

Canada¹

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Two important dates significantly determine the availability of official historical Canadian data for economic and financial statistics: the Confederation of Canada in 1867 and the opening of the Bank of Canada in 1935.

After agreement by the participating British colonies to join in confederation, the *Constitution Act, 1867* (originally the *British North America Act, 1867*) was passed in the British parliament in 1867 and the Dominion of Canada was created. The *Constitution Act* established Canada as a federal state with a parliamentary system modelled after Britain's, comprising four former British colonies – Upper and Lower Canada (modern day Ontario and Quebec), New Brunswick and Nova Scotia. The remaining provinces and territories that constitute today's federation joined later: Manitoba and Northwest Territories (1870), British Columbia (1871), Prince Edward Island (1873), Yukon (1898), Alberta and Saskatchewan (1905), Newfoundland (1949) and Nunavut (1999).

Canada's borders expanded several times from 1870 until 1949 to include these new provinces and territories. Since these expansions integrated new regions that were more sparsely populated than the country as a whole, these changes do not introduce significant structural breaks in aggregate series of real variables, although we recommend that users be mindful of these changes when using historical series.² For financial variables, these changes could, in principle, have had an impact on the expected future economic activity of the country, and could therefore have some bearing on indicators of sovereign risk such as government bond rates. Although we detected little evidence of significant breaks in financial variables at years where territorial changes were made, we caution users of historical time series to consider this context in their applications.

With the passage of the *Constitution Act* in 1867, the Dominion of Canada remained under the legal authority of the British Parliament. This changed with the passage of the *Statute of Westminster, 1931* and the *Constitution Act, 1982*, which, together, fully established Canada's legal sovereignty and independence. Today, the country remains a constitutional monarchy with the British sovereign as its head of state. In practice, the British sovereign is represented by the Governor General of

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² For example, when Newfoundland joined Canada in 1949, this had a marginal impact of about 2.5% on Canada's total population. As part of the Terms of Union, the Canadian federal government assumed nearly all of Newfoundland's sterling debt. At roughly \$62 million Canadian dollars, this marginal debt was very small compared with Canada's total federal debt (direct and indirect), which was over \$17 billion Canadian dollars in 1949 (Urquhart and Buckley (1965) Series 45–61, p 209).

Canada, who, other than in exceptional circumstances, performs a largely ceremonial role.

The gradualism with which Canada has evolved from British colony to sovereign state over the course of the 19th and 20th centuries has probably had some influence on the nation's finances, particularly in the early years of Confederation. For example, throughout much of the 19th century, including after Confederation in 1867, British colonial debts (including in Canada) were underwritten by the institution of "imperial guarantees" (Davis and Huttenback (1986)). Although the colonies in Canada were self-governing for much of the 19th century, imperial guarantees came hand-in-hand with some degree of "imperial conditionality", whereby the British government would intervene in colonial affairs in cases where local governments reneged on promises (Accominotti et al (2008, 2011)). With the passage of the Colonial Stock Act of 1877 in the British Parliament, these institutions were modernised, so that colonial debts could be registered with the Bank of England and enjoy "trustee status", in exchange for an acceptance that British judicial courts would be the ultimate arbiter in case of disputes. Under these institutions, Canadian sovereign debts enjoyed lower yields and longer maturities on account of Canada's relationship with Britain.³ Given the gradual evolution of Canadian sovereignty from the 19th to the 20th century, it is difficult to say how long these effects persisted after Confederation.⁴

The *Constitution Act, 1867* stipulated that the federal government would be exclusively responsible for the domestic currency. Before Confederation, the colonies issued their own currencies, although British and American currencies were also widely used. The *Constitution Act, 1867* and the *Dominion Notes Act of 1868* enabled the Department of Finance to issue "Dominion notes", which were first circulated in 1870, and steps were taken to limit the use of foreign currency in the new dominion (although dominion government debt continued to be issued largely in sterling).⁵ Issues of dominion notes were partially backed by gold, which followed previous requirements put in place under the Province of Canada that pre-dated Confederation.

Upon Confederation in 1867, Canada joined the gold standard, setting the exchange rate of Canadian dollars at parity with the US dollar, and maintained this regime until the beginning of the First World War in 1914.⁶ The gold standard was suspended in Canada in August 1914, reinstated in July 1926, and later suspended again in April 1933.⁷ Although this suspension was presumed to be temporary,

³ See Section 2.2 from the methodological chapter on interest rates, under "Case 2. When the sovereign is not sovereign", for a longer discussion of how to interpret long-term bond yields in this institutional setting. For more information on the Canadian example, see Dabla-Norris and Marinkov (2019), which provides a discussion on the influence that Canada's relationship with Britain had on Canada's ability to issue debt up to and including the interwar period.

⁴ Degive and Oosterlinck (2021) find evidence that implicit imperial guarantees continued to have influence on sovereign yields of former British colonies, including Canada, during the interwar years.

⁵ Dominion notes were issued in \$1, \$2 and \$5 denominations. Notes in higher denominations were issued by the chartered banks.

⁶ See Rich (1988, 1989) for in-depth analysis of Canada's experience with monetary policy under the gold standard from 1867 to 1914.

⁷ During the suspension of the gold standard between 1914 and 1926, Canada issued "optional payment bonds" payable in either Canadian dollars or sterling. This raises some issues in relation to comparability with long-term bonds from other sovereigns, as discussed in Chapter 2 on interest

Canada remained off the gold standard with a floating exchange rate until exchange rate controls were explicitly introduced in September 1939.⁸ This fixed exchange rate regime was maintained until September 1950, when Canada left the pegged rate system that was established under the Bretton Woods Agreement and adopted a flexible exchange rate, which remained in place until 1961.⁹ Between May 1962 and May 1970, Canada returned temporarily to a fixed exchange rate regime. Canada ultimately reverted to a flexible exchange rate in May 1970, and this regime has remained in place until today.¹⁰

The *Constitution Act, 1867* also specified that the federal government would assume provincial debts outstanding at the time of Confederation, would be given taxation powers (direct and indirect), and gave the federal government exclusive responsibilities for “Banking, Incorporation of Banks, and the Issue of Paper Money”; “Savings Banks”; and “Bills of Exchange and Promissory Notes”. The first *Bank Act* (1871) of the Dominion served as the framework for the banking system in Canada. It required that all chartered banks submit a monthly financial statement to the government. This requirement was pre-dated by earlier legislation passed in 1856 by the parliament of the Province of Canada (established in 1841, consisting of Upper and Lower Canada), which required that statements of balance sheets, dividends and profits of chartered banks in Canada be published in the *Canada Gazette*, the newspaper of the Parliament. Similar rules were applied by Britain in 1833 to banks that desired a charter in the colonies of British North America, purportedly devised to preserve the public interest (see Breckenridge (1895), pp 67–73).

Finally, the *Constitution Act, 1867* required the collection of the national census for the Dominion of Canada, the first of which was published in 1871, followed by new publications every 10 years thereafter. The Dominion Bureau of Statistics was eventually established in 1918 to collect and analyse data on the “economic, social, and general conditions of the country” (Statistics Canada (2016)). In 1971, this agency was succeeded by Statistics Canada, Canada’s current national statistics agency.¹¹

The *Bank Act* was updated several times between 1871 and the creation of the Bank of Canada in 1935; this was a period where various episodes of financial crisis

rates, under “Case 3. The problem of embedded options”. After Canada re-joined the gold standard in 1926, a gold clause was re-introduced, but this was effectively removed in 1929, when the Canadian government suspended exports of gold. Hence, even as Canada remained officially on the gold standard until 1933, it was effectively floating the exchange rate beginning in 1929. See Dabla-Norris and Marinkov (2019) for a summary of changes in Canada’s relation to the gold standard and gold convertibility during the interwar years. See Bordo and Redish (1987, 1990), Shearer and Clarke (1984) and Powell (2005) for analyses of Canada’s experience with monetary policy during the 1914–35 period. The movements on and off gold convertibility during this period, and the potential uncertainty in terms of regime switching, could have had some bearing on government bond rates, as discussed in Chapter 2 on interest rates, under “Case 4. When bonds become special ex post”.

⁸ See Bordo and Redish (1990), who study the determinants of the Canadian exchange rate during the interwar period.

⁹ Canada was a pioneer in instituting a flexible exchange rate throughout the 1950–62 period. See Bordo et al (2010) for an analysis of this experience.

¹⁰ See Bordo and Redish (2006) for a discussion of Canada’s experience with exchange rate regimes in an international context.

¹¹ Prior to Confederation, censuses were collected in the British colonies. With the passage of the Statistical Act of 1847 in the Province of Canada, the first formal census in British North America was collected in 1851. Prior to that, statistics dating as far back as the early 1600s were collected by the Europeans who settled in modern-day Canada. See Statistics Canada (1993) for more information on this history.

led to increasingly strict banking supervision,¹² and where the banking sector in Canada became increasingly consolidated through mergers and bank failures.¹³

Although Canada did not face a significant domestic financial crisis during the Great Depression of the 1930s, the global financial turmoil of the period led to increased interest in enhancing the country's financial system oversight.¹⁴ In July 1933, the government established the Royal Commission on Banking and Currency in Canada (the Macmillan Commission, which produced the Macmillan Report) to conduct a deeper investigation into the Canadian financial system and a complete review of the *Bank Act*. The Macmillan Report recommended the creation of a central bank, and the Bank of Canada Act was passed in July 1934 as one of several initiatives to promote financial development and stability in Canada.

The Bank of Canada began operations in 1935 and, although its roles have evolved over time, the Bank's authority and mandate has extended across the entire territory of the country since its inception.¹⁵ Today, the Bank has five core functions: monetary policy, financial stability, currency and funds management (as fiscal agent to the government), and retail payments supervision.

The establishment of the Bank of Canada was a key event in the financial and economic history of the country, although prior to its establishment some core central bank functions were already provided to a degree by other institutions in the country.¹⁶ As such, 1867 – the year of Canadian Confederation – is a natural starting

¹² The economic depression in Canada between 1873 and 1879 resulted in many bank failures, and this encouraged the government to place higher prudential requirements on chartered banks. The 1891 revision to the *Bank Act* increased the capital requirement and raised the required proportion of Dominion notes held in reserve to 40%. Further revisions to the *Bank Act* in 1901 simplified merger and acquisition procedures for chartered banks, which was followed by a significant jump in mergers and consolidation in the banking sector between the early 1900s and the late 1910s. External supervision of the banking system was formally introduced in the *Bank Act* revision of 1913, which introduced a bank audit mechanism whereby auditors chosen from an external panel would independently review chartered bank financial statements (Canada, Privy Council Office (1986) p 351). In 1924, a new government inspection system for the banking sector was introduced following the failure of the Home Bank of Canada.

¹³ The consolidated nature of the Canadian banking system persists, as today the country has only five major chartered banks. Canada did not experience any major domestic financial crisis throughout the 20th century (or, so far, in the 21st) and some attribute this success to the high degree of consolidation, regulation and supervision in the Canadian banking system, as compared with the US system (see Bordo et al (2011)). Also, unlike US banks (Sprague (1910)), Canadian banks were allowed to operate across the country over this period, and this geographic and sectoral diversification of their loan portfolio was important in supporting financial stability. See Keay and Redish (2004) for an examination of how the character of the Canadian banking system influenced firm finance in Canada throughout the 1910–90 period.

¹⁴ Canada's success in avoiding a financial crisis during the Great Depression is often attributed to the degree of consolidation and diversification that existed in the country's branch banking system, although Kryzanowski and Roberts (1993) find that Canadian banks were in fact insolvent during this period and that they avoided failure because the Canadian government encouraged rescues of troubled banks by healthier banks, stood ready to lend to troubled banks, and provided "an implicit one hundred percent guarantee of bank deposits by effectively guaranteeing all deposits at par". The Canadian government also supported agricultural prices during this period, which probably helped to support the financial system.

¹⁵ The Bank was initially a private institution, with shares sold to the public, but was nationalised in 1938.

¹⁶ Some economic historians have argued that the Bank of Canada was established mainly to address public concerns regarding the market system and the power of commercial banks, and to provide proper representation and expertise on economic matters for Canada in the international arena.

point for many Canadian financial series, as opposed to 1935 when the Bank of Canada was established. Nevertheless, for reasons described throughout this chapter, the establishment of the Bank is a good starting point for certain financial series and, since 1935, the Bank has produced and published many important financial statistics for Canada that are otherwise largely unavailable from other sources.¹⁷

Credit

In Canada, a large share of total credit is distributed by chartered banks, although non-bank intermediaries have also accounted for an important share over the years since Confederation. Households and non-financial corporations may also distribute credit, although records of credit intermediated outside of the financial sector are not as widely available, particularly in the early years after Confederation.¹⁸

Until recently, the Bank of Canada produced and provided several up-to-date monthly series for credit in Canada. These include measures for “household credit” and “business credit”, as well as the aggregation of these two into “total business and household credit”.¹⁹ These modern series extend from January 1969 to September 2020.²⁰

These series are broken down by sources of credit. For household credit (consumer and mortgage) and business credit (loans and non-residential mortgages), this includes credit issued by chartered banks, non-banks, and well as off-balance sheet credit securitisation; business credit also includes entries for loans in the form of bankers’ acceptances, as well as debt securities and equity.²¹

For historical credit series relating to these modern series, we will focus the discussion on the sources of credit.

Several of the roles typically provided by central banks, such as the role of lender of last resort, were provided by the federal government in Canada or private banks prior to 1935, and the banking legislation that evolved throughout the country’s early history provided for a degree of soundness in the financial system even in the absence of a central bank (Bordo and Redish (1987, 2006)).

¹⁷ In some cases, the lack of available data prior to 1935 can be construed as a call to action for future work from economic historians.

¹⁸ Well before Confederation, both governments and private businesses located in Canada issued debt to finance their activities. These securities were issued to fund the significant economic expansion throughout the 1800s, and the development of utilities and other project by the colonial governments. Much of this debt was sold to international buyers, a pattern that remained in place until after Confederation and up to the World War I. The domestic securities market grew immensely after that, and today, the credit market in Canada is among the most advanced in the world.

¹⁹ For more information on these series, see www.bankofcanada.ca/rates/banking-and-financial-statistics/historical-selected-credit-measures_formerly-e2/.

²⁰ Starting in December 2020, the Bank of Canada and Statistics Canada agreed to move to a single set of credit statistics that is produced and published by Statistics Canada and is consistent with concepts of its National Balance Sheet Accounts programme. Prior to 2020, both organisations produced and published credit aggregates. These new credit aggregates are available in Statistics Canada’s tables: Credit Liabilities of Households, Credit Liabilities of Private Non-Financial Corporations, and Credit Assets of the Financial Corporations Sector. For more details, see www.bankofcanada.ca/2019/10/bank-canada-statistics-canada-move-single-set-credit-statistics/.

²¹ While equity is not technically credit, it is a form of financing and is included in this series.

Credit issued by Canadian chartered banks

Beginning in 1856, federal legislation in the Province of Canada has required that chartered banks publish their monthly balance sheets in the *Canada Gazette*, the parliamentary newspaper. This resource provides the foundation for a continuous monthly series for total credit issued by chartered banks in Canada for the period from Confederation in 1867 to the present. Importantly, the *Bank Act* (1871) prohibited chartered banks in Canada from lending for mortgages or real estate. This prohibition spanned from the first *Bank Act* (1871) until revisions made in the *Bank Act* (1954).²²

Today, the Bank of Canada publishes tables that provide modern series for credit issued by chartered banks in Canada that cover the period from January 1969 to the present. These are published in *Chartered bank selected assets: Month-end (formerly C1)* of the Bank of Canada *Banking and Financial Statistics*. The Bank also publishes archived series for credit issued by chartered banks that cover the period from January 1946 to September 2020 in *Historical chartered bank assets: Month-end (formerly C3)*.²³

Prior to the publication of the Bank of Canada *Banking and Financial Statistics*, which began in 1993, the Bank provided similar summaries in the *Bank of Canada Review* from 1972 to 1993 and the Bank of Canada *Statistical Summaries* from 1935 to 1971. Although the names of these publications changed over time, their underlying organisation has been largely the same since they were first published by Bank of Canada in 1946. From these resources, series for monthly credit issued by chartered banks in Canada can be constructed covering the period from January 1930 to September 2020.

For the years prior to 1930, a secondary source, Curtis (1931), provides compiled balance sheet information provided in the *Canada Gazette* into meaningful banking summary statistics that cover the period from 1867 to 1929.²⁴ The format of banking returns in the *Canada Gazette* is inconsistent throughout this period, as categorisations of assets and liabilities changed frequently. To avoid inconsistencies caused by these re-categorisations, Curtis (1931) created an aggregate measure of loans issued by Canadian chartered banks within Canada.²⁵

To accompany this annex, we provide a monthly series for total domestic loans issued by chartered banks, constructed using three underlying series: the aggregate measure of "Total Loans issued within Canada" from Curtis (1931) for the period from

²² Prior to the *Bank Act* (1871), the charter for the Bank of Montreal, established in 1822 and Canada's first bank, also included a clause prohibiting lending for mortgages (Neufeld (1972)).

²³ These Bank of Canada tables include subseries that account for several important adjustments to credit issued by chartered banks. Descriptions of these adjustments can be found at www.bankofcanada.ca/rates/banking-and-financial-statistics/chartered-bank-selected-assets-month-end-formerly-c1/ and www.bankofcanada.ca/rates/banking-and-financial-statistics/historical-chartered-bank-assets-month-end-formerly-c3/

²⁴ Curtis (1931) is also the source relied upon to construct pre-1929 banking statistics provided in Urquhart and Buckley (1965), which is a well known reference for early Canadian economic statistics.

²⁵ For more information about the changes in the chartered bank balance sheets between 1867 and 1929, see the original work by Curtis (1931). The bank balance sheet data reported in the *Canada Gazette* were provided by the Department of Finance, which began collecting statistics on Canadian banks in 1867.

July 1900 to December 1929,²⁶ the sum of domestic “call loans”, “public loans”, and “other loans” drawn from hard copies of annual Bank of Canada *Statistical Summaries* from 1946 to 1966 (these reports cover the period from January 1930 to December 1945), and the series for “Total, loans in Canadian dollars excluding conventional mortgages” from Statistics Canada *Table 176-0015* from January 1946 to September 2020, which reports data from Bank of Canada financial statistics described above.²⁷ Both the Bank of Canada *Statistical Summaries* and the Statistics Canada *Table 176-0015* are produced by the Bank of Canada (Statistics Canada simply publishes the latter), and from the overlap between the two series it can be confirmed that they are consistent. Since this series excludes mortgage debt for the period when chartered banks were permitted to lend for mortgages (post-1954), it does not include the entirety of credit issued by chartered banks over this period. However, it does provide a good series that is comparable over time.

We also provide monthly series for foreign call loans and other foreign loans issued by Canadian chartered banks, constructed using several series from the same sources as the domestic loans are constructed from. These are the series for “Foreign call loans” and “Other Current Loans and Discounts Elsewhere than in Canada” from Curtis (1931), which covers the period July 1900 to December 1929; the series for “foreign call loans” and “other loans abroad” drawn from hard copies of annual Bank of Canada *Statistical Summaries* from 1945 to 1954 (these reports cover the period from January 1930 to December 1953); and the series for “Foreign currency assets, call loans” and “Foreign currency assets, other loans” available in Statistics Canada *Table 176-0017: Chartered banks, foreign currency assets and liabilities, at month-end* for the period January 1954 to the present, which reports data from the Bank of Canada financial statistics described above.²⁸ As with the domestic currency credit series, both the Bank of Canada *Statistical Summaries* and Statistics Canada *Table 176-0017* are produced by the Bank, and the overlap between the two series it confirms that they are consistent.

Finally, we provide an aggregate series for total loans (domestic and foreign) by chartered banks that covers the period from July 1867 to the present. This series is constructed using the aggregate measure of “Loans in Canada and abroad” from Curtis (1931) for the period from July 1867 to June 1900, and by taking the sum of the three series for total domestic loans, foreign call loans, and other foreign loans

²⁶ From 1867 to 1899, the Canada Gazette did not provide separate series for loans issued domestically and loans issued abroad, and instead aggregated these into “Loans in Canada and abroad”. Although the share of foreign issued loans was likely quite small in the early years of Confederation, we recommend treating the series from 1867 to 1899 as total loans, and for distinguishing between domestic and foreign issued loans, restricting the time series to the post-1900 period.

²⁷ Statistics Canada publishes an archived version of *Table 176-0015: Chartered banks, assets and liabilities, at month-end* online, where the series we use, “Total, loans in Canadian dollars excluding conventional mortgages” (V36973), covers the period from January 1946 to December 1980. For the period from January 1981 to September 2020, we use a continuation of this series provided in the Bank of Canada’s *Historical chartered bank assets: Month-end (formerly C3)* under “Canadian dollar assets; Non-mortgage loans; Total” (V53006713). Both series were produced by the Bank, and the latter of this series closely resembles the sum of “Loans in Canadian dollars excluding call, CSB, conventional mortgages” (V36697), “Total call and short-term loans” (V36710), and “Loans in Canadian dollars to purchase Canada Savings Bonds” (V36721), which are provided in older vintages of Statistics Canada *Table 176-0015*.

²⁸ Note that foreign currency assets in modern Bank of Canada credit statistics include foreign currency loans held by residents. It is not clear from these historical series if these “foreign loans” are held by domestic residents or by foreigners.

issued by Canadian chartered banks that are described above and constructed for the period from July 1900 to the present.

Credit issued by non-chartered banks

A historical series for credit in Canada that covers only credit issued by chartered banks would be far from comprehensive, particularly since chartered banks were not legally permitted to issue mortgage debt prior to 1954. There is little doubt, moreover, that mortgage debt issued by non-chartered banks was an important share of total credit in Canada in the early years after Confederation.²⁹

One can construct an annual series for mortgage debt issued by loan companies and building societies in Canada that covers the period from 1870 to 1913, based on data from individual volumes of the *Canada Year Book* published by the Department of Finance.³⁰ However, the laws relating to loan and trust companies were revised by the Loan and Trust Companies Acts of 1914, after which statistics for provincially incorporated loan and trust firms were no longer collected or reported in the *Canada Year Book*. As a consequence, the statistics for mortgage debt issued by loan companies reported for years after 1914 in editions of the *Canada Year Book* include only loans provided by companies with a dominion charter which, based on the clear structural break in the series, seems to include only a fraction of the total mortgage loans in Canada.³¹

Yet another issue arises when the National Housing Act 1954 was introduced, which allowed chartered banks to start issuing mortgage debt. A new line item appears in the assets of chartered banks reported in the *Canada Year Book* for years after 1954 that accounts for these new loans in chartered bank assets. This break is not necessarily a problem in terms of coverage but does provide an important institutional change that should be considered in constructing and interpreting these time series. Owing to inconsistencies that occur starting in 1914, we are not yet able to form a continuous series from these sources that covers the entire period from the early years after Confederation to the near present.³² We see the integration of mortgage loans provided by companies with a provincial charter, and/or progress on

²⁹ For example, according to estimates from Neufeld (1972), the “building societies and mortgage and loan companies” sector, which first appeared in the 1840s in Canada, was by the 1880s nearly half as large as the chartered bank sector in terms of total asset value and remained so until the mid-1890s.

³⁰ See “Current Loans Secured on Real Estate” under “Statement of liabilities and assets of loan companies and building societies” provided by editions of the *Canada Year Book*. Digitalised versions of the historic collection are available online from Statistics Canada. See www65.statcan.gc.ca/acyb_r000-eng.htm.

³¹ As discussed in Chapter 3 on credit, some mortgage and loan companies with provincial charters also accepted deposits, acting as “near-banks”, and therefore the omission of comprehensive data on mortgage and loan companies excludes both mortgage-based activity and potentially other forms of credit as well.

³² The Jordà-Schularick-Taylor (JST) Macrohistory Database, which is available at www.macrohistory.net/database/, does provide an annual series for “Mortgage loans to non-financial private sector” that covers the period from 1870 to the present. According to the data documentation, this series is constructed using values from the *Canada Year Book* for the years 1870 to 1954, although we could not construe from the documentation how the break in 1914 was addressed.

understanding the significance of this data gap for the post-1914 period, as important areas for future work.^{33,34}

Aside from building societies and mortgage and loan companies, accurate measures of debt issued by other types of non-bank intermediary, such as trust companies, credit unions and caisses populaires, are also necessary to build a comprehensive historical series for credit in Canada going back to its early history.³⁵ Again, there are sources of data available that cover these types of institution, but these data are too scarce for a dependable time series to be constructed, at least based on resources such as the *Canada Year Book* and other well known resources for historical national statistics.

Given these gaps, we would suggest that users who wish to use a continuous historical series for credit that covers a period that predates the 1960s opt for focusing their analysis to credit issued by chartered banks (excluding mortgages), while acknowledging that such a series is not a comprehensive measure of credit in Canada.

Interest rates

The establishment of the Bank of Canada was a key development in the formation of a liquid domestic bond market in Canada. While treasury bills were used intermittently for financing by the Canadian government during the two world wars, they were not issued regularly until 1934. Even then, however, these bills were very illiquid, and no substantial secondary market existed, although a secondary market for treasury bills was deemed to be crucial for the effective functioning of monetary policy. As such, the Bank of Canada implemented new policies in the 1950s to create a money market. In 1953, the Bank gave central bank financing to “major investment dealers” (jobbers) to create markets for treasury bills. At the same time, the Bank increased the number of treasury bills sold, as well as the frequency of treasury bill auctions. In 1954, the Bank encouraged chartered banks to provide day loans to investment dealers, resulting in overnight financing. In 1956, the chartered bank reserve ratio requirements were adjusted, and secondary reserves³⁶ could include

³³ Since 1960, Statistics Canada has provided a comprehensive accounting of the National Balance Sheet that includes total mortgage loans provided in Canada, based on a variety of sources. See www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=1806.

³⁴ As an example of research that helps to fill these gaps, see Di Matteo (2018), where mortgage debt from several county-, district- and province-level resources in Canada from the 1870–1930 period are exploited.

³⁵ Neufeld (1972) provides figures for total financial assets of all financial intermediaries in Canada, including separate figures for Quebec savings banks, caisses populaires and credit unions, trust companies, and investment companies, for the period from 1870 to 1970. These estimates suggest that these industries combined accounted for less than 5% of total financial assets in Canada from 1870 until after World War I. Although perhaps not that significant in terms of total Canadian credit aggregates, these are important gaps. For example, Rose and Dorval (2019) build a data set that covers the universe caisses populaires in Quebec over the 1911–31 period and provide evidence that entry by these intermediaries supported local agricultural development.

³⁶ According to Martin (1988), secondary reserves were introduced informally in 1955 at 15% of Canadian-dollar deposits. A specific target was put forth in the Bank of Canada Act in 1967 that gave the Bank power to set a secondary reserve requirement of between 0 and 12%.

day-to-day loans and Government of Canada treasury bills. These policy initiatives led directly to a more active money market in treasury bills.³⁷

This history provides an important basis for our approach to this subsection. Below we discuss series for yields from long-term government bonds, yields for short-term treasury bills, policy rates, and other short-term rates.

Government bond yields

The Bank of Canada provides present-day monthly series for Government of Canada marketable average bond yields for bonds of maturities falling in windows of “1 to 2 years”, “3 to 5 years”, “5 to 10 years”, and “Over 10 years”, as well monthly series for several selected benchmark bond yields, which begin in February 2001. For years prior to 2001, the Bank of Canada monthly series for long-term bond yields at maturity “Over 10 years” (calculated from the last Wednesday of the month) is available beginning in January 1936 and updated to the present from Statistics Canada *Table 10-10-0122-01: Financial market statistics*. We provide a version of this series to accompany this chapter.³⁸

Although Canada began issuing long-term bonds domestically shortly after Confederation, most debt was issued overseas in sterling. A strong domestic market for bonds did not emerge until World War I, when debts became large enough to require both the international and domestic buyers, which led to the development of the domestic market (Bank of Canada (1980)). By the end of World War II, a secondary market had emerged for these domestically issued long-term bonds. Given this background, we consider the series from 1936 to the present as reliably continuous, in terms of reflecting a developed domestic bond market.

There are several series for long-term Canadian government bond yields available that go back to the 19th century, when nearly all long-term government debt was issued overseas in sterling. One series is from the Global Finance database from Accominati et al (2010), which is available online at <https://eh.net/database/global-finance/> and provides a series on annual yields on Canadian government bonds for the period 1880 to 1913. This series is attractive in that it relies on a single source, based on the series on “annual charge on debt” for Canada provided in volumes of *Burdett's Official Intelligence (Stock Exchange Official Intelligence)*, *Statistical Abstract for the Several Colonial and Other Possessions of the United Kingdom*. Another series is from the Jordà-Schularick-Taylor (JST) Macrohistory Database. This database provides a series on annual yields on Canadian government bonds for the period 1870 to the present, constructed from several disparate sources, including *Investor's Monthly Manual*, the Bank of England, the IMF,

³⁷ Initially, this market was largely limited to treasury bills, so some additional policies were enacted through the 1960s and 1970s to expand the market to include other short-term debt.

³⁸ More specifically, for the sample from January 1957 to the present, the series provides the average yield from mid-market closing prices from the last Wednesday of the month. For the sample from January 1936 to December 1957, the series is based on a Statistics Canada series; how the yield was constructed for this series is not clear, although the raw data used to construct it likely originated from the Bank of Canada or the Department of Finance. Statistics Canada *Table 10-10-0122-01* also provides monthly series for selected marketable and benchmark bond yields of different maturities that begin at later dates than 1936 and are updated to the present.

and Bank of Canada, and several journal articles.³⁹ These two series track each other closely for the period of overlap, which is a good signal of affirmation given that they are constructed from different sources. However, as they largely reflect yields on overseas debt, and since the domestic market for government bonds was very thin during the pre-1914 period, it is important to recognise that these rates might have had little relation to domestic financial conditions during this period (see Neufeld (1972) pp 554–67).

Short-term treasury yields

The Bank of Canada provides present-day weekly series for three-month, six-month, and one-year Government of Canada treasury bill yields, based on both primary markets (Tuesday auctions) and secondary markets (Wednesday after auction), where the latter is calculated as the average of sample secondary market yields taken throughout the business day. These series begin in January 2000.

For years prior to 2000, Statistics Canada *Table 10-10-0122-01* provides a Bank of Canada monthly series for yields from three-month treasury bills sold at auction (calculated from the last Tuesday of the month), beginning in March 1934 and updated to the present, and we provide a version of this series to accompany this chapter.⁴⁰ Three-month treasury bills were not available in Canada before 1934. As discussed at the beginning of this section, before World War I, a domestic treasury bill market was almost non-existent, as the Canadian government preferred to issue debt in London, New York and European markets (Mitchie (1988)). While some treasury bills (at four-month and one-year durations) were issued at the outbreak of World War I, the practice was discontinued in the 1920s. The first issuances of three- and eight-month bills were at an auction in March 1934, and regular biweekly auctions began in 1937 (Bank of Canada (1972)).

Policy rates

Today, the main policy interest rate that Bank of Canada sets with its monetary policy is the target for the overnight interest rate. This target has been in place since June 1994 when the Bank established a corridor system for implementing monetary policy.⁴¹ Since December 2000, the Bank has had eight fixed announcement dates per

³⁹ A third source is from Di Matteo (2017), who constructs an annual series for the “effective interest rate on the federal government’s debt” for the period from 1867 to the present, using the simple procedure of dividing the value of “public debt charges” by the value of “net debt”, based on values provided in volumes of the *Canada Year Book* produced by Statistics Canada. Although this effective yield should reflect both long-term and short-term bonds in later years, in the early years of after Confederation it should mostly reflect the yields on long-term bonds. The effective bond rate from Di Matteo (2017) is a few basis points higher than the series from the Accominati et al (2010) or the JST database throughout most of the period from 1867 to World War II. There are also some noticeable idiosyncratic movements in the Di Matteo (2017) series from year to year, although the medium-run trends between the Di Matteo (2017) series and these other two series are similar.

⁴⁰ More specifically, for the sample from November 1992 to the present, the series provides the average yield from competitive bids made on treasury bills sold at the last auction of the month, held on the last Tuesday. For the sample from March 1934 to October 1992, the series is based on a Statistics Canada series; how the yield was constructed for this series is not clear, although the raw data used to construct it likely originated from the Bank of Canada or the Department of Finance. Statistics Canada *Table 10-10-0122-01* also provides series for six-month and one-year bond yields, both from primary and secondary markets, that begin at later dates than 1934 and extend to the present.

⁴¹ For more details, see www.bankofcanada.ca/core-functions/monetary-policy/key-interest-rate/history-key-interest-rate/.

year when it sets the target for the overnight rate (Bank of Canada (2018)). Statistics Canada *Table 10-10-0139-01: Bank of Canada, money market and other interest rates* provides daily measures of the target rate from December 1992 to the present.

For a measure of the policy rate that extends further back in history, a monthly series for the official Bank Rate is available from Statistics Canada *Table 10-10-0122-01*, which covers the period from the opening of the Bank of Canada in March 1935 to the present. This rate represents the minimum rate of interest that the central bank charges on one-day loans to financial institutions and was effectively the Bank's policy interest rate prior to 1994 when the policy rate switched to the target for the overnight interest rate. The Bank Rate was set directly by the Bank for the periods between March 1935 and November 1956, June 1962 and March 1980, and February 1996 to the present. In the alternate periods, from November 1956 to June 1962 and March 1980 to February 1996, the Bank Rate was left to float and was set at 25 basis points above the average yield on three-month treasury bills at the federal government's weekly auction.⁴² Under the current regime where the Bank targets the overnight interest rate, the Bank rate is effectively the upper bound of the target range, and therefore follows very closely the target for the overnight rate. Although the Bank rate was not explicitly used as a policy instrument throughout all of the early history of the Bank of Canada, it can be considered the key interest rate that has, in principle, been under the Bank's control throughout its history. As such, to accompany this chapter, we provide the monthly series for the Bank rate that covers the period from January 1935 to the present, calculated on last Tuesday or Thursday of the month.⁴³

Before the establishment of the Bank of Canada, the Department of Finance had jurisdiction under the Finance Act to act as a lender of last resort to chartered banks.⁴⁴ The Advance Rate was the rate at which the government would lend to chartered banks. Though not explicitly used to conduct monetary policy, the Advance Rate did influence domestic monetary conditions, as it was adjusted to maintain the exchange rate under the gold standard. Despite their differences, many consider the Advance Rate to be a precursor to the Bank Rate, and the Bank Rate was initially set at the level of the Advance Rate following the establishment of the Bank of Canada (Powell (2005)). A monthly series for the official Advance Rate is available from the Macmillan Report from January 1914 to March 1935, but we do not link this to the measure of the policy rate (the Bank Rate) that accompanies this Annex.

For the period prior to 1914, the Bank of Montreal provided support in certain cases as a lender of last resort for the financial system in Canada (see Bordo and Redish (1987)). The Bank of Montreal kept reserves in the New York call loan market in the late 19th century and data on monthly New York call loan rates are available from 1867 until the mid-20th century.⁴⁵ These reserves were occasionally used to satisfy liquidity needs in Canada, although they proved inadequate on two occasions,

⁴² By setting the Bank Rate at 25 bp above the short-term treasury rate, the Bank was implicitly setting the tightness of financial conditions according to treasury rates.

⁴³ See the Bank of Canada website for more of this history: www.bankofcanada.ca/core-functions/monetary-policy/key-interest-rate/history-key-interest-rate/.

⁴⁴ This was a power granted to the Finance Department under the Finance Act of 1914.

⁴⁵ See, for example, the NBER Macrohistory database series on "Interest Rates" for historical New York call loan rates. See Shearer and Clarke (1984) for a discussion on the influence that New York call loan rates had on Canadian financial conditions in the 1914 to 1920 period.

the crisis of 1907 and the start of the war in 1914, times when the Government of Canada was required to step in to provide adequate reserves (Bordo and Redish (1987)).

Other short-term rates

Up until 2019, the Bank of Canada published a monthly series for the prime business rate in Canada, covering the period from January 1935 to the present. Each major chartered bank in Canada sets its own prime rate as a function of its cost of funding and uses this as a base to determine interest rates for loan products. A monthly series for the prime rate is provided in Statistics Canada *Table 10-10-0122-01* under “Chartered bank administered interest rates – Prime rate”, calculated as the statistical mode of the rates posted by the largest banks from the last Wednesday of the month. This monthly series from January 1935 to September 2019 is provided in the data that accompany this chapter.

For the interbank market, the key benchmark in Canada, until recently, was the Canadian Dollar Offered Rate (CDOR), which is the Canadian equivalent to Libor. CDOR has been in place as a benchmark since the 1980s and measures the rate that Canadian banks are willing to lend to clients with existing credit agreements via banker’s acceptances. This measure is survey-based (administered by Refinitiv) and based on term rates of one, two and three months, therefore including both term and credit risk premia. Refinitiv announced in May 2022 that it will cease publishing CDOR after 28 June 2024.⁴⁶ As a result, Canadian financial markets will shift from using CDOR to using the Canadian risk-free interbank rate known as the Canadian Overnight Repo Rate Average (CORRA). This move to referencing a risk-free rate is consistent with the practice in other major jurisdictions. CORRA is a transaction-based average of risk-free overnight rates, reflecting the cost of overnight lending via general collateral repo transactions secured by Government of Canada debt, and is administered by the Bank of Canada. Daily data for CORRA are provided by the Bank of Canada website for the period from August 1997 to the present^{47,48}

The Canadian money market was, by most accounts, very undeveloped in the early years after Confederation and, in fact, did not truly exist until after the 1930s.⁴⁹ As described above, prior to the development of the Canadian market, Canadian banks held their reserves in New York in the form of call loans (or bankers’ acceptances). As documented by Furlong (2001), Canadian banks did lend reserves in Canada throughout the 1867 to 1914 period, and in fact the volume and returns on

⁴⁶ For more details on Refinitiv’s decision to cease the publication of CDOR, see www.bankofcanada.ca/2022/05/carr-welcomes-rbcls-decision-to-cess-the-publication-of-cdor-after-june-28-2024/.

⁴⁷ For more details on how the CORRA index is constructed, see www.bankofcanada.ca/rates/interest-rates/corra/.

⁴⁸ Another important overnight rate is the Overnight Money Market Financing Rate, which is an estimate of the collateralised overnight rate compiled at the end of the day by the Bank of Canada through a survey of major participants in the overnight market. A monthly series for this rate is available in Statistics Canada *Table 10-10-0122-01* going back to January 1975. Of course, the overnight rate that is targeted by the Bank of Canada’s monetary policy is yet another benchmark interbank rate that could be of interest to researchers.

⁴⁹ For example, Neufeld (1972) argues that “In Canada, the short-term money market may be regarded as having begun on March 1, 1934, when Government of Canada treasury bills began to be sold by public tender.”

Montreal call loans were comparable with those of call loans in the New York market. However, the domestic market was not very liquid at the time and Montreal call loan rates (which are provided by Furlong (2001)) often departed significantly from New York rates, partly on account of this illiquidity.⁵⁰ Given these points, we would suggest that the Montreal call loan series is a poor indicator for domestic financial conditions throughout this period.

Housing prices

House prices

Data on real estate prices in Canada are significantly less developed than are data for credit or interest rates, or many other macro-financial variables of interest. Recently, Statistics Canada has begun to publish *Table 18-10-0169-01 Residential property price index, quarterly*, but this series begins only in 2017.⁵¹

For this chapter, we produced a novel annual residential housing price series that covers the period 1921 to the present. We construct this series from three of the sources used by Knoll et al (2017), plus we use a fourth to cover the period 1949 to 1956, which is missing from the Knoll et al (2017) series.

The earliest available index for house prices in Canada (to our knowledge) is provided by Firestone (1951) and covers the period 1921–49.⁵² The housing prices from Firestone (1951) are constructed using data for sales prices of newly built homes only, omitting data for sales of existing homes. As such, it is important to recognise that the price data provided could be biased, although its construction accounts for variation in quality and other characteristics. The valuation method applied in the report yields an estimate for the average replacement value of residential real estate, in other words, “the money that would theoretically have to be spent should all residential real estate have to be re-created in one particular year”.⁵³ The index we construct for the 1921 to 1949 period is based on the series for “Average Value of Dwellings Including Land” from Table 18 of Firestone (1951).⁵⁴ For the period 1956 to

⁵⁰ Furlong (2001) provides a monthly domestic series for Montreal call loan rates covering 1867 to 1907 based on daily rates printed in the *Montreal Gazette* (a newspaper) throughout this period. Monthly call loan rates for the 1900 to 1913 period are available from the *Board of Inquiry into the Cost of Living* report (1915, p 79), where rates are again based on reported rates from the *Montreal Gazette*.

⁵¹ Teranet and National Bank of Canada (a private commercial bank) also publish monthly housing indices for several Canadian cities. These series are also aggregated into a composite series that is published and begins in 1999. In some case, these individual city indices begin as early as 1990.

⁵² Firestone (1951) is a detailed housing report produced in conjunction with the Central Mortgage and Housing Corporation (now called the Canadian Mortgage and Housing Corporation (CMHC)). CMHC was established in 1946 to administer the National Housing Act, a piece of legislation originally passed in Parliament in 1938 (and later amended) designed to promote housing construction and finance in Canada. The Firestone (1951) report was developed to address a deficiency in historical housing statistics that existed at the time.

⁵³ Chapter 4 on house prices discusses the limitations of relying on non-transaction prices for constructing housing price indices.

⁵⁴ This series is constructed by dividing the current value of residential real estate by the total housing stock, reported in the same table. The methods used to construct estimates for the current value of residential real estate and the total housing stock are too detailed to discuss at length here. For details on how the current value of residential real estate for 1921–56 was constructed, see the notes for Table 80 provided on page 431 of the report. For details on how the total housing stock for 1921–56 was constructed, see the notes for Table 69 provided on page 393.

the present, we rely on two series provided by the Canadian Real Estate Association (CREA). The first series covers the period 1956 to 1980 and represents the average sale price of residential and non-residential real estate in Canada.⁵⁵ The second covers the period from 1980 to the present and represents the average sale price of residential real estate in Canada.⁵⁶ The gap from 1949 to 1956 is bridged using the growth rate of the value per acre of farmland in Canada, based on an annual series provided by Statistics Canada *Table: 32-10-0047-01: Value per acre of farm land and buildings*.

This series we provide contains several significant changes in definition and should be used with caution. It is constructed by applying the growth rates from the earlier sources to the series for the average sale price of residential real estate in Canada that begins in 1980. The assumption underlying this methodology is that the growth of residential real estate prices (the CREA series for 1980 to the present) and the growth of total real estate prices including non-residential (the CREA series used from 1956 to 1980) are similar over time. This assumption can be assessed, as there is a period of overlap between the two CREA series from 1981 to the present. The difference in the price growth rates of the two classifications is marginal. This methodology also assumes that the growth rate of residential real estate prices is similar to the growth rate of the value per acre of farmland in Canada. Again, this assumption can be tested, since there is a period of overlap from 1980 and the present (and from 1956 to 1980 in the case of the first CREA series). While the difference between the growth rates of these series is more substantial than the differences observed between the two CREA series, our judgment is that the benefits of having the 1950 to 1956 period filled outweigh the cost of any potential error introduced by this linkage. However, we urge caution when using the house prices and growth rates calculated. A similar test is not possible between Firestone (1951) data and those on farmland value, as there is no overlap.

While we provide both the growth rate and the average price levels to accompany this chapter, the growth rate is the preferred metric due to the heterogeneous composition of the series across sources and methodologies.

Land prices

We are aware of no available series, current or historical, that provides a comprehensive measure of average land prices in Canada. However, there are series that might be used as proxies for the average value of farmland and residential land specifically.

As discussed above, Statistics Canada's publishes *Table: 32-10-0047-01: Value per acre of farm land and buildings*, which provides an annual series at the province level and national level that covers the period from 1921 to the present. This series is calculated based on the valuations taken on 1 July each year, and aims to reflect the value of all farm land, including pasture and unimproved land, plus the value of farm houses, buildings and other structures. This measure includes the value of buildings and is therefore not a strict measure of land prices, but information provided by Statistics Canada suggests that, at least for some periods, the construction of this index is based on Farm Credit Canada's survey of land prices, which monitors bare

⁵⁵ We accessed this series from CREA through email.

⁵⁶ These data are available from CREA through Haver for the period 1980 to the present.

land prices and is therefore close to a strict measure of land prices.⁵⁷ We provide this series to accompany this chapter, covering the years 1921 to the present.

For residential land prices, Statistics Canada *Table: 18-10-0205-01 New housing price index, monthly* reports a “land only” component, providing a monthly series at the provincial and national level that extends from 1981 to the present. This series is derived from survey results where contractors in 27 metropolitan areas are asked to report the current value the land used for their developments. These data, while statistically reliable, are not representative of all residential land in Canada since they only include the land value in new housing development.

For commercial property prices, we are aware of no available series, current or historical, that provides a comprehensive measure for Canada. Firestone (1951) does provide an annual series for average rent prices for varying storefront quality covering 1921 to 1949, but there are no comparable public data available that cover more recent years.

References

Accominotti, O, M Flandreau, R Rezzik and F Zumer (2008): “Black man’s burden: measured philanthropy in the British Empire, 1880–1913”, *CEPR Discussion Papers*, no 6811.

Accominotti, O, M Flandreau and R Rezzik (2011): “The spread of empire: Clio and the measurement of colonial borrowing costs”, *Economic History Review*, vol 64, no 2, May, pp 385–407.

Bank of Canada (1972): “Government of Canada Treasury Bills”, *Bank of Canada Review*, May, pp 3–13.

——— 1980: “Government of Canada Direct Marketable Bonds”, *Bank of Canada Review*, March, pp 3–14.

——— (2018): “A History of the Key Interest Rate”, www.bankofcanada.ca/core-functions/monetary-policy/key-interest-rate/history-key-interest-rate/.

Bordo, M, A Dib and L Schembri (2010): “Canada’s pioneering experience with a flexible exchange rate in the 1950s: (hard) lessons learned for monetary policy in a small open economy”, *International Journal of Central Banking*, vol 6, no 3, September, pp 51–99.

Bordo, M and A Redish (1987): “Why did the Bank of Canada emerge in 1935?”, *Journal of Economic History*, vol 47, no 2, June, pp 405–17.

——— (1990): “Credible commitment and exchange rate stability: Canada’s interwar experience”, *Canadian Journal of Economics*, vol 23, no 2, May, pp 357–80.

——— (2006): “70 Years of central banking: the Bank of Canada in an international context, 1935–2005”, *Bank of Canada Review*, vol 2005 (Winter), pp 7–14.

⁵⁷ See the Statistics Canada website for details: www150.statcan.gc.ca/n1/pub/21-013-x/2011002/technote-notetech3-eng.htm.

Bordo, M, A Redish and H Rockoff (2011): "Why didn't Canada have a banking crisis in 2008 (or in 1930, or 1907, or ...)?", *NBER Working Papers*, no 17312.

Breckenridge, R (1895): "The Canadian Banking System 1817–1890", Publications of the American Economic Association, January-March-May, pp 13–476.

Canada, Privy Council Office (1986): "Evolution of the Canadian Banking System Since Confederation", Report of the Inquiry into the Collapse of the CCB and Northland Bank, August, by the Honourable Willard Z Estey, commissioner, Appendix A, http://publications.gc.ca/collections/collection_2014/bcp-pco/CP32-51-1986-4-eng.pdf.

——— (1933): "An Historical Sketch of the Financial Institutions of Canada", Report of the Royal Commission on Banking and Currency in Canada, Chapter II, http://publications.gc.ca/collections/collection_2014/bcp-pco/CP32-129-1933-1-eng.pdf.

Curtis, C (1931): *Statistical Contributions to Canadian Economic History*, vol 1, Toronto, Macmillan.

Dabla-Norris, E and M Marinkov (2019): "Whom do you rescue? honored debts and selective defaults in four British dominions", Chapter 3 in E Dabla-Norris (ed), *Debt and Entanglements Between the Wars*, IMF.

Davis, L and R Huttenback (1986): *Mammon and the Pursuit of Empire: The Political Economy of British Imperialism, 1860–1912*, Cambridge University Press.

Degive, N and K Oosterlinck (2021): "Independence and the effect of empire: the case of 'sovereign debts' issued by British colonies", Chapter 4 in P Penet and J Flores Zendejas (eds), *Sovereign Debt Diplomacies: Rethinking sovereign debt from colonial empires to hegemony*, Oxford University Press.

Di Matteo, L (2017): *A Federal Fiscal History: Canada, 1867–2017*, Fraser Institute.

——— (2018): "Mortgages in Canadian wealth portfolios: 1870–1930", unpublished working paper.

Dorval, B and D Rosé (2019): "Credit Cooperatives and Financial Inclusion: Evidence from Québec", unpublished working paper.

Firestone, O (1951): *Residential Real Estate in Canada*, University of Toronto Press.

Furlong, K (2001): "The Montreal Gazette call loan rate, 1871-1907", *Canadian Journal of Economics*, vol 34, no 1, February, pp 165–73.

Government of Newfoundland and Labrador and Newfoundland Statistics Agency (1994): *Historical Statistics of Newfoundland and Labrador*.

Keay, I and A Redish (2004): "The micro-economic effects of financial market structure: evidence from 20th century North American steel firms", *Explorations in Economic History*, Elsevier, vol 41, no 4, October, pp 377–403.

Knoll, K, M Schularick and T Steger (2017): "No price like home: global house prices 1870—2012", *American Economic Review*, vol 107, no 2, pp 331–53.

Kryzanowski, L and G Roberts (1993): "Canadian Banking Solvency, 1922–1940", *Journal of Money, Credit and Banking*, vol 25, no 3, pp 361–76.

Martin, P (1988): *Inside the Bank of Canada's Weekly Financial Statistics*, second edition, Fraser Institute.

Mitchie, R (1988): "The Canadian Securities Market, 1850-1914", *The Business History Review*, vol 62, no 1, pp 35-73.

Newfoundland Statistics Agency. See Government of Newfoundland.

Neufeld, E (1972): *The Financial System of Canada, Its Growth and Development*, New York, St Martin's Press.

Powell, J (2005): *A History of the Canadian Dollar*, Bank of Canada.

Statistics Canada (2016): "Section 1: Organizational overview", Departmental Performance Report, 2015–2016, www.statcan.gc.ca/eng/about/dpr/2015-2016/s01.

——— (2018): CANSIM (176-0043), www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=1760043&pattern=&stByVal=1&p1=1&p2=-1&tabMode=dataTable&csid= Accessed March 13 2018.

——— (1993): *75 years and counting: a history of Statistics Canada*.

Shearer, A and C Clark (1984): "Canada and the Interwar Gold Standard, 1920-35: Monetary Policy without a Central Bank", in M Bordo and A Schwartz (eds), *A Retrospective on the Classical Gold Standard, 1821–1931*, NBER Books.

Rich, G (1988): *The Cross of Gold. Money and the Canadian Business Cycle, 1867–1913*, Ottawa, Carleton University Press (now McGill-Queen's University Press).

——— (1989): "Canadian Banks, Gold and the Crisis of 1907", *Explorations in Economic History*, vol 26, pp 135–60.

Sprague, O (1910): *History of crises under the national banking system*, Washington DC, Government Printing Office.

Urquhart, M and K Buckley (1965): *Historical Statistics of Canada*, Toronto, Macmillan of Canada.

Appendix: confidence indicators

Through the process of collecting historical data, several common sources of inconsistencies that reduce the quality of the constructed series were identified. A final series constructed from primary sources may still be of poor quality even while following the best practice methods. This is often because the available data do not capture the intended meaning of the HMFS variable, or the data sources and collection methods are inconsistent. This results in a final series that may fail to be internationally comparable or to remain consistent throughout the time period covered. To identify problematic splicing methods and to gauge the quality of each series we composed, we propose a set of "confidence indicators". In Table 1, together with the confidence indicators, we provide a count of the different types of inconsistency that we have identified, including the following: the number of sources (# sources), changes in definition (Δ def), gaps in the data (#breaks), changes in data frequency (Δ freq), and a binary indicator for definition accuracy (Def.accuracy). This methodology is important because it helps researchers to assess the quality of the data presented and provides a signal of when and why to use the data with caution. We have added to Table 1 a qualitative category with descriptions of each of our data series: near-perfect, good, to be used with caution, and not yet usable. These qualitative descriptions allow anyone wishing to use the historical data to confront

the data weaknesses immediately. Table 1 illustrates the application of this methodology to the series provided.

Confidence indicators illustrated								Table 1
	Series title	Availability	#sources	Δdef	#breaks	Δfreq	Def. accuracy	Overall quality
Credit	Total commercial bank loans	1867–2020	3	1	0	0	0	Good
	Total commercial bank domestic currency loans	1900–2020	3	1	0	0	0	Good
	Total commercial bank foreign currency call loans	1900–present	3	1	0	0	0	Good
	Other commercial bank foreign currency loans	1900–present	3	0	0	0	0	Good
Interest rates	Policy rate	1935–present	2	1	0	0	0	Good
	Short-term treasury yield	1934–present	1	0	0	0	0	Near-perfect
	Long-term government bond yield	1936–present	1	0	0	0	0	Near-perfect
	Prime business rate	1935–2019	1	0	0	0	0	Near-perfect
House prices	Average prices of residential real estate	1921–present	4	4	0	0	1	To be used with caution
	Growth rate of residential real estate prices	1921–present	4	4	0	0	1	To be used with caution
	Value per acre of farm land	1921–present	1	0	0	0	0	Near-perfect