

# Canada's Experience with a Flexible Exchange Rate in the 1950s: Valuable Lessons Learned

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- *Canada's lengthy experience with a flexible exchange rate regime has had an important impact on the development of macroeconomic theory and policy in open economies.*
- *This article focuses on the 1950–62 floating-rate period because the flexible exchange rate, combined with a high degree of capital mobility between Canada and the United States, provided an unprecedented experiment for macroeconomic policy.*
- *The Canadian experience over this period highlighted the two key benefits of a floating rate: smoother and less costly adjustment to external shocks and the opportunity to operate an independent monetary policy to achieve low and stable inflation.*
- *Canada's experience also led to the development of the Mundell-Fleming model and a better understanding of the impact of monetary and fiscal policies in open economies.*

Canada's experience with a flexible exchange rate regime in the twentieth and twenty-first centuries is remarkable not only for sheer length, but also for its impact on macroeconomic theory and policy in open economies.<sup>1</sup> Although Canada had a flexible exchange rate regime over the periods 1933–39 and 1950–62, and has maintained one since 1970, this article focuses on the important lessons learned from the intermediate period in the 1950s because economic historians consider it the most influential.<sup>2</sup> The purpose of the article is to examine the two most notable lessons from the Canadian experience. First, it highlighted the two key, and still important, benefits of a flexible exchange rate regime: namely, its ability to insulate the domestic economy from external shocks by facilitating a smoother and thus less costly macroeconomic adjustment, and the fact that it permits the operation of an independent national monetary policy.<sup>3</sup> Second, Canada's experience led to a better understanding of the impact of monetary and fiscal policies in an open economy with a high degree of capital mobility. Moreover, the Canadian experience demonstrated that because a flexible exchange rate is an endogenous market-determined variable, its effectiveness as a macroeconomic shock absorber depends on its being supported by a coherent monetary and fiscal policy framework

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1. This article is largely based on two recent Bank of Canada research papers: Bordo, Dib, and Schembri (2007) and Bordo, Gomes, and Schembri (2008).

2. Powell (2005) provides an insightful overview of the history of the Canadian dollar.

3. In an environment of no capital controls (i.e., capital mobility) countries cannot simultaneously maintain an independent monetary policy and a fixed exchange rate. Thus, to operate an independent monetary policy, a country must adopt a flexible exchange rate.

aimed at achieving low inflation and stable output growth.<sup>4</sup>

Canada's floating-rate experience contributed to the postwar debate on exchange rate regimes by providing evidence to support the case for a flexible rate as a viable alternative to the Bretton Woods system of pegged exchange rates. In 1950, Canada was the first major industrialized country to leave the Bretton Woods system to adopt a floating exchange rate. The consensus is that Canada's flexible rate performed well over the next 12 years.<sup>5</sup> In particular, the flexible rate traded in an orderly manner and responded to shocks to underlying fundamentals largely as theory would predict; it did not fluctuate widely or erratically as a result of speculative excesses, as some had predicted. This largely beneficial experience confirmed the predictions of James Meade (1951) and Milton Friedman (1953; see also Friedman, Gordon, and Mackintosh 1948), who were early supporters of flexible exchange rates. The Canadian experience subsequently generated much interest and numerous studies.<sup>6</sup> This research, in turn, helped to motivate the ongoing debate on exchange rate regimes and foreshadowed the eventual collapse of the Bretton Woods system in the early 1970s, when, once again, Canada was the first of the major countries to exit.

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Canada's flexible exchange rate experience in the 1950s demonstrated the two principal benefits of a flexible exchange rate regime. First, the floating rate responded to external shocks, such as shifts in export demand or commodity-price (terms-of-trade) movements, to facilitate real exchange rate adjustment which, in turn, mitigated the impact of these shocks on domestic economic activity and on the aggregate

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4. See Laidler (1999) for a discussion of the need for a coherent monetary order under a flexible exchange rate regime.

5. For example, Friedman and Roosa (1967, 122) wrote "Canada went off floating exchange rates . . . because they were working so well, and their internal monetary policy was so bad." See also Yeager (1976).

6. Yeager (1976) provides an excellent critical review of this literature.

price level. Its ability to respond to these external shocks over this period was sometimes limited, however, by monetary policy that was insufficiently countercyclical. Second, the flexible exchange rate permitted an independent monetary policy that was reasonably successful in achieving low and stable inflation. As noted in Friedman and Roosa (1967, 122), however, "floating rates are not a guarantee of sensible internal monetary policy." In the first half of the floating-rate period (1951–56), inflation and unemployment rates were relatively low. In the second half of the period (1957–62), however, monetary policy was not sufficiently countercyclical, which led to higher unemployment rates, slower growth, and episodes of monetary and fiscal policy conflicts. This chain of events played a role in the forced resignation of the Governor of the Bank of Canada, James Coyne, and eventually led to the collapse of the flexible-rate regime as Canada temporarily returned to the Bretton Woods fixed-rate system.

The same events were the inspiration for new approaches to understanding and modelling monetary and fiscal policies and their roles in macroeconomic stabilization in an open economy. In particular, Canada's flexible exchange rate and high degree of capital mobility with the United States provided an unprecedented experiment for macroeconomic policy. The ramifications of these two conditions for monetary and fiscal policy were not fully appreciated until the work of Canadian Robert Mundell and J. Marcus Fleming. Indeed, the development of the Mundell-Fleming model is widely seen as the path-breaking innovation in the development of modern open-economy macroeconomics, and for his contribution, Mundell received the Nobel Prize in 1999.

The International Monetary Fund (IMF) deplored Canada's decision to float its dollar in 1950 because its officials viewed Canada's departure as a serious threat to the newly founded Bretton Woods system. The success of Canada's float not only mollified their criticism and their calls for a quick return to the pegged-rate system, it also promoted research at the IMF on flexible exchange rates. Indeed, Fleming's research was conducted while he was an IMF official, and Mundell did some of his work on the subject while visiting the IMF in the early 1960s.

The article is divided into three sections: the historical narrative; an analysis of the behaviour of the flexible rate over the period 1950–62; and a brief discussion of the impact of the Canadian experience on economic thought.

## Historical Narrative

Although this narrative is organized chronologically, the two important sets of lessons from Canada's experience—on the potential benefits of a flexible exchange rate for an open economy like Canada's and the conduct of macroeconomic policies under a flexible exchange rate and a high degree of capital mobility—are identified and discussed throughout.

### Prelude to floating

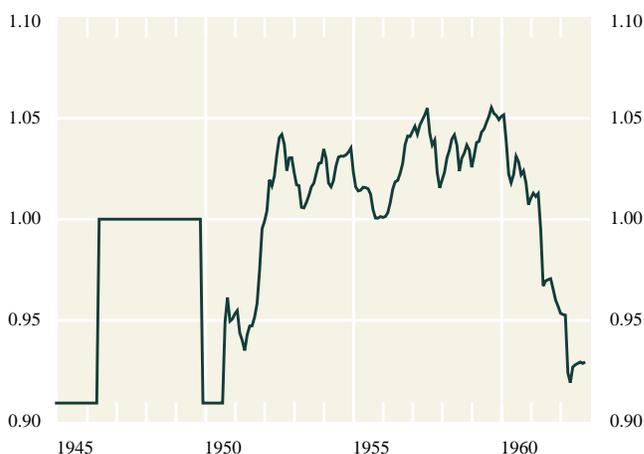
Canada played an important role in the founding of the IMF and the Bretton Woods system in July 1944. Future Bank of Canada Governor Louis Rasminsky provided critical leadership in the negotiations by serving as a mediator between the American and British teams, led by Harry Dexter White and John Maynard Keynes, respectively (Muirhead 1999). The principal goal of the Bretton Woods pegged, but adjustable, exchange rate system was to preserve the stability of the international monetary system by preventing the beggar-thy-neighbour exchange rate policies and the resulting macroeconomic instability of the interwar period.

From 1945 to 1950, Canada tried to maintain its commitment to a pegged exchange rate under the Bretton Woods system, but was forced by swings in commodity prices, investment flows, and reserve levels to adjust its pegged exchange rate in July 1946 (from US\$0.909 to parity) and again in September 1949 (from parity to US\$0.909) in order to preserve domestic macroeconomic stability (see Chart 1).<sup>7</sup> Despite the continued use of exchange controls, however, the pegged rates could not be easily maintained in either instance because sharp movements in the balance of payments and reserve levels (Chart 2) would have forced domestic prices and wages to adjust to the external imbalances via changes in the domestic money supply. Moreover, this sequence of relatively rapid up-and-down adjustments in the pegged exchange rate created the expectation that the authorities would respond with another re-pegging when economic circumstances changed. Thus, if speculators correctly anticipated a pegged-rate revaluation (or devaluation), they could earn large returns by acquiring domestic (or foreign) currency assets beforehand. Consequently, speculation could become self-fulfilling, since the expectation of an adjustment would fuel capital flows and increase the likelihood of re-pegging. Indeed, this self-fulfilling

7. The United Kingdom and 30 other countries also devalued their currencies relative to the U.S. dollar at the same time as Canada because of postwar difficulties in financing trade deficits.

Chart 1  
Exchange Rate

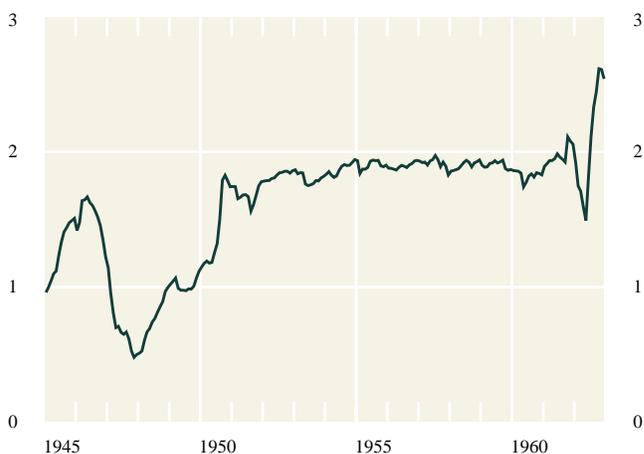
Monthly average noon rates, US\$ per unit



Source: Bank of Canada

Chart 2  
Canadian Official Holdings of Gold and U.S. Dollars

Billions of US\$



Source: Bank of Canada

aspect of speculation against a pegged exchange rate was a critical factor in the decision to float in 1950.<sup>8</sup>

### 1950: The decision to float

Soon after the devaluation of 1949, international economic conditions changed in favour of Canada's

8. Self-fulfilling speculative activity against fixed exchange rate regimes was an important aspect of the exchange rate crises in Europe, Latin America, and East Asia in the 1990s. See Osakwe and Schembri (1998) for a useful survey.

exports. The terms of trade and capital inflows increased as a result of rising commodity prices and greater U.S. investment in the Canadian natural resources sector (Charts 3 and 4). The demand for these resources increased because of the economic expansion driven by the post-World War II recovery and by the expenditures related to the Korean War, which began in June 1950. This balance-of-payments surplus, which was caused by both higher exports and capital inflows, led to a significant increase in international reserves, bank reserves, and the money supply. As is evident in Chart 2, the accumulation of reserves accelerated as speculators bought Canadian-dollar assets on the expectation of another adjustment in the exchange rate peg. To offset this substantial surge in inflationary pressure, the authorities decided to float the Canadian dollar rather than try to pick another par value, only to find out, as in 1946 and 1949, that it was no longer consistent with external balance.

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### **IMF reaction to Canada's decision**

Canada's decision to float was significant because floating meant departing from the normal rules of the par value Bretton Woods system, under which members, once having declared a par value, could only change it if circumstances suggested a fundamental disequilibrium and only after consultation with the IMF. Thus, Canada's proposal to adopt a flexible rate in 1950 was perceived as breaking—or at least flouting—the rules by an important IMF member country and was criticized by IMF staff as demonstrating a lack of discipline. They were seriously concerned that other member countries might follow suit and jeopardize the existence of the new system, and possibly the IMF, whose founding goal was exchange rate stability.

As alternative policies to manage the inflationary pressure of the increasing capital inflows, IMF staff recommended some combination of revaluation, capital control, and sterilization of the impact of the reserve increase on the domestic money supply. As noted,

Canada had little interest in revaluing, given its limited success in finding a pegged rate that could sustain external balance. Canadian officials were reluctant to impose capital controls on the inflows or to issue more debt to sterilize their impact on the domestic money supply. The IMF was more receptive, however, to the argument made by Canadian authorities that the decision to float was a temporary move, with a return to the par value system to take place once a new fundamental equilibrium had been reached.<sup>9</sup>

### **1950–51: Transition to a market-determined flexible exchange rate**

After the decision to float, the Canadian dollar appreciated by 12 per cent, from US\$0.909 to US\$1.02, over the next 18 months. This rapid appreciation was caused by higher commodity prices driven by the U.S. expansion, which generated large and ongoing capital inflows from the United States—largely foreign direct investment (FDI)—to develop Canada's natural resources (Yeager 1976, 544) (Charts 3 and 4).

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This inflationary pressure posed a serious challenge to the Bank of Canada's monetary policy. Under the Bank of Canada Act, the Bank has a broad mandate that includes protecting the external value of the currency and mitigating fluctuations in prices and economic activity. At the beginning of the floating-rate period, however, the Bank lacked the instruments, the experience, and a set of best practices to conduct effective countercyclical monetary policy under a flexible exchange rate. In particular, the Bank's conduct of monetary policy was hamstrung by the absence of an active market for short-term government securities or an interbank market for reserves. The Bank Rate was the most visible instrument of monetary policy, but

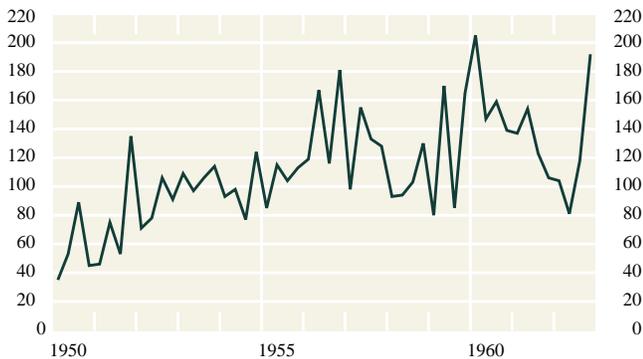
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9. In a speech on 20 October 1952, the Minister of Finance, Douglas Abbott, said, "At some future time conditions may develop [in Canada] in which it would be appropriate to establish a fixed rate of exchange for the Canadian dollar." See Binhammer (1964, 639) and Yeager (1976, 544) for further details.

Chart 3

### Foreign Direct Investment in Canada

Quarterly, Can\$ millions

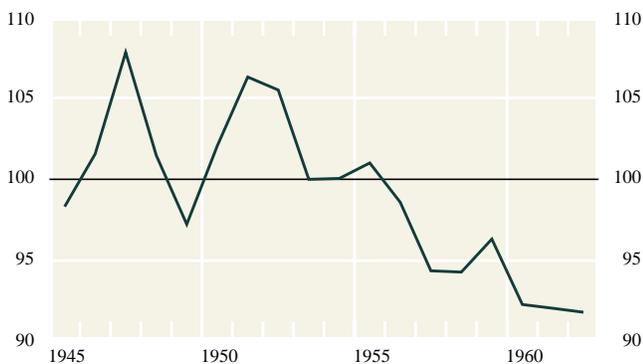


Source: Statistics Canada

Chart 4

### Canadian Real Commodity Price Index

Annual (1953 = 100)

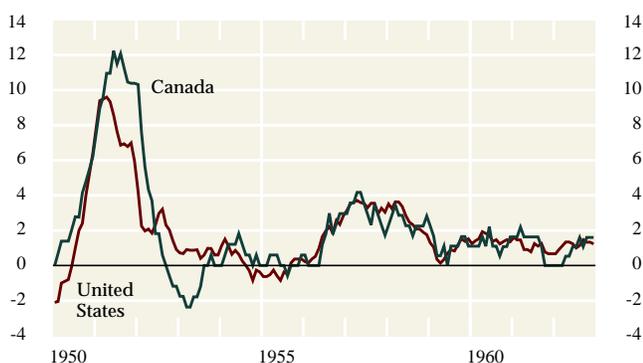


Source: Bank of Canada

Chart 5

### Consumer Price Index

Monthly (1997 = 100), year-over-year growth rate



Source: Statistics Canada and U.S. Bureau of Labor Statistics

its effectiveness in influencing monetary conditions was hindered by the fact that the interest rate channel for the transmission of monetary policy was not well developed. Consequently, monetary policy was also conducted through various limited forms of open market operations involving government securities and government deposits held by the chartered banks, and by moral suasion and direct regulation to influence the volume of chartered-bank lending. To help the Bank manage the ongoing inflationary pressure, special direct restrictions on consumer and bank credit were adopted in 1950 and 1951. Despite the appreciation of the Canadian dollar, which helped to insulate the Canadian economy from U.S. inflation, the absence of a timely and effective monetary policy response made it difficult to control domestic inflation. As a result, CPI inflation was 6 per cent in 1950 and rose to over 10 per cent in 1951 (Chart 5), much of it driven by food prices.<sup>10, 11</sup> This experience highlighted the need for the Bank to obtain instruments to allow it to conduct independent and countercyclical monetary policy under a flexible exchange rate.

### 1952–56: Stability, reform, and growth

The 1952–56 period was the heyday of the 1950s floating-rate regime. The Canadian dollar traded at a premium relative to the U.S. dollar (Chart 1), and FDI-driven capital inflows continued (Chart 3). Inflation receded, and with the exception of the 1953–54 recession, growth remained relatively strong. The conduct of monetary policy became more effective as financial market transmission channels were strengthened. Nonetheless, the responsiveness of monetary policy, although improved, remained somewhat sluggish, which limited its countercyclical impact. Although exchange rate adjustment was countercyclical and stabilizing over this period, its role was constrained by the muted monetary policy response.

Since the flexible exchange rate was adjusting to manage the demand for foreign exchange, exchange controls were no longer needed and were lifted in December 1951.<sup>12</sup> Direct restrictions on consumer and bank credit were removed in 1952 because inflationary pressures

10. Inflation is measured year over year from December.

11. It is interesting that Mexico, which faced inflationary pressures coming from the U.S. expansion that were similar to those experienced by Canada in the early 1950s, chose to maintain a fixed exchange rate. As a result, it experienced inflation that exceeded 20 per cent, at least double that in Canada. See Murray, Schembri, and St-Amant (2003) for more details.

12. Canada was the second country after the United States to remove exchange and capital controls after WWII. Indeed, the removal in 1951 restored the situation to what it was before the war. See Powell (2005) for further details.

had subsided. This deregulation and liberalization created a favourable environment for the development of financial markets. The Bank of Canada took several important steps in 1953 to encourage the development of a broad and active market in treasury bills, which included shifting from a biweekly to a weekly auction and entering into purchase and resale agreements with dealers of government securities. This latter innovation spurred the establishment of a day-to-day loan market among the bank and investment dealers as banks became more interested in managing their reserves and the investment dealers were able to use the purchase and resale agreements to obtain cash from the Bank of Canada. Thus, the adoption of a flexible exchange rate in 1950 contributed to financial market development that strengthened the Bank's ability to conduct more effective monetary policy by establishing a clearer interest rate channel for the transmission of monetary policy.<sup>13</sup>

At the end of the Korean War in 1953, defence expenditures fell on both sides of the border, and the Canadian and U.S. economies went into a short but sharp recession (Chart 6). Inflation in Canada fell below zero. Since market interest rates also remained relatively low, the Bank Rate was reduced to 1.5 per cent in February 1955 because the Bank felt that this rate should be more "flexible and bear a closer (though not fixed) relation to other short-term interest rates" (Bank of Canada 1956, 7). Indeed, this change marked the beginning of more frequent use of the Bank Rate as an instrument of monetary policy.<sup>14</sup>

The Canadian economy grew strongly—and faster than the U.S. economy—through the rest of 1955, 1956, and into 1957 (Chart 6). Investment boomed in both countries, and in Canada was centred on the development of natural resources. The new investment required higher imports, which were financed by large inflows of foreign direct investment. As aggregate demand grew, inflation pressures began to mount and, for the first time in the floating-rate period, the inflationary pressure was domestic in origin. Although inflation was almost zero in 1955, it jumped to 3 per cent in 1956 (Chart 5).

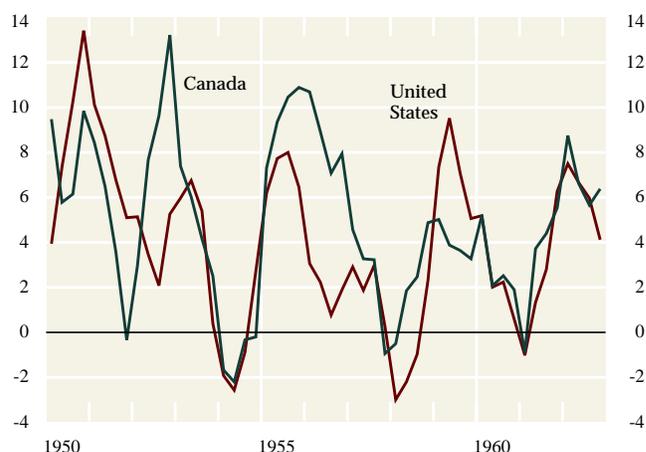
13. Bordo, Dib, and Schembri (2007) find that a monetary policy response function with the short-term interest rate as the policy instrument, and low inflation and output and exchange rate stability as the targets, performs reasonably well in empirically representing the Bank's conduct of monetary policy over the floating-rate period. Nonetheless, the goals of monetary policy were not as clearly articulated as they are today; without an explicit numerical inflation target, inflationary expectations were not as well anchored.

14. The Bank Rate was eventually set at 25 basis points above the 3-month treasury bill tender rate.

Chart 6

### Real Gross Domestic Product (1997 prices)

Quarterly, year-over-year growth rate



Source: Statistics Canada

In summary, over the 1952–56 period, monetary policy became more effective in controlling inflation and stabilizing economic activity; its countercyclical responsiveness, however, remained below modern standards. Although constrained by sluggish monetary policy, the exchange rate adjusted in a countercyclical fashion (see Charts 1 and 6, primarily in 1953–54 and 1956). Although the economy continued to grow from 1956 into 1957, higher interest rates and a stronger dollar (which had appreciated by almost 7 per cent over 1955 and 1956 to a premium of US\$0.04 by the end of 1956) were starting to have an impact.

### 1957–60: Deteriorating economic performance

In 1957, after more than two years of strong growth, the economy began to experience a slowdown marked by a sharp increase in the unemployment rate (from 3 per cent to 8 per cent, Chart 7). Observers began to question the wisdom of Canadian monetary policy, especially since the Bank continued to tighten monetary conditions until August 1957, as shown in Charts 8 and 9, with the Bank Rate rising to 4.33 per cent and the Canadian dollar appreciating to a peak of US\$1.06 at the same time. This further tightening seemed unwarranted, since the signs of a slowdown were apparent—the inflation rate started to decline early in 1957 and by the end of the year was at 2.2 per cent, down from 3 per cent in 1956. Criticisms of monetary policy were based on the observation that the Canadian economic downturn was more pronounced than the U.S. economic slowdown. This difference was interpreted

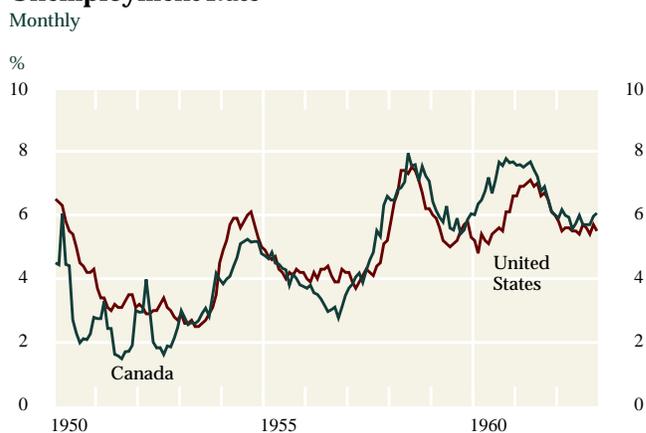
as indicating that the source of the adverse shock was not foreign, but domestic (i.e., tight monetary policy). In contrast, it could be argued that monetary policy over the years 1955 and 1956 had allowed growth to increase too quickly, thereby causing excess demand and higher inflation, and thus monetary policy actions in 1957 and 1958 had to be aggressive to reduce inflation. The truth likely lies somewhere in between: that is, monetary policy was insufficiently countercyclical over both the expansionary and contractionary phases of the 1954–58 business cycle.

The trough in the recession in both countries was reached in the spring of 1958, and large-scale monetary expansions helped both economies to recover quickly; interest rates in Canada fell as the Bank Rate declined from 3.92 per cent at the end of 1957 to a low of 1.91 per cent in July of 1958 (Chart 9). These monetary expansions also facilitated the conversion, or roll over into longer maturities, of government bonds, which had been issued to finance WWII defence expenditures.

As both economies rebounded in the second half of 1958, interest rates rose sharply to levels that had prevailed at the beginning of the year (Charts 9 and 10). In Canada, the increase was larger, in part because the federal and provincial governments were running expansionary fiscal policies to combat the high unemployment. Critics of the Bank of Canada nevertheless blamed the higher rates on monetary policy that was too tight. Since neither the Bank nor its critics (e.g., Gordon 1961) had the benefit of Mundell's later work, neither side fully appreciated that, under a floating rate, expansionary fiscal policy also contributed to higher interest rates and a stronger Canadian dollar. The currency appreciated by roughly 2 per cent in 1958 and remained at a premium to the U.S. dollar into 1959.

Inflation fell from 2.5 per cent in 1958 to 2.0 per cent in 1959, and the recovery continued in Canada through to the end of 1959. As the Bank continued to push up short-term interest rates over the first eight months of 1959 (the Bank Rate increased by 257 basis points, from 3.85 per cent to 6.42 per cent over this short period), a significant spread developed between Canadian and U.S. interest rates (Charts 9 and 10), and the dollar appreciated by a further 1 per cent. The Federal Reserve also feared higher future inflation in 1959, and 1960, and it too increased its discount rate, but less dramatically than did the Bank of Canada. The impact of this tightening was felt in 1960 as both economies grew more slowly and inflation fell to 1.3 per cent in Canada. The unemployment rate in Canada increased sharply, from 6.5 per cent at the beginning of 1960 to 8.7 per

**Chart 7**  
**Unemployment Rate**



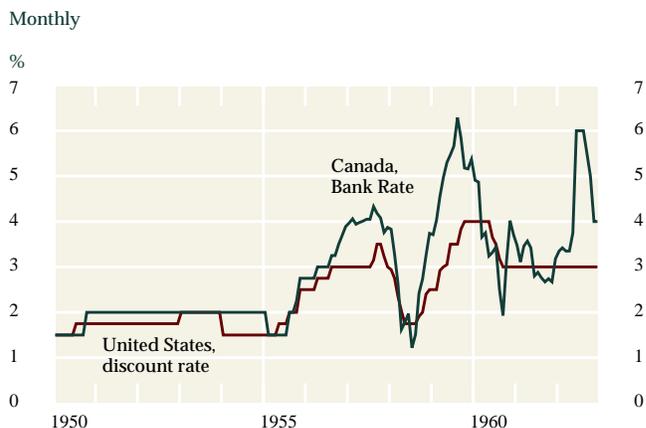
Source: Statistics Canada and U.S. Bureau of Labor Statistics

**Chart 8**  
**Money Supply (M1)**



Source: Metcalf, Redish, and Shearer (1996) and the National Bureau of Economic Research

**Chart 9**  
**Interest Rates**

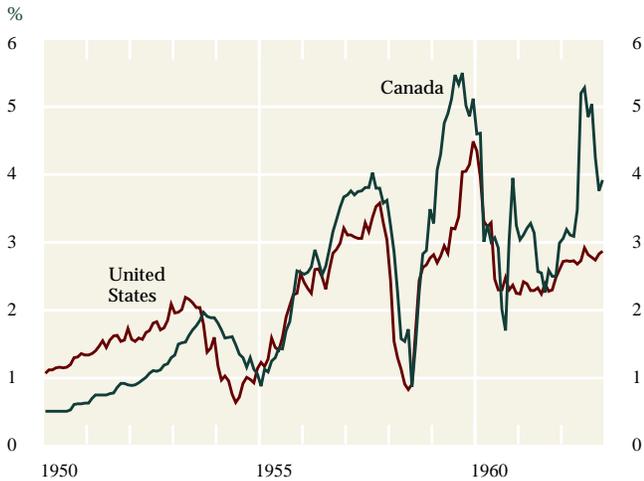


Source: Statistics Canada and the Bank for International Settlements

Chart 10

### Market Yield for 3-Month Treasury Bills

Monthly



Source: Statistics Canada and the Bank for International Settlements

cent by the end of the year. In this instance, the Bank did not seem to recognize that higher interest rates attracted capital inflows and caused the Canadian dollar to appreciate, thereby further tightening domestic monetary conditions.

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The political pressure from the rising unemployment rate, together with other differences between Governor Coyne and the Diefenbaker government, prompted the government to introduce legislation in May 1961 to declare the position of the Governor of the Bank of Canada vacant. After the government's bill was defeated in the Senate, Governor Coyne resigned.<sup>15</sup>

In summary, the Bank of Canada's monetary policy over the years 1957–61 was not sufficiently countercy-

15. Powell (forthcoming) provides an insightful analysis of the events surrounding the resignation of Governor Coyne.

clical during periods of slower growth and rising unemployment, while fiscal policy during these episodes was typically expansionary. The impact and effectiveness of monetary and fiscal policies under a floating exchange rate and a high degree of capital mobility were not well understood. The combination of contractionary monetary policy and expansionary fiscal policy both worked in the direction of raising interest rates and pushing up the external value of the currency. Their effect on output was at best offsetting and, at worst, exacerbated the weak growth.

### 1961–62: The awkward transition to a pegged exchange rate

After the resignation of James Coyne, Louis Rasminsky was appointed Governor. Rasminsky's acceptance of the position was conditional on a clarification of the responsibility for monetary policy between the central bank and the government. Drafted by Rasminsky, the directive power, as it is known, states that should a conflict occur between the Bank and the government over the conduct of monetary policy, the government would be required to issue a specific directive to the Governor that would be published in the *Canada Gazette* (the government's official record). Under these circumstances, the Governor would likely resign.

Rasminsky's accomplishment with the directive power was overshadowed in his first year of office, however, by the government's clumsy attempts to reflate the economy by talking down the dollar, which eventually brought about an exchange rate crisis that required IMF intervention. In response to the relatively high unemployment rate, the government's 1961 budget promised a host of expansionary fiscal policy measures. The government also expressed a desire to see the dollar depreciate and, to that end, began to sell Canadian dollars in the foreign exchange market. The dollar soon declined, from a premium of approximately 1 per cent on the U.S. dollar in July 1961 to a 5 per cent discount by September. Further official downward pressure sparked a speculative attack on the dollar in April 1962, and, to stem the free fall, the government announced a devalued peg at US\$0.925 cents. In June 1962, a rescue package of slightly more than US\$1 billion supplied by the IMF, the United States, and the United Kingdom was required to restore stability. This announcement temporarily interrupted Canada's postwar experiment with a floating exchange rate.

## The Floating Canadian Dollar: Its Stable Behaviour and Stabilizing Role

This section focuses on two issues: the remarkable stability of the Canadian dollar over the 1950–62 floating-rate period, and the related issue of whether this relatively stable exchange rate actually helped to insulate the Canadian economy from external shocks. Over the full 12-year period, the dollar fluctuated in a narrow range of 13 cents (US), from a low of US\$0.93 in early 1951 to a peak of US\$1.06 in August 1957. Over the core period, 1952–60, the range was much smaller, only 6 cents (US), from US\$1.00 in early 1952 to US\$1.06 in August 1957. Moreover, high-frequency fluctuations were very mild and orderly. Over the whole period, the average day-to-day change was 0.08 per cent, and only 5 per cent of the daily changes over the floating-rate period exceeded one quarter of a per cent (Poole 1967).

Several explanations have been put forward to rationalize the dollar's stability. Many attributed it to stabilizing speculation by agents who believed that movements in the rate were temporary (Poole 1967; Marsh 1969; Yeager 1976). This evidence was perceived as being consistent with the original assertion by Friedman (1953) that speculation under a floating exchange rate would necessarily be stabilizing in order to be profitable. Others attributed it to the coincidence of Canadian and U.S. cyclical positions and monetary policies (Hawkins 1968, 31) (Charts 6, 8, and 9).

It has also been argued that official intervention operations served to stabilize the value of the Canadian dollar, but the literature has concluded that official intervention did not play a significant role in stabilizing the nominal exchange rate. Although intervention was frequent over the 1952–60 period, the scale of intervention was limited and simply offset short-run fluctuations to maintain an orderly foreign exchange market (Plumptre 1970, 4).<sup>16</sup>

Several observers, including Plumptre (1970, 6), argue that the relative stability of the floating Canadian dollar was due, in part, to the absence of large shocks during this period.<sup>17</sup> Bordo, Dib, and Schembri (2007) find evidence consistent with this argument. They use

16. Net monthly changes in official reserves were less than 20 million dollars in the majority of months when intervention occurred (Wonnacott 1965; Yeager 1976; Canada 1964; Binhammer 1964).

17. Plumptre (1970) also notes that when the Canadian dollar floated in the 1930s, its movements were relatively stable as well.

their estimated model of the Canadian economy to extract structural shocks for the postwar decades and find that the volatilities of the shocks during the 1950s were generally lower than those experienced during the other flexible-rate decades (the 1970s, 1980s, and 1990s).

The Canadian dollar was relatively stable over this period, not only because shocks were comparatively small and to some degree common to both the Canadian and U.S. economies, as shown by the close correlation of their business cycles, but also because capital was relatively immobile globally (capital flows between Canada and the United States were the glaring exceptions). In addition, it is important to recognize that Canada was the only major industrialized country floating its currency at that time—all other major countries had rates pegged to the U.S. dollar.

In addition to giving the domestic authorities control over monetary policy, the other main benefit of a floating rate is its ability to shelter the domestic economy from external shocks. As noted earlier, the Canadian floating rate was very stable, especially when compared to the experience of the industrialized countries since the collapse of the Bretton Woods system in the early 1970s, and this was despite two sizable recessions. This stability has led some observers (Wonnacott 1965; McLeod 1965) to conclude that Canada's experience in the 1950s did not provide overwhelming evidence on the postulated insulation properties of a floating rate.

Unfortunately, the qualitative bivariate comparison conducted by these authors is incomplete and does not provide an adequate counterfactual analysis. In particular, it is likely that exchange rate adjustment to movements in U.S. export demand was hindered by weakly countercyclical monetary policy. Mundell (1964), McLeod (1965), and Dunn (1971) argue that Canadian monetary policy was less countercyclical than U.S. monetary policy in the two coincident recessions of 1953–54 and 1957–58 (Charts 6, 8, and 9). Consequently, the Canadian dollar tended to appreciate when the U.S. authorities eased monetary policy earlier and more aggressively than did their Canadian counterparts, and therefore, the exchange rate appeared not to provide much insulation for the Canadian economy when U.S. demand declined.

The impact of this higher interest rate differential was felt by the Canadian dollar. Because there was a significant degree of capital mobility between Canada and the United States, there is much evidence that the Canadian dollar was very sensitive to the short-term

interest rate differential in the 1950s.<sup>18</sup> Thus, the tighter Canadian monetary policy in the second half of the floating-rate period held the Canadian dollar above parity with the U.S. dollar, thereby reducing the domestic and world demand for Canadian-produced traded goods and slowing economic activity.

Bordo, Dib, and Schembri (2007) conducted two counterfactual experiments with a well-specified model of the Canadian economy to examine the economic impact of its monetary and exchange rate policies in the 1950s. The first involves eliminating the apparent shift in monetary policy that took place over the second half of the sample by maintaining the estimated monetary policy response function that prevailed over 1950–56, throughout the floating-rate period. The second experiment consists of assuming that the fixed exchange rate parity of 1950 is not abandoned in favour of a flexible exchange rate.

The results of the first counterfactual experiment suggest that, had monetary policy not changed during the second half of the floating-rate period, the Canadian economy would have performed better. The policy actually followed was not only more volatile, but also produced higher interest rates. Consequently, output was less stable, and growth was likely slower because higher interest rates also generated a more appreciated exchange rate. This misunderstanding of the impact of monetary policy under a floating rate contributed to the demise of this regime.

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*These counterfactual experiments indicate that output and inflation were more stable under a flexible exchange rate than they would have been under a fixed one.*

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Under the second counterfactual experiment of a fixed nominal exchange rate, the volatilities of all the variables (except the exchange rate) increase dramatically. The results suggest that the flexible exchange rate regime was successful in stabilizing the Canadian economy, even during the post-1957 period when monetary policy was more volatile.

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18. See, for example, Caves et al. (1971).

As noted earlier, the Canadian floating rate was unexpectedly stable in the 1950s, which begs the question as to how much of a role it played if it varied so little. Although there are several possible explanations for this stability, an important one is that monetary policy was not conducted to take full advantage of the flexible rate's ability to facilitate macroeconomic adjustment. Nonetheless, these counterfactual experiments indicate that output and inflation were more stable under a flexible exchange rate than they would have been under a fixed one.

## Impact on Economic Thought

Although Canada's decision to adopt a flexible exchange rate was initially opposed by the IMF, the successes and difficulties encountered by the Canadian authorities in managing monetary and fiscal policy under this regime drew the interest of researchers at the IMF and elsewhere. Canada's experience had a significant impact on the development of the Mundell–Fleming model, and in particular, on Mundell's contribution. This model became the workhorse of the IMF for three decades and was a fundamental building block of the new field of open-economy macroeconomics.

The Canadian flexible exchange rate experience inspired the research of Robert Mundell. Mundell spent a year (1961–62) in the Research and Statistics Department at the IMF, and his work complemented and influenced that of two IMF researchers, J. Marcus Fleming and Rudolf Rhomberg.

In two recent retrospectives, Mundell discusses the influence of the Canadian experience on the development of his part of the Mundell–Fleming model:

It was around this time [1956–57] that I shifted research topics from writing about and further refining the pure classical model to thinking about the way to write down the general equilibrium equations for an open economy taking into account monetary variables, exchange rates, and capital movements. The fact that Canada had a flexible exchange rate and capital flows between Canada and the United States were significant background influences but there was absolutely no model in the literature that was capable of dealing with the subject. (Mundell 2002, 4)

In describing the implications of the version of the model in his 1960 article for the *Quarterly Journal of Economics*, he states:

One implication of the model was that a domestic boom would raise interest rates, attract capital inflows, appreciate the real exchange rate, and worsen the balance of trade, . . . a conclusion that would hold under either fixed or flexible exchange rates. This was very relevant to an understanding of the economy of Canada, which was the only major country with a flexible exchange rate in the 1950s. (Mundell 2001, 221)

Rudiger Dornbusch (2000, 200) and Andrew Rose (2000, 217), in their articles describing Mundell's Nobel achievements, emphasize that Canada's experience inspired his work. Mundell wrote several key papers in the early 1960s (in particular, Mundell 1961 and 1963) that dealt directly with the Canadian experience with floating and capital mobility. Mundell (1963), the most well known, carefully compares the use of monetary and fiscal policy under fixed and flexible exchange rates and capital mobility. His demonstration that, under floating rates, an increase in government expenditure puts upward pressure on the interest and exchange rates and limits the impact of the fiscal expansion on output accurately captures the Canadian experience of the late 1950s and early 1960s. A contractionary monetary policy also puts upward pressure on the interest rate and the exchange rate and causes output to fall. Once again, this analysis is a good representation of the Canadian experience in the late 1950s. In particular, Mundell (1964) argues that Governor Coyne's policy of tight money in response to his concerns about expected inflation and large capital inflows from the United States backfired. The rise in interest rates attracted additional capital inflows, appreciated the Canadian dollar, and depressed both domestic investment and the demand for exports. Moreover, the government's fiscal expansion in response to the deteriorating economic conditions had little effect because it served to raise interest rates and the exchange rate further.

J. Marcus Fleming was in the Research and Statistics Department at the IMF from 1954 to 1976. His contribution to the development of the Mundell-Fleming model was similar to (though less prolific than) that of Mundell, and he is viewed as an equal contributor (Boughton 2003). In his 1962 paper, Fleming obtains results similar to Mundell's using a fixed-price IS-LM model with the addition of endogenous current and capital accounts. Like Mundell, he shows that fiscal policy is more effective than monetary policy under a

fixed rate, while the opposite prevails under a floating rate.

Rudolf Rhomberg joined the IMF Research and Statistics Department in 1959 after completing his PhD thesis at Yale on the Canadian experience with floating rates. In his first paper, Rhomberg (1960) models the short-run balance-of-payments adjustment process in an open economy and uses it to examine the determinants of the remarkable stability of the Canadian floating exchange rate regime. He finds that speculative movements were, on the whole, equilibrating and the main cause of exchange rate stability. He noted, however, that the floating rate did not automatically insulate Canada from external shocks because it had not been fully incorporated into Canadian monetary policy. Nonetheless, the floating rate was more effective in combating inflation than it was against recessionary pressures. Rhomberg's work also refuted earlier propositions that the flexible exchange rate would be unstable unless strict capital controls were in place. He pointed out that the earlier theory was incorrect because it put too much weight on large short-term capital movements driven by significant changes in expectations and concluded that the Canadian experience had shown that a flexible exchange rate is not inherently fragile.

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*The Canadian experience helped to demonstrate that flexible exchange rates were a viable alternative to the Bretton Woods system.*

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In his second influential paper, Rhomberg (1964) estimates a small macroeconomic model of the Canadian economy and obtains results that support the Mundell-Fleming finding that monetary policy is most effective under flexible rates, while fiscal policy is most effective under fixed rates. He also finds that, under floating rates, the domestic real economy is well insulated from foreign output shocks.

The research of Mundell, Fleming, and Rhomberg was inspired by the Canadian experience with a flexible exchange rate and the challenges Canada faced in conducting monetary and fiscal policy in this environment. Although their work was perhaps the most influential, many other economists and policy-makers learned

useful lessons from the Canadian experience. In particular, it helped to demonstrate that flexible exchange rates were a viable alternative to the Bretton Woods system, and the relative success of the subsequent system of generalized floating has confirmed this prediction. Moreover, central banks in many countries now benefit from the monetary policy independence that flexible exchange rates provide by

adopting a policy that targets a measure of national inflation. In so doing, they have been able to achieve large gains in overall macroeconomic stability, partly through the achievement of low and stable inflation, but also by incorporating the exchange rate channel in their monetary policy process and by allowing the exchange rate to play a stabilizing role.

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## Literature Cited

- Abbott, D. 1952. Remarks to the Vancouver Board of Trade, Vancouver, B.C., 20 October.
- Bank of Canada. 1956. *Bank of Canada Annual Report of the Governor to the Minister of Finance and Statement of Accounts for the Year 1955*. Ottawa: Bank of Canada.
- . 1959. *Bank of Canada Annual Report of the Governor to the Minister of Finance and Statement of Accounts for the Year 1958*. Ottawa: Bank of Canada.
- Binhammer, H. H. 1964. "Canada's Foreign Exchange Problems: A Review." *Kyklos* 17 (4): 636–53.
- Bordo, M., A. Dib, and L. Schembri. 2007. "Canada's Pioneering Experience with a Flexible Exchange Rate in the 1950s: (Hard) Lessons Learned for Monetary Policy in a Small Open Economy." Bank of Canada Working Paper No. 2007–45.
- Bordo, M., T. Gomes, and L. Schembri. 2008. "Canada and the IMF: Trailblazer or Prodigal Son?" Draft. International Department, Bank of Canada.
- Boughton, J. M. 2003. "On the Origins of the Fleming-Mundell Model." *IMF Staff Papers* 50 (1): 1–9.
- Canada. 1964. *1964 Report of the Royal Commission on Banking and Finance*. Ottawa: Queen's Printer.
- Caves, R. E., G. L. Reuber, R. W. Baguley, J. M. Curtis, and R. Lubitz. 1971. *Capital Transfers and Economic Policy: Canada, 1951–1962*. Cambridge, MA: Harvard University Press.
- Dornbusch, R. 2000. "Robert A. Mundell's Nobel Memorial Prize." *Scandinavian Journal of Economics* 102 (2): 199–210.
- Dunn, R. M. 1971. *Canada's Experience with Fixed and Flexible Exchange Rates in a North American Capital Market*. Montréal: Canadian-American Committee.
- Fleming, J. M. 1962. "Domestic Financial Policies under Fixed and under Floating Exchange Rates." *IMF Staff Papers* 9 (3): 369–80.
- Friedman, M. 1953. "The Case for Flexible Exchange Rates." In *Essays in Positive Economics*, 157–203. Chicago: University of Chicago Press.
- Friedman, M., D. Gordon, and W. A. Mackintosh. 1948. *Canada and the Problems of World Trade: A Radio Discussion*. The University of Chicago Roundtable No. 526. Chicago: University of Chicago Press.
- Friedman, M. and R. V. Roosa. 1967. *The Balance of Payments: Free versus Fixed Exchange Rates*. AEI Rational Debate Seminar No. 4. Washington, D.C.: American Enterprise Institute for Public Policy Research.
- Gordon, H. S. 1961. *The Economists versus the Bank of Canada*. Toronto: Ryerson Press.
- Hawkins, R. G. 1968. "Stabilizing Forces and Canadian Exchange-Rate Fluctuations." In *The Bulletin* 50–51, *The Stability of Flexible Exchange Rates—The Canadian Experience*, 28–65, edited by G. H. Mellish and R. G. Hawkins. New York: New York University Graduate School of Business Administration, Institute of Finance.
- Laidler, D. 1999. "The Exchange Rate Regime and Canada's Monetary Order." Bank of Canada Working Paper No. 99–7.
- Marsh, D. B. 1969. "Canada's Experience with a Floating Exchange Rate: A Vindication of Free Markets in Exchange." In *The International Market for Foreign Exchange*, 138–57, edited by R. Z. Aliber. New York: Frederick A. Praeger.

## Literature Cited (cont'd)

- McLeod, A. N. 1965. *A Critique of the Fluctuating-Exchange-Rate Policy in Canada*, *The Bulletin* 34–35. New York: New York University Graduate School of Business Administration, Institute of Finance.
- Meade, J. E. 1951. *The Theory of International Economic Policy*. 2 volumes. London: Oxford University Press.
- Metcalf, C., A. Redish, and R. Shearer. 1996. “New Estimates of the Canadian Money Stock: 1871–1967.” Department of Economics, University of British Columbia Discussion Paper No. 96–17.
- Muirhead, B. 1999. *Against the Odds: The Public Life and Times of Louis Rasminsky*. Toronto: University of Toronto Press.
- Mundell, R. A. 1960. “The Monetary Dynamics of International Adjustment under Fixed and Flexible Exchange Rates.” *Quarterly Journal of Economics* 74 (2): 227–57.
- . 1961. “Flexible Exchange Rates and Employment Policy.” *Canadian Journal of Economics and Political Science* 27 (4): 509–17.
- . 1963. “Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates.” *Canadian Journal of Economics and Political Science* 29 (4): 475–85.
- . 1964. “Problems of Monetary and Exchange Rate Management in Canada.” *National Banking Review* 2 (1): 77–86.
- . 2001. “On the History of the Mundell-Fleming Model.” *IMF Staff Papers* 47: 215–27.
- . 2002. “Notes on the Development of the International Macroeconomic Model.” In *The Open Economy Macromodel: Past, Present, and Future*, 1–16, edited by A. Arnon and W. Young. Boston: Kluwer Academic Publishers.
- Murray, J., L. Schembri, and P. St-Amant. 2003. “Revisiting the Case for Flexible Exchange Rates in North America.” *North American Journal of Economics and Finance* 14 (2): 207–40.
- Osakwe, P. and L. Schembri. 1998. “Currency Crises and Fixed Exchange Rates in the 1990s: A Review.” *Bank of Canada Review* (Autumn): 23–38.
- Plumptre, A. F. W. 1970. “Exchange Rate Policy: Experience with Canada’s Floating Rate.” Princeton University Essay in International Economics No. 81.
- Poole, W. 1967. “The Stability of the Canadian Flexible Exchange Rate, 1950–1962.” *Canadian Journal of Economics and Political Science* 33 (2): 205–17.
- Powell, J. 2005. *A History of the Canadian Dollar*. Ottawa: Bank of Canada.
- . Forthcoming. “The Bank of Canada Comes of Age: The Governship of James Coyne, 1955–1961.” Unpublished manuscript.
- Rhombert, R. R. 1960. “Canada’s Foreign Exchange Market: A Quarterly Model.” *IMF Staff Papers* 7 (3): 439–56.
- . 1964. “A Model of the Canadian Economy under Fixed and Fluctuating Exchange Rates.” *Journal of Political Economy* 72 (1): 1–31.
- Rose, A. K. 2000. “A Review of Some of the Economic Contributions of Robert A. Mundell, Winner of the 1999 Nobel Memorial Prize in Economics.” *Scandinavian Journal of Economics* 102 (2): 211–22.
- Wonnacott, P. 1965. *The Canadian Dollar: 1948–1962*. Second revised edition. Toronto: University of Toronto Press.
- Yeager, L. B. 1976. *International Monetary Relations: Theory, History, and Policy*. Second edition. New York: Harper and Row.