discount*, the gold-backed issue displayed little variation, in spite of wide fluctuations in total Dominion notes. By contrast, there were wide fluctuations in advances, including obvious seasonal fluctuations. But, when the Canadian dollar was at or above par, the gold-backed issue fluctuated widely, particularly seasonally, in sympathy with the total issue. Advances were relatively stable seasonally and generally declined over time. The run up of advances in 1927–28 is an important exception which will be of concern later.

The interaction between advances and gold-backed Dominion notes for the adjustment of bank reserves and the monetary base, under the two exchange-rate regimes, is interesting but not surprising. When Canada was *on gold*, reserves were available to the major banks at the relatively trivial cost of shipping gold from New York. Providing that the relevant New York interest rates were lower than the advance rate, this method ensured the least-cost adjustment of the banks’ cash positions. Each year, when seasonal pressures pushed the Canadian dollar through the gold import point, major gold inflows occurred. But when Canada was *off gold*, the effective price of gold was the product of the fixed U.S.

price (US \$20.67 per ounce) and the exchange rate. However, this gold could only be carried on a bank's books, paid into circulation, or converted into Dominion notes, at the fixed statutory price of Can \$20.67 per ounce. The addition to Canadian bank reserves would not even pay for the gold purchased in New York. When Canada was off gold, the Finance Act was the least-cost method of adding to bank reserves.

### 6.2.5 The Instruments of Monetary Policy

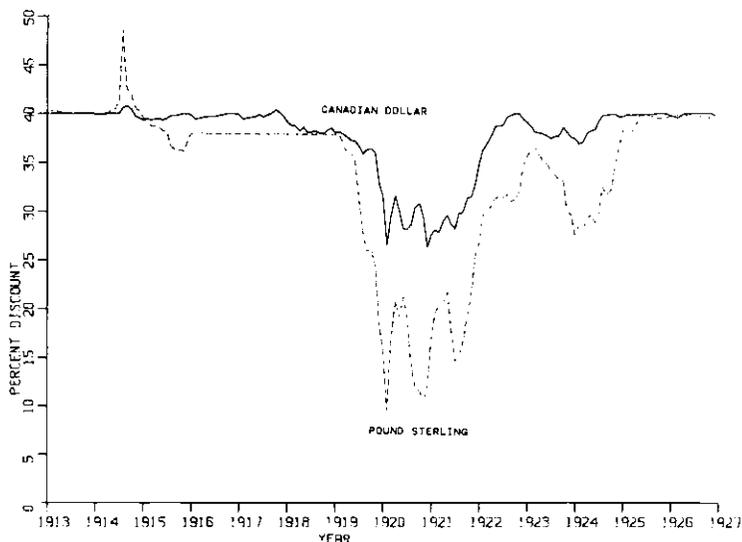
Although the Finance Act did not create a central bank, it obviously provided potential instruments for the management of the monetary base. We can distinguish between those instruments affecting the quantity and those affecting the price of base money.

On the quantitative side, the most obvious monetary-policy instrument was control over lines of credit, but there were other possibilities as well. Although in principle advances were available on demand under established lines of credit, moral suasion was a useful management tool as was the restriction of the eligible-collateral supply. The fiduciary issue was fixed by law, but the government was not above finding ways around the law; in principle, as long as convertibility was suspended, the gold-covered issue was also subject to management. On the price side, the instrument was the advance rate, at least after 30 June 1923. In the absence of reserve requirements, we find no instruments for managing the money-supply multiplier, apart from moral suasion.

### 6.3 The Return to Gold, 1920–26

From the deep discount of World War I, the Canadian dollar returned briefly to par in mid-1922, fell to a discount again in 1923, and returned definitively to par in mid-1924, although legal convertibility was not restored until July 1926 (figure 6.2). There can be little doubt that the depreciation during World War I resulted from excessive monetary expansion (Curtis 1931b; Deutsch 1940; Knox 1940). Figure 6.3 suggests that there was also a monetary explanation for the return to parity. In the early 1920s Canada experienced a monetary contraction that was both greater (18 percent versus 9 percent for M2) and more prolonged (twenty-four versus eighteen months) than that in the United States. Perhaps more significant was that while the U.S. money supply recovered sharply from its trough in 1922, the Canadian money supply remained substantially unchanged through mid-1924.

No significant change occurred in the ratio of M1 or M2 to the monetary base (figure 6.4). However, with the exception of late 1922 through mid-1923 (the period of renewed depreciation), there was a steady decline in the monetary base during the return to gold (table 6.2 and figure 6.5).<sup>3</sup> Although some fluctuations in monetary gold holdings are evident,



**Fig. 6.2** Discount from prewar gold parities: Canadian dollar and pound sterling, 1913–26.

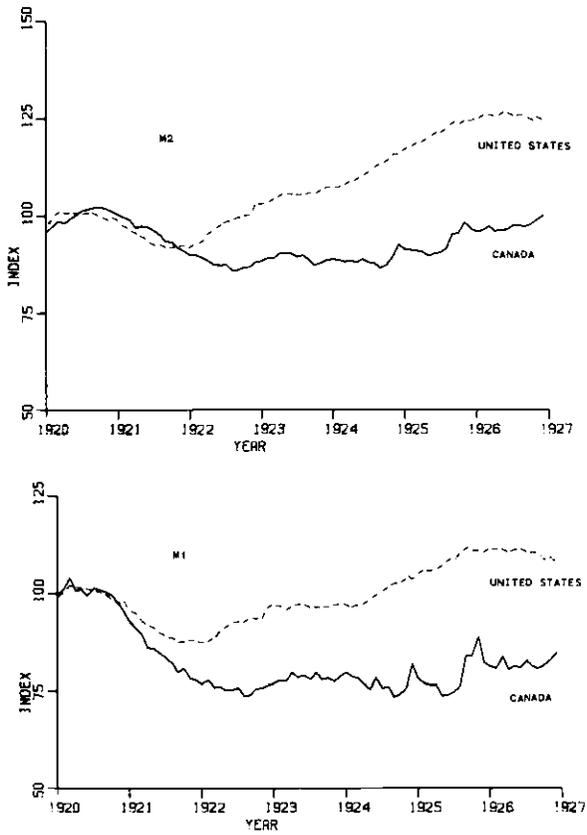
particularly seasonal fluctuations when the Canadian dollar was at par (late 1922, 1924–26), over the period as a whole the entire contraction occurred in the fiat component of the base and, if we focus on the years 1920–24, almost entirely in advances. There was no central bank to force the monetary adjustment. Did the government nonetheless use the potential instruments of policy to this end?

### 6.3.1 Quantitative Measures: Lines of Credit

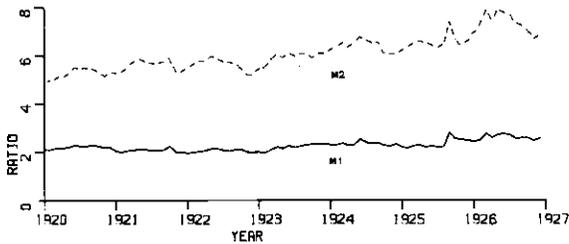
To a bank, an unused line of credit was a costless liquid asset that guaranteed almost instant access to legal tender. In principle, control over lines of credit was like control over cash reserves.

Figure 6.6 shows three major reductions in aggregate lines of credit between 1920 and the resumption of legal convertibility (May 1922, 38 percent; May 1923, 27 percent; and May 1925, 17 percent), which suggests the possibility of deliberate restrictive monetary policy in support of a return to gold. However, our research suggests not.

Examination of applications and authorizations, housed in the Public Archives of Canada, for lines of credit for the years 1920–26, revealed no evidence that the reductions of May 1922 and May 1923 were induced by the government. The reductions appear to have been the banks' reactions to the generally lower level of prices and hence lower demands for credit. The May 1925 cuts were at the government's initiative, but involved only two banks. Each cut was justified on the grounds that the bank's request was vastly in excess of its potential needs, but there is no evidence of a



**Fig. 6.3** Indexes of the money supply, *M1* and *M2*, Canada and the United States, 1920–26 (1920 = 100).



**Fig. 6.4** Ratio of the money supply to the monetary base, Canada, 1920–26.

**Table 6.2** Adjustment of the Monetary Base during the Return to Gold, June 1920–June 1926 (millions of dollars)

	<i>Levels</i>				
	1914	1920	1922	1924	1926
Gold	<u>138.3</u>	<u>182.0</u>	<u>170.0</u>	<u>164.5</u>	<u>178.4</u>
Banks <sup>a</sup>	46.6	91.5	84.8	68.3	86.0
Government <sup>b</sup>	91.7	90.5	85.2	96.2	92.4
Fiat Dominion notes	<u>22.5</u>	<u>201.5</u>	<u>147.5</u>	<u>114.1</u>	<u>83.3</u>
Legal fiat issue	22.5	63.5	63.5	63.5	63.5
Finance Act	0	88.0	44.0	19.2	19.8
Imperial Treasury bills	0	62.5	0	0	0
Other	0	25.6	44.0	19.2	19.8
British issue	0	50.0	40.0	31.4	0
TOTAL MONETARY BASE	160.8	383.5	317.5	278.6	261.8
	<i>Changes</i>				
	1914–20	1920–22	1922–24	1924–26	1920–26
Gold	+ 44	- 12	- 6	+ 14	- 4
Banks	+ 45	- 7	- 17	+ 18	- 6
Government	- 1		- 5		
			+ 11	- 4	+ 2
Fiat Dominion notes	+ 179	- 54	- 33	- 31	- 118
Legal fiat issue	+ 41	0	0	0	0
Finance Act	+ 88	- 44	- 25	+ 1	- 68
Imperial Treasury bills	+ 62	- 62	0	0	- 62
Other	+ 26	+ 18	- 25	+ 1	- 6
British issue	+ 50	- 10	- 9	- 31	- 50
TOTAL MONETARY BASE	+ 223	- 66	- 39	- 17	- 122

<sup>a</sup>Bank gold abroad included in the monetary base. 1914 = 17.2; 1920 = 17.3; 1922 = 15.1; 1924 = 14.8; 1926 = 14.4.

<sup>b</sup>Government excess gold reserves excluded from the monetary base. 1914 = 1.0; 1920 = 5.1; 1922 = 0.3; 1924 = 0.5; 1926 = 2.6.

plan to restrain the borrowing of either bank or to reduce the borrowing capacity of the banking system as a whole. We conclude that deliberate restriction of lines of credit was not an instrument used by the government in support of the 1924 return to parity.

We have had no success in our attempts to incorporate unused lines of credit in an econometric analysis of the banks' demand for cash reserves. This result may be reasonable, indicating that the banks regarded lines of credit as free goods about which careful calculations did not have to be made.

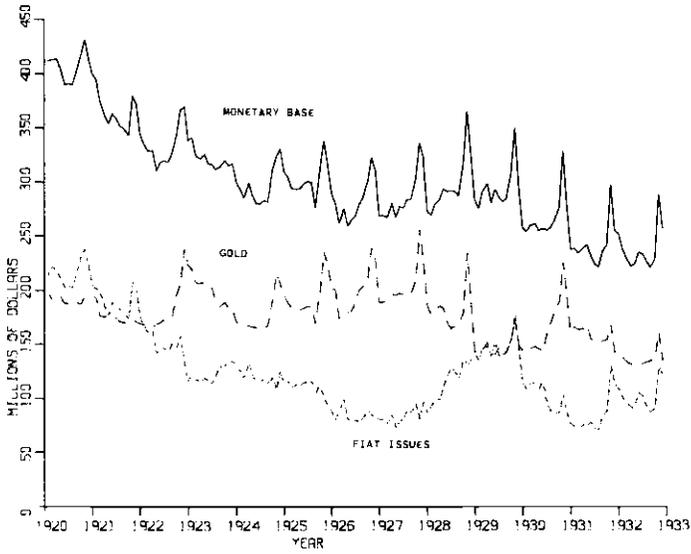


Fig. 6.5 The monetary base and its components, 1920-32.

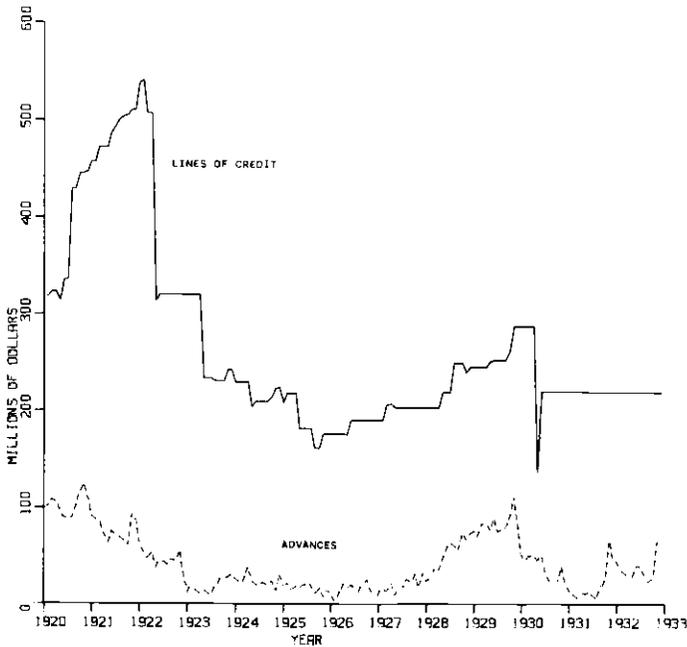


Fig. 6.6 Lines of credit and advances, 1920-32.

### 6.3.2 Quantitative Measures: Collateral for Advances

#### *The Floating Canadian Debt*

A consequence of the financing of World War I was the creation of a sizable floating debt—nonmarketable, short-term Treasury bills held exclusively by the banks. Bearing interest between 5.5 and 6 percent when the advance rate was 5 percent, these bills were prime collateral for advances under the Finance Act. On two occasions, December 1919 and May 1922, the minister of finance attempted to retire some issues before maturity; at least the 1922 case appears to have been partly a deliberate effort to reduce the fiat issue of Dominion notes.

In early December 1919, the government sought the agreement of the banks to retire before maturity \$125 million of the \$208 million floating debt. The banks agreed to \$110 million. The monetary consequences, however, appear to have been trivial. Other collateral was readily available, and the general level of interest rates was well above the advance rate. As a result, repayments of advances amounted to only \$6.8 million, a small fraction of total advances outstanding at that time (\$113 million on 30 November).

The May 1922 effort was much more controversial because the government sought to retire the entire floating debt. Interest rates, however, had dropped sharply and sound lending opportunities had dried up. Treasury bills bearing interest at 5.75 percent or 6 percent were very attractive assets for the banks. Several banks were recalcitrant, and in the end the minister only insisted on the retirement of those bills that had been pledged as collateral for advances. His stated objectives were to reduce “as far as possible that portion of the Dominion-note issue which is not secured by gold” and, as a matter of continuing policy, “to increase our percentage of gold held against Dominion note issues” (PAC Finance Records, group 19, box 101, p. 3510). Only \$49.1 million (or 34 percent of the floating debt) were in fact retired, and only a small (\$16 million), temporary drop in advances was experienced. The 1922 episode can be interpreted as an attempt to implement quantitative monetary policy, but the measure was restrictive probably because the advance rate was high in relation to other interest rates and in relation to bank-lending opportunities. At best the policy was a modest operation whose effects would have occurred in any case when the bills matured in a few months.

#### *The Floating British Debt*

More important, quantitatively, was the retirement of the British floating debt, a product of Canada’s wartime financial assistance to Britain (White 1921; Deutsch 1940; Curtis 1931b; Knox 1940). The floating debt was in two parts: a \$50 million loan of Dominion notes by

the government of Canada in 1917 (the "British issue"), and a succession of loans by the Canadian banks, aggregating \$230 million.

The British issue violated the Dominion Notes Act but was legal under the War Measures Act. Upon the expiration of most orders under the latter act on 1 January 1920, the British issue was probably illegal, but its legality was never questioned. In April 1922 the British government began making \$5 million monthly payments to the Canadian government to repay the loan and retire the Dominion notes, but the Canadian government used only the first two payments to retire Dominion notes, reducing the British issue to \$40 million. The issue remained at this level through February 1924 and was then reduced in two jumps to \$31.4 million (March 1924) and \$14.4 (December 1925), before being retired in May 1926.

Thus, between mid-1920 and mid-1924, the reduction of the British issue amounted to only \$19 million, about 5 percent of the 1920 monetary base (table 6.2). Had the entire British repayment been applied to the British issue, the monetary base would have been reduced by 13 percent by late 1922. The government's search for ready cash thus significantly moderated the contraction of the money supply, transferring the pressure to 1925 and 1926, after the prewar parity was again well established. This story is not one about a government doggedly pursuing a restrictive monetary policy in support of a return to gold.

More significant in the early stages of the return to gold was the retirement of the British debt to the banks. These loans were substitutes for direct governmental loans, and in the negotiations the government was a far from a passive intermediary. In effect, the government assumed a variable residual participation, offering to the banks the discount facilities of the Finance Act at a special advance rate. To the extent that this facility was used, the loans had an inflationary effect on the monetary base; but because the bills were not all discounted, the inflationary effect was smaller and less permanent than would have been the effect of a direct issue of Dominion notes of the same amount. Of the \$230 million loaned to the United Kingdom by the banks, less than half were discounted at any time. As the imperial Treasury bills were retired, advances fell steadily.

Again it must be stressed that the quantitative impact of debt retirement on the fiat issue of Dominion notes was, indirectly, a product of the level of the advance rate. The banks had large lines of credit and abundant collateral. Had the advance rate been in accord with market rates or perhaps below them, some part of the reduced fiat issues would have been replaced through the discounting of other securities.

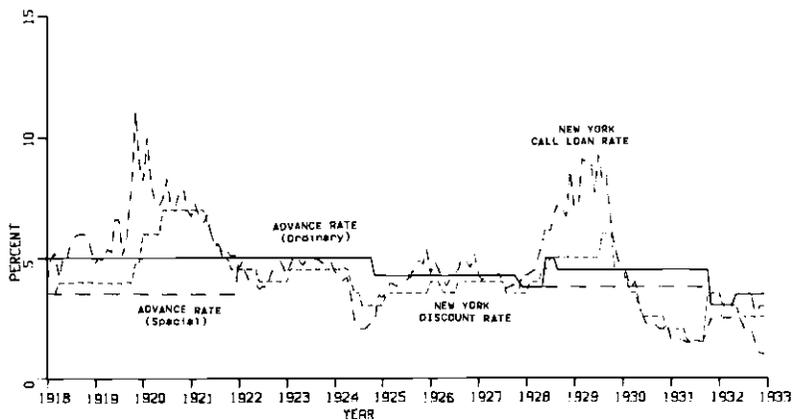
### 6.3.3 The Advance Rate

In our interpretation, the setting of the advance rate was the key to the monetary contraction necessary for the return to gold, even though it is

unlikely that the government initially conceived of the advance rate as an instrument for monetary regulation. The Finance Act of 1914 was a temporary emergency measure, and although the Treasury Board was given discretion to set a rate above the floor, it is very unlikely that there would have been a legislated floor if the advance rate had been designed as a policy instrument. (The Treasury Board itself was a body responsible for overseeing the government's fiscal position, not for managing monetary policy.)

### 1914–20

From its introduction in 1914 until 1924 the advance rate was unchanged, except for the introduction and expiration of the special advance rate to facilitate Britain's borrowing in Canada. Almost as soon as the rate was set at 5 percent, interest rates dropped sharply in New York (figure 6.7) so that the Canadian rate became very much a penalty rate. It is not surprising that little borrowing was done in the first few years, and most of that by smaller banks that did not have low-cost access to the New York money market. Through mid-1917, the Finance Act was not an instrument for inflationary expansion of the money supply. However, the 3.5 percent special rate for advances secured by imperial Treasury bills established in October 1917 soon became competitive with the rising New York call-loan rate, and by 1918 even the ordinary advance rate was below New York levels. In 1919 and 1920 the differential between the advance rate and New York rates became very intense, and in April 1920 the minister of finance was advised by his major adviser, the president of the Bank of Montreal, to abolish the 3.5 percent special rate because it was so low as to promote "over trading" (PAC Finance Records, group 19, box 2673). A letter was written to the Canadian Banker's Association



**Fig. 6.7** The advance rate, the New York call and discount rates, 1918–32.

on 21 May 1920 announcing the abolition of the special rate (PAC Finance Records, group 19, box 3514). No reply is preserved in the Public Archives, but evidence from the ledger books shows that advances were made subsequently at the 3.5 percent rate, suggesting that the new policy was opposed by the banks and not implemented. Not only was the ordinary advance rate not raised when central banks around the world were raising their discount rates, this modest proposal for restrictive advance-rate policy came to naught.

#### *1920–24*

When the imperial Treasury bills were retired, the advance rate was effectively increased from 3.5 percent to 5 percent. More importantly, while the New York call-loan rate remained in the 6–7 percent range through 1920, in 1921 and 1922, like most short-term rates, it plunged to low levels. With the Canadian advance rate fixed at 5 percent, what had been an inflationary interest-rate differential now became a deflationary differential. The advance rate thus contributed to the return to gold, not as a matter of deliberate policy but by the accident of the drafting of the 1914 Finance Act and the technique adopted to finance British wartime purchases in Canada.

When the 1923 Act removed the 5 percent floor, the advance rate was not changed. Although we have no direct evidence, it is plausible that the government was attempting to support the again-falling Canadian dollar. Consistent with this interpretation, the rate was not lowered in the fall of 1923 to support the seasonal expansion of the money supply, but it was lowered in 1924 when the Canadian dollar was strong. In this respect, the government behaved like a gold-standard central bank; apparently Canada was learning about monetary policy British-style. However, two points should be noted. First, advances under the Finance Act were at a low ebb in 1923. The 5 percent advance rate would have discouraged banks from taking advances to increase their reserves, but it could not have been intended to induce further retrenchment; no such retrenchment was possible. Second, unlike the British bank rate or the New York discount rate, the advance rate was not directly linked to any open-market interest rates in Canada. There was no open money market of consequence, and even the broad psychological effects normally attributed to changes in the bank rate could not have occurred. Changes in the advance rate were a private affair between the government and the banks. We have discovered only one instance (September 1928) when the change in the advance rate was noted in the press.

#### 6.3.4 The Gold-Reserve Ratio

Although we can find little evidence of quantitative monetary policy in support of a return to gold, we have noted one attempt involving early

retirement of floating debt that was justified as improving the gold-reserve ratio. Two other examples of similar policies can be cited that probably had little impact on the return to gold but which suggest the government's general frame of mind. We noted earlier that when the Canadian dollar was at par, the seasonal expansion of bank reserves was effected by the importation of gold. The seasonal demand for money and the seasonal strength of the current account combined to push the Canadian dollar through the gold import point, and gold flowed in. However in 1922 and 1924 before the gold import point was reached, the government used excess funds at its disposal to import gold, making the seasonal gold adjustment for the banks. The government's purpose can only be surmised, but it seems likely that it was attempting to improve the gold-reserve ratio (figure 6.8). The actions were probably unnecessary; the normal working of the adjustment mechanism would probably have pushed the Canadian dollar through the gold import point anyway, and the effects on gold reserves were largely temporary.

### 6.3.5 Overview of the Return to Parity

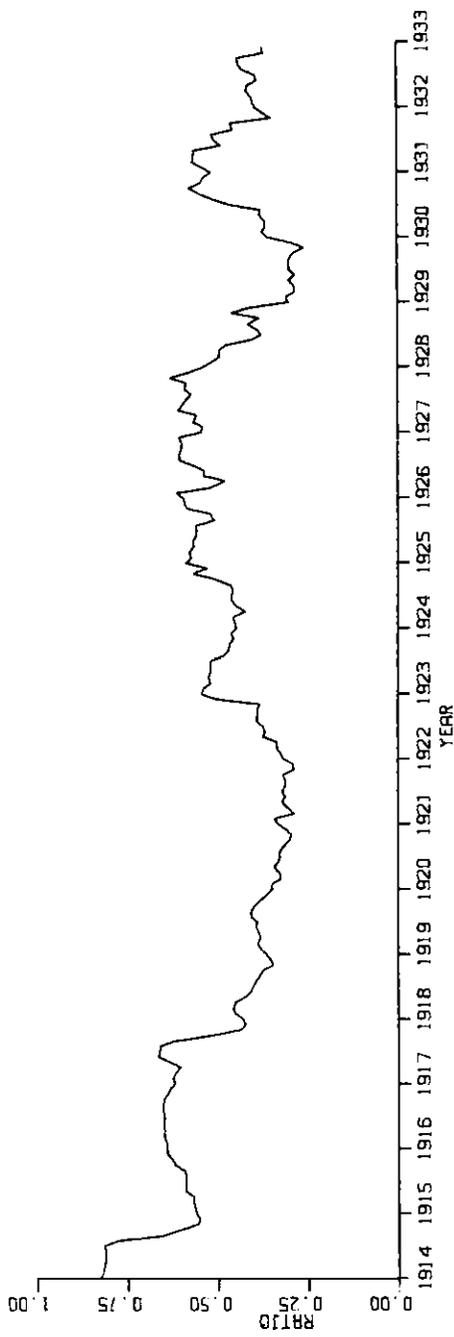
We have not examined fully why Canada's return to gold was so unremarkable. We have ignored the real factors affecting the balance of payments and the behavior of labor and commodity markets and only asked: How did Canada, without a central bank, make the monetary adjustments necessary for the return to gold? Several points seem significant by way of summary.

1. We have no direct evidence of a conscious "grand design" of a monetary policy to restore the gold standard, although, from time to time, government policies were predicated on improving the gold-reserve ratio. The theme of an eventual return to gold recurred in public and private discussions of monetary affairs, but it was not a serious political issue nor a subject of vigorous public debate.

2. The major instrument of quantitative monetary policy, control over lines of credit, was not used. Indeed, we can point to only two attempts by the Canadian government to implement quantitative monetary policy (through the early retirement of floating debt), with but modest effects.

3. More important were the monetary consequences of the retirement of the British floating debt, an accidental by-product of the settlement of Canada–United Kingdom wartime financial affairs.

4. Until July 1923, the advance rate could not be lowered. In subsequent months, long after relevant market interest rates had fallen, the government, for unknown reasons, chose not to lower the advance rate. We argue that this was the most important decision affecting the return to gold. Not only was the 5 percent advance rate deflationary in its own right, it created the conditions under which the retirement of the British floating debt would also be, on balance, deflationary.



**Fig. 6.8** Ratio of official gold reserves to outstanding Dominion notes, 1914-32.

5. Occasionally during the monetary adjustment, the government showed the usual governmental penchant for accepting “easy money,” e.g., the funds available by not retiring the “British issue” on schedule. However, because of the 100 percent marginal gold-reserve ratio, the government could not resort to the expediency of issuing Dominion notes to finance expenditures. With the Canadian dollar at a discount, notes issued by the government would not even pay for their own gold backing let alone finance government expenditures. We suspect that this remnant of the gold standard, when Canada was officially off gold, was of profound importance in conditioning the return to gold. It prevented the government from following a directly inflationary policy.

#### 6.4 The Suspension of the Gold Standard, 1928–31<sup>4</sup>

Reestablished so easily, why was the gold standard suspended again so quickly? It has been argued that the suspension was a direct consequence of excessive monetary expansion, reflecting in part a “fundamental inconsistency between the operations of the gold standard and the Finance Act,” and in part faulty government policy (Courchene 1969; Elliott 1934). However, this argument is misleading. Rather than a failure of Canadian monetary policy, the 1929 suspension was a reaction to a powerful external shock whose severe, immediate monetary consequences could not be otherwise offset or contained. It demonstrated the extreme difficulty faced by a country like Canada, with remarkably narrow gold points, in adhering to the gold standard when the international monetary environment was not tranquil.

##### 6.4.1 The Monetary-Policy Hypothesis

The foundations of the monetary hypothesis can be seen in the behavior of the Canadian money supply, which increased somewhat more rapidly than that of the United States in the late 1920s—or rather took a noticeable relative jump in late 1927 (figure 6.9). Given the fixed exchange rate, however, the money supply was endogenous; its behavior cannot explain what happened. Perhaps more relevant is the behavior of the monetary base, particularly the sharp rise in fiat Dominion notes in 1928 (figures 6.5 and 6.10). A sharp increase in advances apparently displaced gold from the monetary base—advances drove out gold. In considering how this displacement might have happened, however, we must remember that without a central bank or a government directly managing the fiat issues of Dominion notes, the size and composition of the monetary base were also endogenous. The only exogenous factors were interest rates. A monetary-policy explanation of the suspension must focus on the setting of the advance rate.

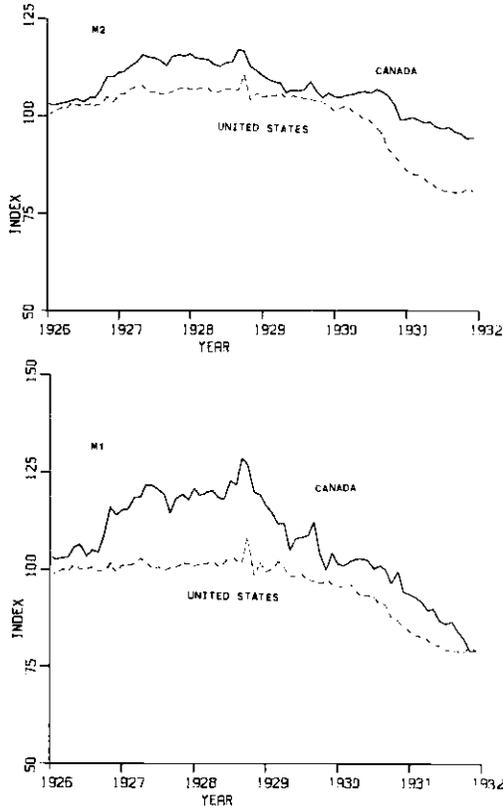


Fig. 6.9 Indexes of the money supply, *M1* and *M2*, Canada and the United States, 1926–32.

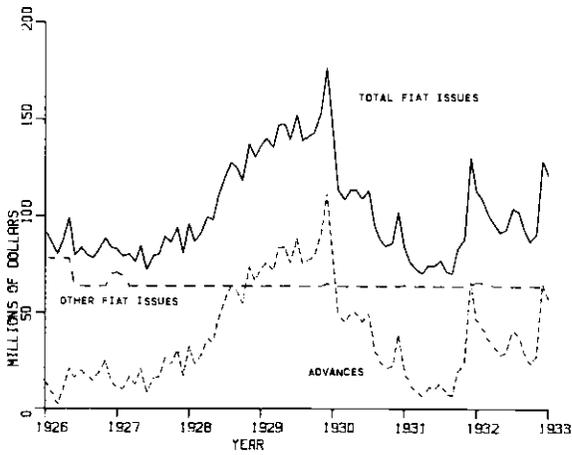


Fig. 6.10 Fiat issues of Dominion notes, 1926–32.

#### 6.4.2 The Advance Rate

To explain the sharp increase in advances, Courchene points to the lowering of the advance rate from 4.5 percent to 4 percent in November and to 3.75 percent in December 1927 (table 6.2; figure 6.7). The November adjustment was subsequently defended as necessary to keep the advance rate in line with the discount rate of the Federal Reserve Bank of New York, which had been reduced from 4 percent to 3.5 percent in August 1927 (Hyndman 1928, p. 53), hardly a surprising policy for a gold standard country with a stable exchange market. The December adjustment was probably part of the same policy, but it had another important consequence. To persuade the banks to purchase a special issue of three-year 4 percent Treasury notes, the government made a commitment to discount these notes at the new advance rate of 3.75 percent. This “special advance rate” restricted the government’s freedom of action during the subsequent gold crises and initiated a new policy with respect to the advance rate and the Finance Act mechanism.

##### *The Advance Rate and the New Floating Debt*

We will not explore in detail the new advance-rate policy, but it is useful to note it in passing.

Most of the changes in the advance rate during the twenty-year history of the Finance Act occurred after December 1927 (table 6.1). With four exceptions (June 1928, September 1928, May 1932, and May 1933), these changes involved either a new special advance rate or a reduction in the ordinary advance rate coincident with a new issue of short-term debt placed directly with the banks. The advance rate was set to provide an inducement to the banks to purchase the new government securities. The government had discovered the potential of the Finance Act to support government financial operations and used it repeatedly for that purpose. However, the government also made one effort to use it for monetary-policy purposes.

#### 6.4.3 The First Gold Drain

Advances increased in the fall of 1927, but not substantially, and there was no drain of gold. The major increase in advances and the beginnings of the gold drain occurred later, in mid-1928, after the dramatic rise in the New York call-loan rate (figure 6.7).

##### *The Policy Response: June 1928*

It has been argued that the government did not understand the problem of the gold drain and did nothing (Elliott 1934). In fact, as the gold drain began, the Department of Finance attempted an almost classic central-bank response involving both a rise in the advance rate and a

“gold device.” To our knowledge, this was the first deliberate central-banking operation in Canada.

The exchange rate went outside the gold export point on 31 May 1928. On 5, 6, and 7 June one bank exchanged \$7 million of Dominion notes for gold. The next day the advance rate was raised to 5 percent for all *new* advances secured by ordinary collateral and all *new and outstanding* advances of those banks, “which hereafter withdraw gold” (PAC, Treasury Board Records, group 55, box 645). Unfortunately, the monetary effect of the new advance rate was muted by the special advance rate of 3.75 percent introduced in December 1927. The government clearly understood the problem but was constrained by the earlier commitment.

Given the lack of an active, open money market with international connections and the secrecy governing the change in the advance rate, the increase was clearly not intended to affect international capital flows in the normal way. Indeed, it is better to regard the new advance rate as a “gold device,” a method of increasing the cost to banks of shipping gold. As such, it was successful for a time. Although the Canadian dollar remained outside the gold export point, there were only three shipments of gold during the balance of June and early July, and these were by the government. However, in mid-July, when the discount on the Canadian dollar increased, reaching  $\frac{1}{2}$  cent, private shipments occurred again. Thus, when potential arbitrage profits were very large, advance-rate policy failed. No further policy response occurred or was necessary. A sudden but seasonally normal recovery of the exchange rate stopped the gold outflow. The crisis apparently over, in early September the advance rate was reduced from 5 percent to 4.5 percent.

#### 6.4.4 The Second Gold Drain

For two months the Canadian dollar remained strong, but in mid-September, when it would normally strengthen, it weakened; apart from a brief burst above the gold import point in late November (when \$22.5 million of gold was imported), it remained below par but within the gold point. In early December it plunged through the gold export point, and gold began to flow out. From 30 November 1928 to 28 February 1929, \$60 million of gold was shipped, although because of purchases of newly mined gold from the Royal Mint, official reserves fell by only \$50 million. Then the gold drain stopped. Indeed, private shipments stopped at the end of January 1929. The government’s shipment of \$18 million to meet foreign commitments during this period, while profitable, is puzzling, given their concern about the gold-reserve ratio. The Canadian dollar remained well outside the gold export point until mid-March 1930, and the discount actually reached 2.5 cents after the stock-market collapse.

### *The Policy Response*

The government's initial reaction to the second gold drain was different; the advance rate was not increased, but other gold devices were invoked. In mid-December 1928 the Canadian banks apparently agreed not to ship gold *for their own account*, leaving open the question of shipments on behalf of U.S. banks. Standard gold devices were used. By law, gold should have been made available in Montreal, the normal shipping point to New York. It was only made available at Ottawa, adding to transportation costs (*New York Times* 1927a, 1927b). In December 17 percent and in January 70 percent of the gold paid out was bullion or British gold coin rather than U.S. coin. This gold had to be assayed before it could be accepted by the U.S. authorities, adding to transactions costs. When in mid-February 1929 the discount on the Canadian dollar increased so that these gold devices could no longer be relied upon, it seems to have been agreed that the banks would charge prohibitive agent fees for handling the gold transactions of foreign banks (as a matter of standing policy, the government would only make gold available to Canadian banks) (*Journal of Commerce* 1929a 1929b). When the discount became so large that the necessary commission rates were implausible, say by mid-March 1929, the banks appear simply to have declined to purchase gold for foreign banks (*Commercial and Financial Chronicle* 1929, pp. 1107, 1978). These gold devices were effective. From the first week of February 1929 until December 1930, there were no private shipments of gold from Canada.

#### 6.4.5 The 1930 Respite

The exchange rate returned within the gold export point in mid-March 1930, and, apart from a two-week drop below the export point in early May (when again no gold flowed out of Canada), the rate remained within the gold points until mid-December. Indeed from July on, the Canadian dollar had several brief bursts of strength, approaching the estimated gold import point but never decisively breaking through it.

#### *The 1930 Gold Inflow*

On most occasions when the exchange rate touched the gold import point, there were sizable shipments of gold to Montreal, but there were also sizable shipments when the rate was well below the gold point. Over the whole period, July through November, Canada received \$36 million of gold, almost 60 percent of the drain during the crisis of 1928–29. The responsiveness of gold flows to very marginal, and in some cases negative, profit margins astonished financial commentators. In part the shipments were a response to market incentives created by the government and in part a result of governmental purchases.

Although we have no direct evidence, there is strong circumstantial evidence (from reports in the financial press) that the government was purchasing gold in New York to improve Canada's gold-reserve position. Such a policy was strongly urged at this time by the Canadian Bankers' Association who were disturbed by the sharp decline of the gold-reserve ratio below "what is deemed adequate . . . in the chief countries maintaining the gold standard" (PAC Finance Records, group 19, box 105). To the bankers, it was a matter of international confidence in Canadian banks with extensive international business; to the government (needing to roll over 44 percent of Canada's funded debt in the next four years), it was a matter of securing "the lowest possible interest charges" (Canada, House of Commons 1930).

We estimate that government shipments were between \$15 million and \$16 million, over 40 percent of the total gold inflow.

#### *Policy Measures: The Finance Act*

Monetary policies reinforced the effects of gold purchases on the official gold-reserve position, creating market incentives to ship gold to Canada.

In spite of a sharp decline in interest rates worldwide, including central-bank discount rates, the advance rate remained constant at 1928 levels, 4.5 percent (ordinary) and 3.75 percent (special). The sharp widening of the differential between the advance rate and New York interest rates (figure 6.7) created an incentive to import gold, either to repay advances or as a substitute for advances to augment cash reserves, in effect temporarily reducing the gold import point. Some sizable shipments were made by U.S. banks, and there were reports of American banks diverting funds from New York to lend in Canada. Advances to the banks fell by \$21 million—59 percent of the total gold inflow. This decline was concentrated in July and August, before the seasonal expansion in note circulation and in the demand for cash reserves, and essentially paralleled the gold inflow.

A policy implemented 1 May, if maintained, would have strengthened this effect. In an unprecedented action, the government severely curtailed authorized lines of credit. Bank protests were loud and difficult to ignore. The policy was rescinded almost immediately, although threats of similar restrictions were repeated the following year.

The government reinforced these measures by using its deposits with the banks to pay for a portion of the gold purchased by the mint, rather than issuing Dominion notes, the normal practice. Through November, \$3.6 million of gold so purchased was added to "excess" gold reserves, improving the official gold-reserve ratio without adding to the cash reserves of the banks.

The 1930 episode provides strong evidence that as in 1922 and 1924, the

government had a policy designed to improve its gold-reserve position. Three instruments were used: direct purchases of gold in New York, creation of excess gold reserves, and a penalty advance rate. The combined result was a small increase in Dominion-notes outstanding (a normal seasonal adjustment) and a dramatic rise in the gold-reserve ratio, from 37.7 percent on 30 June to 54.1 percent on 30 November.

Over the next five weeks, the normal seasonal drain of gold from Canada occurred. With the dollar below the gold export point, \$40 million of gold was shipped to New York. A few days after gold shipments in mid-January had drained the last of the gold acquired in the preceding months, the dollar recovered to within the gold points, where it remained until early June 1931.

#### 6.4.6 The Third Crisis

The final episode began on 10 June 1931 when the exchange rate went outside the gold export point and culminated in October with an *official* embargo on gold exports. In between, the discount on the Canadian dollar ranged from 20/64ths during the summer, to one cent after 15 September, and plummeted to fourteen cents just before the embargo was declared. But, in spite of these powerful market incentives, only \$35 million of private gold shipments occurred, \$18 million in June. During July and August the outflows substantially stopped, resuming to a limited extent in September and October before the embargo was declared. In the five weeks between 15 September and 19 October when the profit incentive for shipments was exceptional, only \$8 or \$9 million was exported.

#### *Gold Policies*

We found no records in the Public Archives relating to the government's gold policies in this period. However, it is unlikely that even the June outflow reflected a policy of unrestricted gold exports, and, again, the cooperation of the banks had to be a key ingredient. But this time the implicit restriction of exports elicited virtually no comment in the financial press. The policies of 1929–30 were probably still fresh in everyone's mind, so a reintroduction of such measures caused no surprise. During September and October, with the market inducements for gold exports exceptionally intense, the government allowed a trickle of gold out of official reserves, maintaining the image, if not the substance, of being on the gold standard. But there was a new element in the problem. For the first time the discount on the Canadian dollar was so deep that it was profitable for the public to convert relatively small quantities of Dominion notes into gold and to demand the honoring of the gold-payment clauses of some bond issues. The government's response ranged from bureaucratic harassment to outright refusal to convert. The convertibility

of Dominion notes and refusal to honor gold clauses became for the first time political issues both inside and outside the country. The British suspension of gold provided strong and timely justification for a formal Canadian embargo.

#### 6.4.7 Overview of the Suspension of the Gold Standard

The suspension of the gold standard in 1929 was achieved almost as quietly as the resumption in 1924–26—although a significant political uproar occurred later. In summarizing, we would emphasize the following points.

1. The impetus behind the 1929 suspension was the sharp rise in the New York call-loan rate which put severe stress on the Canadian foreign-exchange market.

2. Contrary to some suggestions, the government was not unaware of the nature of the problem and initially attempted tried-and-true central-banking techniques to deal with it—in the first crisis gold devices and advance-rate policy, and in the second crisis more gold devices—before secretly imposing an embargo on gold exports. In subsequent crises the government continued the embargo until it was legitimized by the British suspension. The government had the full support of the Canadian bankers and the tacit approval of the government of the United States.

We surmise that the lesson drawn by the Canadian government from this experience was that classical policies could only cope with minor external pressures. Although it can be argued that the measures were half-hearted at best, the situation was very difficult. The Canadian gold points were exceptionally narrow, and some Canadian banks were very alert to potential gold-arbitrage profits. Moreover, there was a serious institutional gap. Canada had no open money market with international connections, so while the response of international capital flows to more vigorous use of the advance rate might have been in the right direction, it would have been sluggish.

#### 6.5 Conclusions

Canada's interwar experience with the gold standard is paradoxical. Without a central bank, but as a result of interest-rate policies put in place by accident, the gold standard was quietly and efficiently restored. However, when the Department of Finance discovered its capacity to act like a central bank, its operations were a failure and the gold standard was suspended at the first sign of significant external stress. Part of the reason for the failure was that it had earlier launched a policy of using the Finance Act to support short-term government financing, which predictably undermined the developing concept of gold standard central-banking. The major reason for the failure, however, was the rigidity of

the gold standard in the Canadian case. In the absence of substantial excess gold reserves, a 100 percent marginal reserve requirement left very little room to maneuver in the event of a gold drain; and the gold points between Canada and the United States were narrower than for any other pair of major industrial countries. Exchange-rate movements that would have had no consequences elsewhere, elicited major gold movements and potentially serious monetary distress.

Although from time to time the government formulated policy with an eye to the gold-reserve ratio, even when Canada was formally on gold the government showed no commitment to the gold standard as a monetary-control mechanism, other than for seasonal adjustments. The discipline was too severe.

## Notes

1. Against deposits there were no reserve requirements; the banks held whatever “prudent practice” and market incentives dictated. There was a 100 percent reserve requirement against any “excess circulation” (over paid-up capital) of bank notes, but econometric evidence suggests that the banks largely treated these reserves as a substitute for reserves they would otherwise have held in their vaults (Clark and Shearer 1975).

2. We define the gold-covered issue as that part of the Dominion-note issue against which 100 percent gold reserves were *required*, i.e., the total issue of Dominion notes less the fiat issues permitted under the Dominion Notes Act and the Finance Act, and the 1917 “British issue.” The gold-covered issue is not quite identical with actual gold reserves because of small holdings of excess gold reserves.

3. We have included in the monetary base gold held by the banks outside Canada on the grounds that this gold was almost immediately available to the banks for use in Canada, if necessary, at trivial transactions costs (Clark and Shearer 1975). On the other hand, we have excluded from the monetary base any excess gold held by the government over and above the legal requirement on the grounds that this gold was not monetized. Alternative definitions of the monetary base, excluding bank gold abroad or including government excess gold, do not affect the general conclusions drawn here.

4. The data on gold flows, daily exchange rates, and gold points (and their interpretation on the basis of material in the Public Archives and the financial press) on which this section is based are fully documented in Clark and Shearer 1980.

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## Comment Charles Freedman

Shearer and Clark have written a very detailed, scholarly analysis of monetary policy in Canada in the period between the end of the First World War and the creation of the central bank. As an economist working in a central bank and trained in the type of monetary theory that takes the existence of a central bank as an institutional datum, I found the discussion of the mechanics of a system without a central bank both interesting and useful.

The principal weakness of the Shearer-Clark paper is the lack of a carefully articulated theoretical model that would place the analysis of the behavior of the financial sector within a general-equilibrium context and would permit us to contrast such behavior with that implied in the current institutional environment. A particularly important aspect of such a formalization would be to focus the attention of the reader on which variables are endogenous or exogenous in different possible regimes and which exogenous shocks were affecting the system. I would like to begin my comments on Shearer and Clark by sketching out such a model.

A fairly standard textbook model of an open economy is comprised of four equations—(1) an IS curve in which output is determined as a function of the interest rate and exchange rate; (2) a price equation in which prices adjust to the gap between output and full-employment output; (3) a balance-of-payments equation in which the sum of the current account, the capital account, and the change in international reserves is set equal to zero;<sup>1</sup> and (4) an LM curve in which the demand for central-bank money is equated to its supply. The supply of central-bank money in such a model is equal to the sum of domestic assets and net foreign assets (i.e., international reserves) held by the authorities. Because of the importance of the LM curve in the discussion that follows, it is worth writing it explicitly for the case of an economy with a central bank that imposes mandatory reserve requirements.

$$(1) \quad kD(\cdot) + C(\cdot) + RE(\cdot) = NDA + NFA + RB(\cdot).$$

The demand for central-bank money or base is equal to required reserves ( $kD$ ) plus currency ( $C$ ) plus excess reserves ( $RE$ ), and the supply of central-bank money is equal to the net domestic assets ( $NDA$ ) plus the

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The views expressed in this comment are those of the author and no responsibility for them should be attributed to the Bank of Canada.

net foreign assets (*NFA*) of the relevant authorities plus the borrowed reserves of the banking system (*RB*), if any.

There are three different regimes that can be analyzed in the context of this simple model. In the pure flexible-exchange-rate system, the level of international reserves, *NFA*, is held constant and the endogenous variables are the interest rate, output, prices, and the exchange rate. The level of *NDA* is an exogenous variable. In a fixed-exchange-rate world with sterilization of changes in international reserve holdings, changes in *NDA* are used to offset changes in *NFA* and the endogenous variables are the interest rate, output, prices, and the level of international reserves. Finally, in a fixed-exchange-rate world without sterilization, the authorities do not attempt to use *NDA* to offset changes in *NFA* and the endogenous variables remain the interest rate, output, prices, and the level of international reserves.

Two basic sets of propositions are derived from this type of model. The first relates to the effect on the system of an exogenous shock in the capital flow or the current account. The second focuses on the effects of an exogenous change in the level of net domestic assets held by the monetary authorities.

In analyzing the structure of the Canadian economy in the period between World War I and the establishment of the Bank of Canada in 1935, one can treat the equations representing the equilibrium in the goods market, the determination of prices, and the balance-of-payments equilibrium as being roughly similar in structure to those in the post-1935 period. There are, however, a number of important changes that must be made to the equation representing the financial structure of the economy.

First, reserves against deposits were not mandatory. Second, notes issued by the chartered banks above a certain level had to be backed 100 percent by either Dominion notes or gold. Third, under the Finance Act the banks could borrow Dominion notes at an advance rate set by the government of Canada. Fourth, the government required 100 percent gold backing for issues of Dominion notes beyond the fiduciary issue except for those issued under the Finance Act. Fifth, the Canadian money market was very underdeveloped and Canadian banks made extensive use of the New York money market.

Ignoring the fiduciary portion of the note issue and focusing only on marginal responses, one can write the equation that shows the equality between the demand and supply of Dominion notes as

$$(2) \quad DN(\cdot) = GG + FAB(\cdot),$$

where *DN* is the demand for Dominion notes, *GG* is government holdings of gold, and *FAB* are bank borrowings under the Finance Act. The demand for reserves by the banking system and the supply of reserves to the banking system can be depicted as

$$(3) \quad k(\cdot)D(\cdot) + BN(\cdot) = GB + DNB,$$

where  $BN$  are bank-notes outstanding,  $GB$  are bank holdings of gold, and  $DNB$  are bank holdings of Dominion notes.<sup>2</sup> Adding the two equations one gets

$$(4) \quad k(\cdot)D(\cdot) + BN(\cdot) + [DN(\cdot) - DNB] \\ = GG + GB + FAB(\cdot).$$

This equation more closely resembles the traditional LM equation in that the sum of the precautionary reserves held against deposits and the currency held outside the banking system is equal to the gold holdings plus borrowings by the banks from the authorities. Note that there is no equivalent to  $NDA$  in this system.

Writing the LM equation in this form immediately raises a number of questions. First, did the government hold foreign exchange (e.g., deposits in New York banks) against which no notes were issued but which could be transformed into gold if desired? The authors indicate that the government on occasion made direct purchases of gold in New York but do not explain how these were financed. Second, what determined whether a gold inflow was held by the banks or by the government? Third, were the banks prepared to use their foreign-currency liquid assets in New York or their ability to raise deposits from U.S. residents to augment their gold holdings when they were short of reserves? That is, could the banks create a capital inflow by selling U.S. dollar assets and bringing the gold proceeds back to Canada? Rich (this volume, chap. 12) cites a number of sources that indicate the banks did this in the period preceding World War I. All these questions relate to the endogeneity of the reserve base of the chartered banks.

A second set of questions relates to the determinants of the desired holding of reserves by the chartered banks. First, what factors influenced the behavior of the ratio of reserves to deposits of the banks? Rich has suggested that in the period before World War I there was a significant relationship between that ratio and income such that when income rose, the reserve requirement was permitted to fall, and the stock of money could increase without an increase in the level of reserves. Shearer and Clark suggest that there was no such relationship in the postwar period, at least in the early 1920s, but their analysis is in terms of the overall money multiplier. The latter can of course be influenced by a switch between notes (with 100 percent reserves) and deposits. Second, what factors entered into the determination of the use by the banks of advances, a device on which the authors focus a great deal of attention in their study? One possibility is the differential between the rate charged on advances and the rate available on liquid assets in New York (as suggested by the authors). Alternatively, the relevant differential could be that between

the rate charged on advances and that available on assets in Canada, either explicitly in the Montreal money market or implicitly in terms of the marginal return on an increase in bank loans to business. The different assumptions lead to very different conclusions regarding the effect on the variables of the system of a change in the rate on advances. Consider, for example, the effect of a decline in the rate on advances. If the banks used the funds from the now cheaper advances to invest in U.S. short-term assets, the results would be a capital outflow, a reduction in gold holdings of the authorities, and no change in the Canadian money stock. There would simply be a reduction in gold-backed Dominion notes to offset the increase in Dominion notes issued under the Finance Act. (This result would be equivalent to the effect of an increase of *NDA* on *NFA* in a fixed-exchange-rate system with infinitely elastic capital flows.) Alternatively, if the advances were used to buy Canadian liquid assets or to increase loans to Canadian business, the result would be an increase in the Canadian money stock. Thus the specification of the functional arguments in the expression for borrowed reserves can be very crucial in determining the outcome of conceptual experiments regarding a shift in exogenous variables.

Shearer and Clark analyze the period leading to the restoration of the gold standard and that leading to the departure from the gold standard. In the former they emphasize the role of advances under the Finance Act, and in the latter they focus on both the balance of payments and the advances under the Finance Act.

In their discussion of the period leading to the return to the gold standard, Shearer and Clark suggest that the main factor permitting such a return to the gold standard without undue hardship was the decline of the Canadian money stock both absolutely and relative to the U.S. money stock. Since the multiplier was fairly constant over the period, this decline resulted from a decline in the monetary base. Turning to the components of the monetary base, one can see that gold was fairly flat over the period and that the decline in base resulted from the decline in fiat issues related to advances under the Finance Act. The authors do not address directly the question of why gold holdings were relatively stable. Presumably, this stability resulted from developments in the Canadian balance of payments. Given the emphasis in the later part of the paper on capital flows and their effect on total gold reserves, it would have been useful, if only by way of contrast, to discuss these developments in the first half of the decade.

Since it was the decline in the fiat issues that turned out to be the crucial element in the decline of the base, the authors spend the greater part of the first section of the paper discussing possible causes of this decline, including the setting of lines of credit for advances, the availability of

collateral for advances, and the rate on advances. In the main, it was the latter two factors and most especially the rate on advances that were crucial in the reduction of the monetary base. Following the argument made above, it must have been the return on Canadian investments or loans that was the alternative rate relevant to the banks and not a U.S. rate since in the latter case there would have been offsetting movements between gold-backed notes and those issued under the Finance Act.

I think that the authors are correct in concluding that there was no conscious grand design in monetary policy to restore the gold standard. George Watts, a long-time student of Canadian monetary policy, assures me that there was no body of principles generally recognized by the Canadian authorities at the time that permitted them to act in such a way as to ease the return to gold.

In their discussion of the later period, the authors focus on both the advance rate set by the authorities and on the changes in international reserves resulting from balance-of-payments flows. Again, one must raise the question of the considerations that influenced the banks in their use of advances. If it were the comparison with U.S. rates, then there would have been a link between the rate on advances, capital outflows, and hence the gold stock, without any change necessarily taking place in the money stock. However, to the extent that the banks responded to the difference between the rate on advances and interest rates in Canada, a relatively low rate on advances would lead to an increase in the Canadian money stock and hence increases in output, prices, and a gold outflow. The authors focus mainly on the former scenario although recognizing that there was also an increase in the money stock. An alternative hypothesis that would be consistent with the data is that a key element in explaining the money-stock increase in Canada in the late 1920s was the Canadian expansion of this time which derived from the North American boom of the period. The increase in income caused increases in both loans and money demand which were satisfied by the chartered banks. The latter, in turn, were able to satisfy their desire for reserves by borrowing under the Finance Act at rates that were very attractive. To distinguish between the various hypotheses would require a careful articulation of a general-equilibrium framework.

There are a number of other interesting elements discussed in the Shearer and Clark paper, such as the relationship between the price of gold and the relative costs of borrowing in New York and borrowing under the Finance Act, the use of gold devices, and the response by the authorities to the gold flows at the end of the 1920s and in the early 1930s. The detailed and scholarly analysis of these and other aspects of Canadian monetary policy in this period will prove very useful to the student of Canadian history between the wars.

## Notes

1. By specifying the arguments carefully, this equation can be consistent with either stock models or flow models of external transactions. Furthermore by setting certain partial derivatives equal to infinity, this equation can also represent a world of infinitely elastic capital flows.

2. The assertion of Shearer and Clark (note 1) that the banks behaved as if their reserves against excess note issues were a substitute for cash reserves they would otherwise have held can be captured by either putting a coefficient between 0 and 1 on  $BN$  or putting  $BN$  as an argument in the  $k$  function.

## General Discussion

CAGAN was struck by the authors' statement that Canada returned to the gold standard by accident, for the same statement has been made about the United States in 1879. In the United States the government said it was going to go back on gold, and, with the implementation of no particular policy, the dollar just went back. Perhaps if by accident a country can get close enough to equilibrium, then the market will do the rest of the work, because no one has an incentive to ask for gold as long as people are convinced that the government will always be able or willing to take the steps necessary to maintain convertibility. In other words, once the economy is within a certain distance of equilibrium, it snaps back to equilibrium, and any subsequent adjustment takes place gradually over time.

WHITE drew attention to a number of references in the paper to the "imperfect" development of monetary mechanisms. White was curious to have the authors specify exactly what was lacking.

SHEARER responded by citing the difficulty of controlling the monetary base. Canada had no central bank to worry about the availability of credit. There was no provision for an agency to conduct open-market operations. There was no money market, and virtually no market in which short-term securities were traded. There was a discount rate fixed at minimum by statute, but the discount rate had no signaling effect, at least to the economy as a whole. It wasn't even published. On only one occasion in the period studied did newspapers comment on a change in the discount rate.

BORDO asked about the role of the Bank of Montreal and other large Canadian commercial banks in this period. He thought that in some ways the Canadian experience may have been similar to the experience of the United States in the early part of the nineteenth century, e.g., the Suffolk banking system. In particular, having a large commercial bank committed to the maintenance of convertibility may be sufficient to ensure the stability of the system.

SHEARER noted that the Bank of Montreal was the government's fiscal agent. It held the government's bank account and was a source of advice on monetary matters. However, there is no evidence that it performed any central-banking functions.

Shearer returned to the issue of the paper's exogeneity assumptions. Essentially, the authors assume that two variables were exogenous: the level of British indebtedness to Canadian banks and the level of interest rates.

Shearer reported the results of econometric work on banks' demands for advances and reserves. The banks' demands for advances appear to have been determined on the basis of a profit-maximizing decision. The determination of the demand for bank reserves, on the other hand, is very complicated indeed. Variations in the level of notes and deposits outstanding seem to have very different effects on the level of reserves. Moreover, reserve behavior appears to have depended on whether Canada was on or off the gold standard.

Finally, Shearer commented on the role of gold in the early period. Why was its level constant? The answer is that Canada was on a flexible exchange-rate system and there was an embargo against the export of gold. Little gold moved out of either the banks' or the government's reserves.

