SAE./No.26/January 2015

Studies in Applied Economics

AN INSPECTION OF CANADA'S DOMINION NOTE ISSUE AS A CURRENCY BOARD-LIKE REGIME

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Johns Hopkins Institute for Applied Economics,
Global Health, and Study of Business Enterprise

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The *Studies in Applied Economics* series is under the general direction of Professor Steve H. Hanke, Co-Director of the Institute for Applied Economics, Global Health and Study of Business Enterprise (hanke@jhu.edu).

This working paper is one in a series on currency boards for the Currency Board Project. The currency board working papers will fill gaps in the history, statistics, and scholarship of the subject. The authors are mainly students at The Johns Hopkins University in Baltimore who have conducted their work at the Institute as undergraduate researchers.

About the Author

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Summary

Before the Bank of Canada's establishment in 1935, Canada's government monopolized the issuance of certain notes via the “Dominion note issue” from 1867 to 1934. Some prior accounts on the subject and period exist, such as C.A. Curtis' *Statistical Contributions to Canadian Economic History* (1931) and Georg Rich's *The Cross of Gold* (1988). However, no previous account presents the note issuance statistics in high-frequency, machine-readable form suitable for further quantitative analysis.

We examine to what extent Canada's Dominion note issue operated as a currency board or quasi-currency board system, using statistical tests based on its monthly balance sheet and analysis of legislation during the time period. An analysis of the Dominion notes balance sheet, along with other factors to be explained further, reveals that for part of its existence, the Dominion note issuance functioned as a currency-board like system. We provide a companion spreadsheet workbook, which makes the Dominion monthly balance sheet data available in machine-readable form, and a summary table of legislation related to the Dominion note issue for further analysis of the period.

Acknowledgements

I thank Brandon Dixon and Kotaro Mitshuashi for their time-consuming work in locating and copying the relevant pages of the *Canada Gazette.* Emily Baskin, a student at The Catholic University of America, also helped fill some holes in the monthly balance sheet data. I thank Dr. Kurt Schuler for further advice about sources and for comments on drafts.

Keywords: Canada, Dominion notes, currency board, monetary regime.
JEL numbers: N11, N12

Origins and Structure of the Dominion Note Issue

The Bank of Canada, Canada's central bank, was not established until March of 1935. Modern Canada itself dates back to 1867, when the Province of Canada, New Brunswick, and Nova Scotia joined in confederation. The Province of Canada then immediately split into the present-day provinces of Ontario and Quebec. The confederation agreement gave the Dominion (federal) government jurisdiction over banking and monetary matters, including the notes that the provincial governments had issued before confederation. An act of the Province of Canada assented 15 August 1866 had established a 20% gold reserve up to Canadian $5 million for the province's notes. This legislation is the most immediate root of the Dominion note issue. A federal act of 1868 stated that the notes issued by the Province of Canada "shall be held to be Notes of the Dominion of Canada" (31 Victoria cap. 46, section 8).[1] The federal government also assumed liability for much smaller pre-confederation issues by New Brunswick, Nova Scotia, and later Prince Edward Island. The Department of Finance was the body within the federal government that handled the note issue.

Commercial banks in the provinces also issued notes, as they had done since the early 1800s. Bank notes were not deemed legal tender, so a payee could refuse a particular bank's notes; these notes were redeemable in specie or Dominion notes, which were legal tender. Banks used Dominion notes extensively as a reserve asset and as a means of settling domestic clearing-house balances. Before confederation the provinces had adopted the gold standard individually, and they retained it upon confederation. The Dominion notes held by chartered banks and the non-bank public were redeemable in specie upon demand. Specie consisted of United States, British, and Canadian gold coins. Redemption of Dominion notes was usually granted via eagles (U.S. gold coins) or sovereigns (British gold coins). The 1868 act mentioned earlier allowed banks to use notes of the Dominion instead of issuing notes of their own. The act was an unsuccessful attempt to nudge the monetary system toward de facto full government monopoly of note issue. Banks would continue to issue notes until 1945.

The Dominion Notes Act of 1870 restricted bank notes to a minimum denomination of $5, giving a monopoly to the government over notes of $4 or less. To put the restriction in perspective, it would be roughly like limiting bank notes today to denominations of $50 and up. (The Bank Act of 1871, however, permitted banks to issue $4 notes.) The law specified that the Dominion note issue up to $9 million had a 20% gold reserve requirement and that notes in excess of $9 million had to be covered dollar for dollar by gold. There were about 50 chartered banks in the mid-1870s, a number that dropped to 24 by the end of 1913 as the industry consolidated.

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[1] The accompanying spreadsheet workbook contains a legislative history listing major laws and orders concerning the Dominion note issue.

When Canada confederated, the United States was off the gold standard, as it had been since the American Civil War and would continue to be for several more years. The United States returned to the prewar gold exchange rate in 1879, making the U.S. dollar equal to the Canadian dollar. The Canadian dollar/sterling exchange rate par value was set at $4.86-2/3 Canadian per 1 British sovereign (£1 gold piece) (Bordo 2008). Unlike the case in the 20th century Bretton Woods period, the U.S. dollar was not the anchor currency for the Canadian dollar in the late 19th century; gold was the anchor.

The Canadian government had a relaxed approach to regulating the issue of bank notes. Banks' total assets acted as collateral for bank notes, rather than banks being required to maintain special collateral such as government bonds. U.S. currency regulations of the time, in contrast, required banks to hold government bonds in special accounts as collateral against note issues. Canada merely required note circulation not to exceed a bank's paid-up capital. Banks were not required to hold any particular minimum ratio of gold to notes in circulation, although they were required, insofar as was practicable, to hold in Dominion notes not less than half of whatever cash reserves they did hold. In 1891, a bank circulation redemption fund was established by the government, which guaranteed redemption of notes in the event of bank failures. Each bank had to send 5% of its average circulation in the previous year, but banks earned interest of 3% on their contributions to the fund. Until the mid-1890s, note circulation never exceed two-thirds of aggregate bank capital, so the statutory ceiling set by the government did not significantly restrict the supply of bank notes.

During almost all of the period before 1914, the government did not act as a lender of last resort to the banking system. However, there was one extraordinary circumstance that called for government intervention. The breach of almost complete laissez-faire policy followed the Panic of 1907. Prior to this, monetary policy meant passive alteration of Dominion note supply in response to fluctuations in the official gold reserve. However, this financial crisis called for action. The crisis started in U.S. money markets; there was a financial liquidity squeeze in the summer of 1907. The Knickerbocker Trust Company of New York collapsed on October 22, and massive bank deposit withdrawals occurred. Bank runs and the crisis caused interest rates to surge to record levels. Canadian exporters acted as lenders to the New York money market, and the Canadian and European money markets also tightened. Canadian bank liquidity declined as reserves dropped, and this all occurred right at the time when western farmers were moving their crops east before winter. There was a massive demand for loans to finance the transportation of crops to the east, while banks were cutting back lending, so farmers panicked. Banks, by government mandate, were only allowed to issue notes up to the amount of their capital. This unnecessary limit had not made a difference previously because demand for bank notes was below the amount of banks' capital. When demand for notes increased substantially in 1907, banks could not legally issue enough notes, event though the banks wanted to do so and customers wanted to hold the notes. Subsequently, the government stepped in and offered loans to chartered banks on November 20, 1907 to finance the grain trade. This is the only time

the government stepped in and lent to the banking sector from confederation to 1914 (Rich 1988:164-165).

The loans were made through the Bank of Montreal, the dean of the Canadian banking system, in the form of Dominion notes, on an uncovered basis. This action breached the limits set in the Dominion Notes Act but was retroactively sanctioned by Parliament in 1908. Banks borrowed $5.3 million under the emergency scheme, while no bank failure took place and no specie payments were delayed. The laissez-faire breach was proactive and some argue unnecessary. Nonetheless, a complete money market and liquidity drying-up was avoided. Soon afterwards the banking law was changed to allow banks more flexibility in issuing notes.

The Finance Act of 1914 terminated the gold standard and provided for advances from the government. At the outbreak of World War I, in August 1914, the European belligerents suspended the gold standard. Gold for export was also hard to obtain in practice in the United States. Canada, which like the rest of the British Empire entered the war on the side of Britain, suspended the gold standard as Britain had. The Canadian Order-in-Council of 10 August 1914 and the Finance Act created an unusual arrangement under which there was neither a rigid exchange rate nor strong discretionary control of the monetary base. This arrangement, which has retrospectively been dubbed the “free issue” system after a similar episode in Hong Kong from 1972 to 1983, lasted until Canada resumed the gold standard on July 1, 1926 (Finance Act, 13-14 Geo. V, cap. 48, 30 June 1923).

Like some other economies that were large commodity exporters, Canada began experiencing signs of a slowdown in 1928, well in advance of the U.S. stock market crash of October 1929 that conventionally marks the start of the worldwide Great Depression. In January 1929 Canada deserted the gold standard de facto through stealth gold device measures (Bordo, Redish, and Shearer 1999:20). In October 1931 the government officially floated the Canadian dollar, a few weeks after the pound sterling had been floated. Canadians started questioning the gold standard as Germany suffered severe deflation during this time period. The only advantage seen to the gold standard was the relative stability of exchange rates but this came at the high price of deflation.

The Great Depression gave new impetus to proposals for a central bank. Canada’s commercial banks opposed a central bank. They claimed the Finance Act provided all that was needed by way of central banking machinery so a central bank was unnecessary. They argued that a central bank could not create more credit than already existed and that it was dangerous to disturb the existing system with its proven efficiency and stability (Rich 1988:149-152). Majority sentiment in Canada, though, favored a central bank. On April 10, 1933, the redemption of Dominion notes for gold was officially suspended. The "free issue" arrangement lasted until the end of the Dominion note issue and on July 3, 1934 the Bank of Canada Act established Canada's central bank to replace the government and bank note issue when it opened its doors

March 11, 1935. The Bank of Canada immediately assumed liability for Dominion notes. Commercial banks could not increase their note issues, but were allowed to continue circulating their existing notes for ten years.

When and to What Extent Was Dominion Note Issue Like a Currency Board?

In the analysis of Canada's Dominion note issue and whether it behaved like a currency board, it is useful to first define what characterizes a currency board. A currency board maintains a fixed exchange rate with an anchor currency and has no exchange controls with that currency. It holds 100% or slightly greater foreign reserves, at least at the margin, against the total monetary base; does not lend to the government or hold government deposits; and does not issue interest-bearing securities for purposes of discretionary monetary policy. In some cases these characteristics have been written into law, while in others they have simply been a matter of administrative practice. Some current monetary authorities that follow currency board practice in other respects have no upper limit on their foreign reserve cover; it is best to term them quasi currency boards or currency board-like systems to distinguish them from orthodox currency boards (Hanke 2002: 203-222). We use high-frequency data to investigate to what extent the Dominion note issue had these characteristics, a topic in which previous study is meager.

An examination of the balance sheets shows that for at least part of its existence, Canada's Dominion note issue worked like a currency board—something previous researchers have failed to observe, because they have only examined policies within the broad framework of "discretionary" versus "automatic." We do not address other issues like how the Dominion note issue may have affected business cycles and economic growth. Our digitization of monthly balance sheet data and legislative history should prove useful, though, in future inquiry into Canada's monetary system of the time. We first delineate periods during the era of Dominion note issue that certainly were not currency board-like.

At confederation, Canada was wealthy by the standards of the time but its living standards lagged U.S. living standards, as contemporary observers were aware. Then the building of a rail network that spanned the continent, the development of rich agricultural lands in the western provinces, and a surge in immigration created a boom that brought Canada to rough equality with the United States early in the twentieth century. The long boom is visible in the rising circulation of Dominion notes. In June of 1872, 35 Victoria, cap. 7 legislated that the federal government must have at least $2 million in gold reserves before it could issue any notes, a 20% gold reserve up to $9 million of notes and 35% gold reserve beyond $9 million in notes. In 1875, this act was amended to require 50% gold reserves from $9 million to $12 million in notes, while 100% gold reserve beyond $12 million in circulation was mandated. Before 1880, a number of restrictions on convertibility of Dominion notes into gold imply that monetary discretion existed, unlike the case with an orthodox currency board. In 1875,

Finance Minister Sir John Richard Cartwright complained the government had to redeem over $2 million worth of Dominion notes in a span of six to seven weeks (Rich 1988:194-196). This was about 60% of the gold stock at the time, so subsequently the government took stealth measures to evade the letter of the law. The government decided to borrow heavily from foreign and domestic banks. Temporary loans obtained from British and Canadian financial Institutions reached $14.6 and $4.4 million, respectively. With deposits amounting to $5.6 million, net government claims on domestic banks dropped to a low of $1.2 million. (Rich 1988:197-201) These deposits enabled the government to keep the redemption problems within bounds. Those measures imply that the Dominion note issue was not a currency board from 1867 to 1879.

From 1880 to 1914, legislation required a 20-25% gold and foreign securities reserve up to a note issue of $20-$30 million and a 100% gold reserve thereafter. The exact ranges varied by year. By 1914 the reserve requirement was 25% in gold and foreign securities up to a note issue of $50 million, and 100% gold reserve beyond $50 million. Since total circulation of notes almost always exceeded the lower thresholds, the government could not issue notes to finance expenditures. At the margin, in theory, new Dominion notes had to buy gold and there could be no seigniorage (Bordo 1999:11-17).

The Crisis of 1907 drove the federal government to lend to the banking system during the crop season. Prior to this, monetary policy meant passively altering the Dominion notes supply in response to fluctuations in the official gold reserve. Banks borrowed $5.3 million under the emergency scheme. Since the government acted as a lender of last resort, discretion certainly came into play and the Dominion note issue therefore was not a currency board at the time. This breach from the rules of an orthodox currency board will be further examined below with statistical tests.

In 1914, the Finance Act terminated the gold standard by Order-in-Council of 10 August 1914, largely due to the onset of World War I. The Order-in-Council was a temporary measure, as Parliament was not in session when the policies were decided, but later in August the cabinet's decisions were legislatively confirmed in the Finance Act. The government and banks were concerned that Canadian citizens would exchange their bank notes and deposits for Dominion notes to redeem the Dominion notes for gold (Bordo 1999). The government revisited its policy of 1907 that created temporary liquidity by allowing banks' note circulation to increase to 115% of their paid-in capital. This Finance Act confirmed by law what had already occurred in practice. This legislation also suspended the requirement that bank notes be redeemable in Dominion notes. This implies that bank notes became legal tender de facto between banks and the public (Canada 1914a; Bordo). A further action of the Order-in-Council suspended the convertibility of Dominion notes into gold, which in effect placed Canada on a somewhat flexible exchange rate. The Order-in-Council and the Finance Act created a "free issue" arrangement, which had neither a rigid exchange rate nor a strong discretionary control of the monetary base. This resulted in an expansion of the money

stock during World War I, as shown in Figure 5. Because of this "free issue" policy and the Finance Act putting exchange controls on the conversion of currency to gold, the Dominion note issue was not an orthodox currency board from 1914-1926 (cf. Bordo 1999).

In June of 1923, an extension on the Finance Act mandated a return to the gold standard within three years. The gold standard was reinstated on July 1, 1926. The government resumed convertibility of its Dominion notes. However, a severe drain of its reserves ensued due to arbitrage activity involving borrowing Dominion notes and converting the proceeds to gold to be sent to New York to finance loans. A precise date is tough to determine due to the Canadian government's stealth but effective measures, but in January of 1929 the government suspended the gold standard once again (Bordo 1999 and Shearer and Clark 1984: 296).

Subsequently Canada's Prime Minister R.B. Bennett stated that Canada remained committed to the gold standard, although some scholars believe he mistakenly believed the gold standard to be the dedication to pay bonds in gold, rather than to redeem Dominion notes with gold (Bryce 1986, 125; MacIvor 1961: 131). A month later Canada banned exports of gold and the Canadian dollar depreciated against the U.S. dollar by about 15%. Finally, this de facto exit from the gold standard in January 1929 led to a restriction of the conversion of Dominion notes into gold and talk of implementing a central bank ensued. The restriction took place until October 1931. In September of 1931, Britain abandoned the gold standard. The exchange restriction and depreciation of currency against a foreign currency are characteristics not representative of an orthodox currency board. Thus, from 1929 until the Bank of Canada replaced the Dominion note issue in 1935, the Dominion note issue lacked the features of an orthodox currency board.

In summary, the Dominion note issue was not like a currency board before 1880 because of lack of a 100% marginal reserve requirement and later the government’s covert restrictions on convertibility. Nor was it like a currency board from 10 August 1914 to 1 July 1926 because the Finance Act suspended the fixed exchange rate with gold and exchange controls existed. Finally, the Dominion note issue was not a currency board from January 1929 until the end of its existence in 1935, because the government first in practice and later officially suspended the fixed exchange rate with gold again. Although these periods fail to pass the text of currency board orthodoxy, we examine the Dominion government's monthly balance sheet data to determine if any of these periods possessed and vaguely quasi-currency board characteristics. We also examine the remaining periods, 1880-1914 and 1926-1929, which seem more promising as possibly conforming to currency board-type rules.

Table 1. Significant Changes Affecting the Dominion Note Issue

1867 Canadian provinces joined in confederation and the Dominion government acquired jurisdiction over note issue; maximum issue was $9 million with a 20% reserve requirement and excess was covered dollar for dollar; Canada was on the gold standard, while the U.S. dollar at the time was floating

1868 Notes issued by the Province of Canada (now Ontario and Quebec) became Dominion notes

1870 Dominion Notes Act of 1870 restricted bank notes to a minimum denomination of $5, giving a monopoly to the government over notes of $4 or less

1871 Bank Act of 1871 established the legal framework for banks that continues today

1879 U.S. returned to the gold standard; $1 Canadian = $1 U.S.

1892 Start of Quasi-Currency Board period (see text)

1907 Interruption in Quasi- Currency Board period (see text)

1907 November 20: The government acted as lender of last resort to the banking system in response to the Crisis of 1907

1908 Government authorized note issuance in excess of ceiling during crop-moving season, September 1 to February 28

1913 Revision of Bank Act of 1913 imposed 100% cash reserve requirement on notes issued in excess of ceiling

1914 Finance act of 1914 abandoned gold standard and allowed for advances from government; outbreak of World War I marked end of rigid exchange rate

1926 July 1: Resumed gold standard and pegged currency

1929 January: Abandoned gold standard de facto through stealth measures marking the end of the gold standard for Dominion note issue

1931 October: Canadian floated dollar a few weeks after sterling

1933 April 10: The redemption of Dominion notes for gold was officially suspended

1935 March 11: Bank of Canada replaced Dominion note issue

Canada Gazette Data and Our Tests

We recorded monthly balance sheet data on the Dominion note issue for the whole of its existence. The main source was the *Gazette of Canada* or, where the data were missing, C.A. Curtis' *Statistical Contributions to Canadian Economic History*. Some data were still missing and we interpolated based on the figures in the surrounding months, as can be seen in the supplementary workbook. Some weekly data exists from 1871 to 1880, but only monthly data are recorded here. From 1868 onward, the *Canada Gazette* was numbered so that page 1 occurred in the first issue in July, not in January; thus the gazette pages corresponded with the fiscal year, not the calendar year.

The companion workbook consolidates the line items on the balance sheets based on general categories useful for determining currency board traits. We used the Dominion notes combined with provincial notes as the Department of Finance's major liability, when this was on the balance sheet, to attain a total value of notes in circulation. From July 1912 to November 1928 provincial notes were not included in the total on the balance sheet, so the workbook adds provincial notes to Dominion notes in circulation.

The major asset categories are gold and securities. The focal gold line item is specie, which is labeled "gold held by the Minister of Finance" after 1914. "Gold reserve on amount of deposits held in Savings Banks" represents another important gold sub-category; this comes into play in 1903 and lasts until 1932. The major securities line items are different forms or titles of debentures. Provincial and later Canadian debentures existed on the balance sheets until July of 1880, when the category switched to "Guaranteed Sterling Debentures" until November 1912. Also on the balance sheet was a debenture category labeled "unguaranteed debentures," which was present from July 1880 until July 1903. We concluded these debentures were Canadian government securities issued in London and payable in sterling. The "guarantee" in question was a commitment to pay the interest and principle out of certain specified revenue streams of the Canadian government. In addition to the assets mentioned, the Dominion held certificates of deposits. The balance sheets recorded CDs from June 1872 to April 1880 while the 1872 and 1876-1880 certificates are inferred. Starting with the August 1875 statement the *Canada Gazette* ceases to show debentures and certificates of deposit, but it does show the net worth (which it calls the excess or deficiency of specie), from which the combined total of debentures and certificates of deposits can be calculated.

Other memo line items can be observed below the assets and liabilities. These items are seen as useful affiliates to the core data used to determine currency board characteristics. They include statutory reserve requirements and excess of the said requirements among other matters. Our calculations for net worth only take into account recorded assets and liabilities without using any of these supplementary memo items.

A final detail in need of mention is the fact that, with a few exceptions, the balance sheets reported gold as the only asset against Dominion notes from December 1912 until the Bank of Canada opened its doors. The exceptions occurred in August 1914 when $750,000 worth of securities was held under the Finance Act for one month's statement. Also, starting in December 1928, approved securities are inferred as a counterpart to "Dominion notes outstanding against approved securities" under liabilities. These approved securities are not listed under assets, yet intuitively they are in the financial statement.

Where neither the *Canada Gazette* nor C.A. Curtis' book contained data for our most useful line items we interpolated the values; these values are highlighted by red text in the spreadsheet. We took the previous month as a ratio of one year before, and applied that ratio to the month preceding the unknown month. So for example, if this June's notes total is 105% of last June's note total and we have a figure for last July but not this July, we multiplied last July's notes total by 1.05. This technique applies to certain other interpolated values. The reason for using this technique rather than simply inserting a figure midway between the two surrounding figures is it better captures certain regular seasonal patterns in note circulation.

Test #1: Foreign Assets, Domestic Assets, and the Monetary Base

Unlike an orthodox currency board, Canada's Dominion government held significant assets in domestic securities from 1866 to 1903. Thereafter almost the entirety of reported assets is in gold. This can be noticed in Figure 1.

Analysis of the Figure 1 reveals the government did not vary its holdings of Canadian securities too much, but they definitely fluctuated. This suggests some slight discretionary policy up to 1880, contrary to currency board practice.

Figure 2 shows foreign assets as a percentage of the monetary base. In an orthodox currency board system the ratio of net foreign assets to the monetary base is at least 100 percent. There is also an upper bound, typically no greater than 115 percent, to ensure that the monetary authority does not sterilize inflows of foreign reserves without limit. Moreover, domestic assets are small or zero. The purpose of the small foreign reserve in excess of 100 percent is to insure against depreciation of the currency board's assets, so that in practice they never fall below 100 percent.

In the case of the Dominion note issue, foreign assets never exceed the monetary base. This means that the Dominion note issue was never an orthodox currency board, yet there is still a possibility it was a quasi currency board system. As all of the securities the currency board holds are foreign, we only take gold as the foreign asset measured against the monetary base. The periods under interest are 1880-1914 and 1926-1929 since these do not fail the initial fundamental and qualitative tests for a quasi currency board system.

In January of 1880, gold only covered 29.65% of the total monetary base. This ratio certainly increases as it peaks at 94.86% of the monetary base in February of 1913. The next step is to determine how low of a ratio is acceptable in terms of continuing on in the analysis of that time period. The convenience in this case comes from the fact that the foreign asset to monetary base ratio virtually steadily increases over the 1880-1914 time period. Based on the statistical test in Figure 2, we continue examining from May of 1892 to July of 1914 for currency board characteristics, as 40% seems a somewhat satisfactory lower band for this ratio. The reinstatement of the gold standard in 1926 until 1929 is still under investigation as the ratio fluctuated between 50% and 60% during this period.

After further statistical analysis, our investigation of the Dominion note issue can be consolidated further to explore the eras 1892-1914 and 1926-1929.

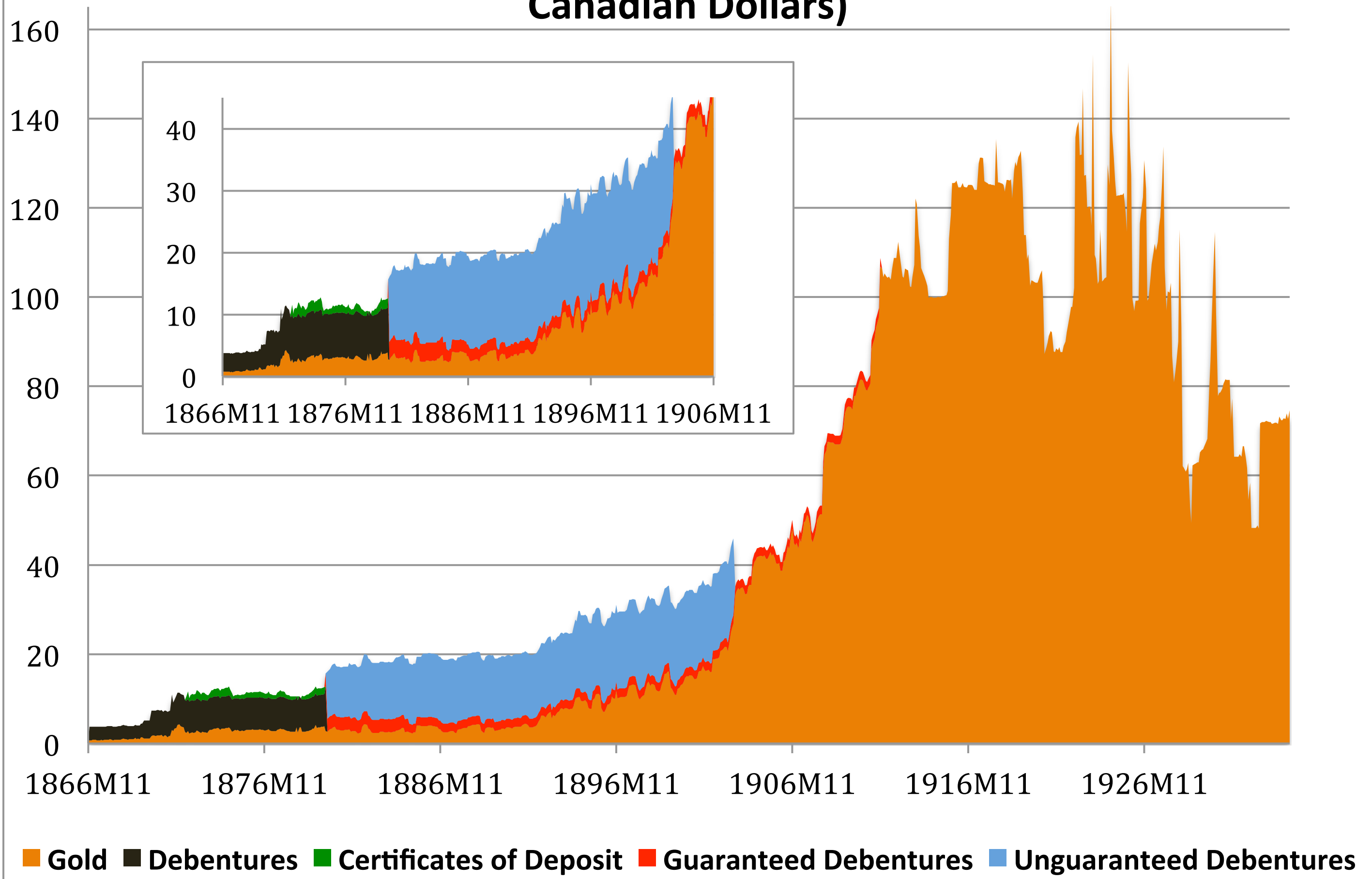
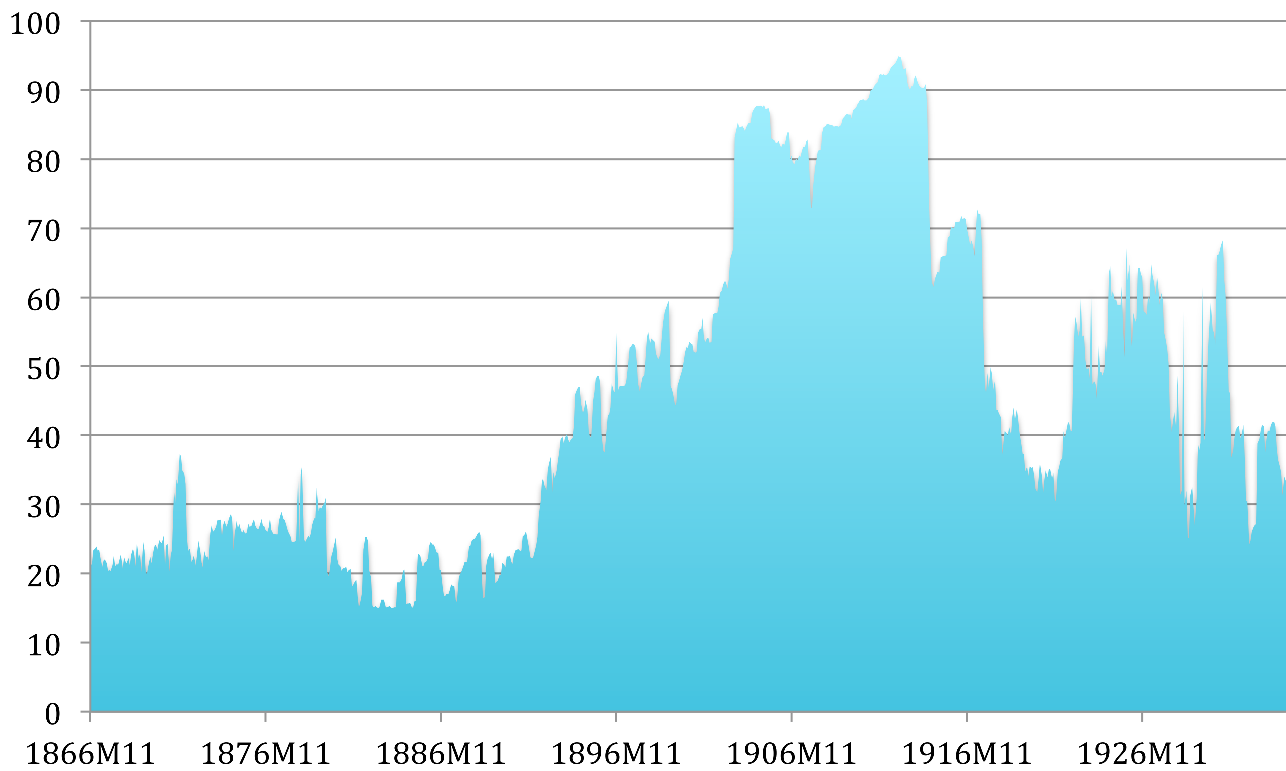


Figure 1. Assets Held by Dominion of Canada (Millions of Canadian Dollars)
160
140
120
100
80
60
40
20
0
1866M11
1876M11
1886M11
1896M11
1906M11
1916M11
1926M11
40
30
20
10
0
1866M11 1876M11 1886M11 1896M11 1906M11
Gold
Debentures
Certificates of Deposit
Guaranteed Debentures
Unguaranteed Debentures
Sources: Canada Gazette; Curtis (1931); calculations.



Sources: *Canada Gazette*; Curtis (1931); calculations.

Test # 2: Reserve Pass-Through

Towards the end of 1885, the Deputy Minister of Finance ventured the suggestion that against any further increase in the note circulation, the government should hold "dollar for dollar in coin" (Rich 1988:200). This assurance from the government suggests a move toward nondiscretionary policy, and so the question remains when this strategy fundamentally came into play.

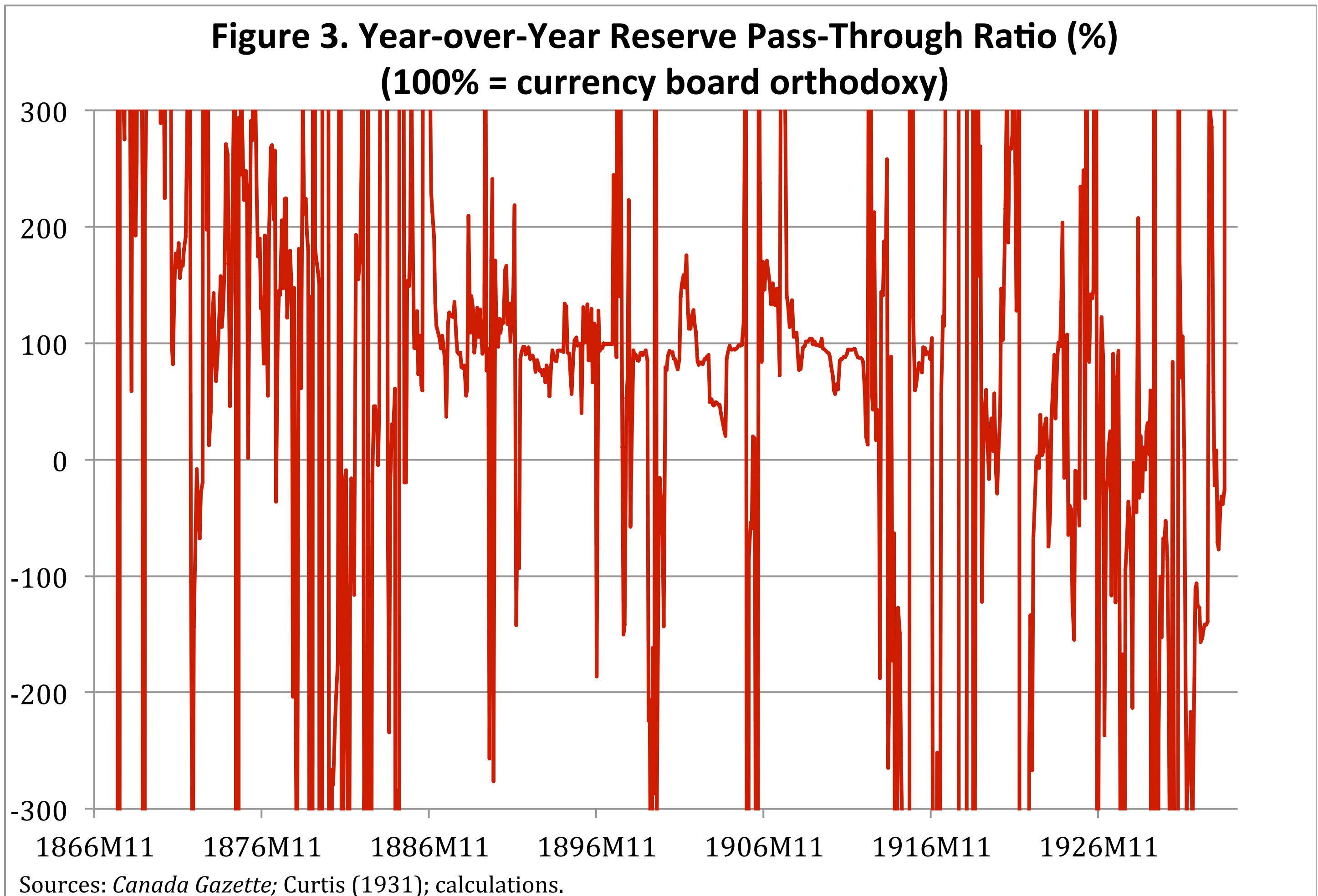
From 1867-1885, the increase in uncovered note issue contributed vastly to growth in aggregate stock of Dominion notes, while the Dominion authority's official gold stock only rose slightly. Then in 1885, the growth trend of the uncovered issue shifted dramatically as aggregate notes surged while growth in the uncovered note issue came to a standstill. From 1885 to World War I, the uncovered note issued fluctuated within a band of $11 million to $18 million (Rich 1988:73). This growth shift implies a change in policy from discretionary to automatic around this period. The government was forced to buy gold from abroad (U.S. and London) to prop up reserves and reverse the initial increase in the uncovered note issue.

From 1892 to 1914, there seems to be three periods where the reserve pass-through ratio fluctuates in a relatively narrow range around 100% (Hanke 2008:56-58). We conclude the Dominion note issue resembled a currency board-like system from May of 1892 to August of 1905 based on the reserve pass-through ratio being between 80% and 140% for the most part. The anomalies in the summer and middle of 1900 come from the catalyst of the calculation in that we use annual change in monetary base and foreign reserves because of cyclical trends. The summer of 1899 contained an unusually large monthly marginal change in gold reserves, and this causes the reserve pass through ratio to jump to the uncommon height of 1319% and an infrequent low of -567%. Other than these anomalous fluctuations, the period between May 1892 and August 1905 demonstrates a stable reserve pass-through as well as the other characteristics of a currency board-like authority.

The crisis of 1907 represents an obvious breach of currency board orthodoxy as the government acted as a lender to the banking system. The marginal increase in the monetary base divided by the marginal increase in foreign reserves fluctuates too much during this time to resemble a currency board. March 1908 until January of 1914 (just before the ratification of the Finance Act in August of 1914), however, is a period with a fairly stable reserve pass-through ratio, between 60% and 140% for the most part. Thus, this study concludes the Dominion note issue acted as a quasi currency board from May 1892 to August 1905 and then again from March 1908 to January 1914. The pause in characteristics between periods is mostly attributed to the Crisis of 1907.

Turning to the reinstatement of the gold standard between 1926 and 1929, the reserve pass-through ratio is fairly stable for certain months during this period, but many substantial deviations from the 100% benchmark imply discretionary manipulation and

based on this test, it is hard to say the Dominion note issue resembled a quasi currency board arrangement during the period. A complicating factor is that the *Canada Gazette* fails to report a fair amount of data for this period. However, we use the data of C.A. Curtis' reliable work.



Conclusion

Canada's Dominion note issue existed from 1868 until the Bank of Canada opened on 11 March 1935. During this time, it seems to have operated as a currency board-like system during two periods: from May 1892 to August 1905 and then again from March 1908 to January 1914. Throughout its early years, the Dominion note issue did not operate as a currency board because the sizeable increase in uncovered notes from its beginning until December of 1885 suggests discretionary monetary policy. The change in the reserve pass-through ratio ventured away from the orthodox 100% benchmark too much from 1885 to April of 1892 to be considered an orthodox or quasi currency board arrangement. The Crisis of 1907 forced the Canadian government to act as a lender of last resort to the banking system—an act that goes against orthodox currency board rules. The Finance Act dismantled the gold standard August of 1914 and this lasted until 1 July 1926, so the Dominion note issue was not a currency board during this time. Statistical evidence suggests that although the gold standard was reinstated July 1, 1926 until January of 1929, the Dominion note issue was not currency board-like during this time. The reserve pass-through and gold to monetary base ratios veer too much from orthodoxy. Finally, the government abandoned the gold standard once again January of 1929 by stealth gold device measures (Bordo, Redish, and Shearer 1999:20). Soon after the government officially banned the export of gold, the Canadian dollar floated on 19 October 1931, and the monetary authority suspended the redemption of Dominion notes for gold officially 10 April 1933. Thus the Dominion note issue was not a currency board from January 1929 until the Bank of Canada's establishment.

During the two aforesaid currency board periods, the Dominion note issue acted as a quasi currency board rather than an orthodox board because it held domestic securities in the form of guaranteed sterling debentures and did not completely obey the 100% foreign reserve cover of the monetary base rule, even at the margin. Nonetheless, throughout these periods free exchange of notes for gold took place. The government did not vary its domestic holdings much, and the authorities tried to cover the increase in notes issued dollar for dollar with gold. Although there were some deviations from the rule, overall we find a rule-based policy during the quasi currency board periods.

We examined only published writings and statistics. Archival research, especially for the 1926-1929 era, may reveal further data. The most important aspects of this investigation are the ruling out of certain periods as currency board eras in Canada, as well as the identification of periods that possess many of the necessary qualifications of a currency board-like system. Our data should be useful to any later researchers investigating Canada’s monetary history during the period of the Dominion note issue.

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