Online Appendix for:

Let it Fail? Reflections on the SVB Collapse and the US and Canadian Approaches to Bank Crises

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US and Canadian Experiences, Regulatory Policies, and Tipping Points

The US Experience

The United States has a unique history of frequency of financial crises and financial institution failures. In its early history, the United States had recurring financial crises/panics/incipient panics, including in 1797, 1815, 1819, 1825, 1833, 1837, 1839, 1857, 1860–61, 1873, 1884, 1890, 1893, 1897, 1907 (the event which prompted the formation of the Federal Reserve System) and 1914.[1] Between 1865 and 1914 alone, some 3,401 banks suspended payments (Davis and Gallman 2001).

The interwar period featured additional waves of bank failures. In particular, there were numerous failures in the agricultural states in the 1920s – although these were not associated with panic-type bank runs but rather reflected shocks to the real economy (Walter 2005) – followed by a total of over 9,000 failures nationwide during the 1930–33 period, which witnessed four separate episodes of bank panic (Calomiris and Mason 2003).

Following an extended period of relative calm from the 1940s through the 1970s, US bank failures surged between 1980 and 1994, including in the mutual savings bank sector, the commercial bank sector and the savings and loan sector.

The mutual savings bank problems surfaced early. Between late 1981 and year-end 1985, the Federal Deposit Insurance Corporation (FDIC) conducted 17 assisted mergers or acquisitions of mutual savings banks with total assets of nearly US$24 billion, at a cost estimated at about US$2.2 billion (FDIC 1997, chap. 6). Subsequently, 58 more savings banks with combined assets of about US$60.8 billion failed, including some that had been restructured in the first wave, at a cost to the public purse of US$6.6 billion (FDIC 1997, appendix table 6-A.1), bringing the overall total of savings bank failures during this period to 75, with total assets of US$85 billion, and generating a cost to the public of US$8.8 billion.

A much bigger problem erupted in the commercial bank sector. Between 1980 and 1994, more than 1,600 banks insured by the FDIC were closed or received FDIC financial assistance, with a total cost to the taxpayer estimated at US$36.3

1 The list of financial crises in early US history varies from account to account. Bordo and Wheelock (1998) include the 1797, 1815, 1825, 1833 and 1839 financial sector events as panics, and Bordo (1990) lists 1914; these are not mentioned by Calomiris (2007). Calomiris, on the other hand, lists the 1884 and 1890 events as panics; Wicker (2001) dismisses these as "incipient panics" that were effectively nipped in the bud; Bordo and Wheelock (1998) characterize them merely as periods of "financial instability"; and Sprague (1910) describes 1884 as a "panic" and 1890 as a "stringency." Wicker meanwhile lists incipient panics in 1860 and 1861 that are not included in other lists. The exact count is less important than that periods of widespread stress were frequent, and much more so in the United States than elsewhere. Bordo (1990) notes that the 1837, 1857, 1873, 1890–93, 1907, 1914 and, of course, the 1930–33 events coincided with broader international crises.

billion (FDIC 1997, chap. 1). Prominent events in this period included the failure of an Oklahoma bank, Penn Square, in 1982 during the oil patch downturn; this had significant ripple effects due to loan participations it had sold to other banks. The Penn Square closure represented the largest bank failure in which uninsured depositors suffered losses up to that point in the FDIC's history (FDIC 1997, chap. 3). Shortly after, in 1984, Continental Illinois collapsed, in part due to its connections to Penn Square. Continental Illinois was at the time the seventh-largest bank in the United States, the largest US commercial and industrial lender and one of the most highly regarded by the market in the year that preceded its collapse (see, for example, Rowe Jr. 1984). This crisis, featuring an electronic bank run by wholesale depositors, cost the FDIC US$1.1 billion in resolution costs and gave rise to the sobriquet "too big to fail," as well as a debate about "nationalization" of banks due to the public capital injected to keep them from failing (FDIC 1997, chap. 7). These incidents, however, turned out to be just the prologue: at the height of the banking crisis in 1988–92, during the bust in the commercial real estate market, on average one bank failed in the United States every day.

Unfolding concurrently with the commercial banking crisis, the US savings and loan crisis resulted in the closing of 1,043 thrifts holding US$519 billion in assets, the insolvency of the Federal Savings and Loan Insurance Corporation, the federal insurer for the thrift industry, and a public bailout cost of US$123.8 billion (Curry and Shibut 2000).[2] The crisis resulted in retail deposit runs on thrifts in Ohio and Maryland that were reminiscent of scenes from the 1930s, and forensic investigations unearthed numerous scandals and resulted in a number of criminal prosecutions (Todd 2010).

US capital markets then generated in short order several additional bouts of financial stress that threatened the banking system and pressured the Federal Reserve to make significant adjustments to monetary policy to avert systemic risks. The stock market crash of 1987 brought the US financial system to the point of breakdown and raised fears of a widespread credit crunch, requiring the Federal Reserve to inject liquidity into markets and to prompt commercial banks to extend credit to securities firms, despite any concerns they might have had about the size of their exposure (Carlson 2006; GAO 1997). Through contagion, the effects spread worldwide and prompted new regulatory initiatives (such as circuit breakers). To this day, the event remains poorly understood despite the fact that it provoked extensive study because of the spanner it threw into the workings of conventional finance theory.[3]

The collapse of Long Term Capital Management (LCTM) in 1998 at the tail end of the Asian/emerging market crisis of 1997–98 also elicited a massive intervention organized by the Federal Reserve based on its judgment that the hedge fund's bankruptcy would pose a systemic threat. A consortium of 14 institutions with outstanding claims against LTCM infused new equity capital into the firm and took over its management at a meeting chaired by William McDonough, head of the New York Federal Reserve Bank. According to one of the principals of LCTM, Myron Scholes, although the Fed facilitated the refinancing, it did not bail out LTCM, as all the funds came

2 The Bank for International Settlements put the number of failed institutions at 1,320 and the bailout cost at US$151 billion (BIS 2004, 56).

3 Given the assumptions concerning the distribution of stock returns that underpin standard finance theory, and given the history of volatility in US stocks, Rubinstein (2000) argues that a decline of the extent in 1987 would not be anticipated in the estimated life of the universe, if one goes by conventional theory.

from private creditors and, in any event, LCTM was liquidated (Scholes 2000). As Myron Scholes explains, the Fed's initiative was prompted by the threat of holdup actions by creditors claiming they had priority claims on LCTM assets; such actions would have forced LCTM to file for bankruptcy. Press reports at the time suggested a bankruptcy would have forced an unwinding of as much as US$100 billion, resulting in cascading losses through the international financial system.[4] The Fed also made three consecutive cuts of 25 basis points in the Fed Funds Rate (September 29, October 15 and November 17, 1998) to ease emerging strains in financial markets, which resulted in a strong boost to US capital markets.[5] Unfortunately, the boost helped to further inflate the dot-com bubble, the bursting of which wiped out paper value of perhaps US$8 trillion and precipitated the US recession of 2001.

Although this crisis did not result in further major financial instability, it did prompt new regulatory initiatives such as the *Sarbanes-Oxley Act* to address scandalous practices, and focused attention on macroprudential aspects of financial regulation.[6] This event also elicited a powerful expansion of the money supply to avert problems from the wealth effects of the stock market bust, which in turn helped set up the subprime mortgage problem that followed hot on its heels.

As regards the subprime crisis, Ben Bernanke (2012) provides a good retrospective, including a good sense of the (apparent) bewilderment of the protagonists in this drama in trying to understand how something as relatively minor and prosaic in the grand financial scheme as aggregate losses on subprime paper on the order of US$1 trillion could upset the whole system: "By way of comparison,

4 See Haubrich (2007) and *The Independent* (1998) for further reflection on the role of the Fed in this crisis. Also see Dowd (1999) for an example of the many critiques of the intervention as setting bad precedents:
The intervention " … encourages more calls for the regulation of hedge-fund activity, which may drive such activity further offshore; it implies a major open-ended extension of Federal Reserve responsibilities, without any congressional authorization; it implies a return to the discredited doctrine that the Fed should prevent the failure of large financial firms, which encourages irresponsible risk taking; and it undermines the moral authority of Fed policymakers in their efforts to encourage their counterparts in other countries to persevere with the difficult process of economic liberalization" (Dowd 1999).
Notably, the firms participating in the LCTM rescue included Bear Stearns and Lehman Brothers, whose failures a decade later unleashed the subprime crisis.

5 The minutes of the Federal Open Market Committee (FOMC) of September 29, 1998, for example, refer to the "tighter conditions in financial markets in the United States that had resulted in part from … [global financial] turmoil" as grounds for the 25 basis point cut in the Fed Funds rate of that date. The minutes further noted that "easing policy action at this point could provide added insurance against the risk of a further worsening in financial conditions and a related curtailment in the availability of credit to many borrowers" (FOMC 1998a). The second rate cut on October 15, a rare inter-meeting cut, triggered markets, As CNN reported at the time, "As news of the rate cut hit the floor of the New York Stock Exchange, traders actually cheered and investors rushed to buy stocks and bonds. The Dow Jones industrial average surged more than 330 points to 8,299, the third-largest one-day point gain in history. Bond markets also rallied … [and] within minutes of the announcement … Bank One Corp. (ONE) announced it had cut its prime lending rate to 8 percent from 8.25 percent" (CNN 1998). The FOMC minutes from the November 17 meeting confirmed that the inter-meeting rate cut had reflected tightening credit conditions; the Fed's move at the latter meeting to cut the Fed Fund's Rate by a further 25 basis points as well as to cut the discount rate by 25 basis points pivoted on the view of members that "prompt policy easing would help to ensure against a resurgence of severe financial strains" (FOMC 1998b).

6 Borio (2003), paraphrasing Friedman ("We are all Keynesians now"), comments: "We are all (to some extent) macroprudentialists now." Nonetheless, it was in the macroprudential area that the subprime risks emerged undetected.

it is not especially uncommon for one day's paper losses in global stock markets to exceed the losses on subprime mortgages suffered during the entire crisis, without obvious ill effect on market functioning or on the economy" (Bernanke 2012, 2). Bernanke explains the difference in terms of concentration of losses:

> In the case of dot-com stocks, losses were spread relatively widely across many types of investors. In contrast, following the housing and mortgage bust, losses were felt disproportionately at key nodes of the financial system, notably highly leveraged banks, broker-dealers, and securitization vehicles. Some of these entities were forced to engage in rapid asset sales at fire-sale prices, which undermined confidence in counterparties exposed to these assets, led to sharp withdrawals of funding, and disrupted financial intermediation, with severe consequences for the economy. (Bernanke 2012, 6.)

Once confidence in these weak nodes unravelled, the crisis then unfolded as a "classic financial panic," the kind that had been eliminated in retail banking by deposit insurance (Bernanke 2012, 11), but that in this case had flared up in a non-traditional context: the shadow banking system.[7] Gorton (2010, 17) similarly describes the panic as a classic bank run in which financial firms ran on other financial firms by not renewing sale and repurchase agreements (repos) or by increasing the repo margin ("haircut"), forcing massive deleveraging, which drove the shadow banking system into insolvency. The propagation and amplification of the financial shock is explained by the financial accelerator (see, for example, Bernanke, Gertler, and Gilchrist 1996).

The Canadian Experience

The Canadian experience was quite different. The number of chartered banks formed in Canada early in its history was relatively small compared that in the United States. The Bank of Montreal started business in 1817.[8] The number of Canadian banks peaked at 51 in 1875 before a period of consolidation through failure and merger brought the number down to 22 at the end of 1914. During this period, 46 banks failed or had their charter revoked, and an additional 23 disappeared through merger (Neufeld 1972). But notwithstanding the fact that, cumulatively, Canada lost nearly half the chartered banks that ever opened their doors prior to World War 1, Canada did not have recurring systemic crises as did the United States during this period (Calomiris 2007).

In addition to chartered bank failures, Canada also experienced numerous failures of private

7 The shadow banking system is generally understood to consist of investment banks, money market and hedge funds, monoline insurers and off-balance sheet structures of commercial banks such as conduits or special investment vehicles. The Financial Stability Board estimates that the shadow banking system globally grew from US$26 trillion in 2002 to US$62 trillion in 2007 at the dawn of the subprime crisis (Financial Stability Board 2012). Geithner (2008, 1) describes the structure and asset size of the shadow banking system in the United States on the eve of the crisis as follows: "In early 2007, asset-backed commercial paper conduits, in structured investment vehicles, in auction-rate preferred securities, tender option bonds and variable rate demand notes, had a combined asset size of roughly $2.2 trillion. Assets financed overnight in triparty repos grew to $2.5 trillion. Assets held in hedge funds grew to roughly $1.8 trillion. The combined balance sheets of the then five major investment banks totaled $4 trillion." The total of the above is about US$10.7 trillion; by comparison US banking system assets at the time totalled US$10 trillion.

8 As an historical footnote, prior to Confederation, banks in British North America were created on the basis of a charter with royal assent. While the Bank of Montreal was the first to start business, it did not receive its charter until 1822; the distinction of being the first bank to receive a charter went to the Bank of New Brunswick, which received its charter in 1820. See Bonham (2006).

banks and near-banks in its early history, which is often overlooked. In the early history of Canada, numerous private banks sprang up to provide financial services in areas underserviced by the chartered banks. Neufeld (1972) lists 147 private bankers in operation in 1885, of which 80 were operating in centres not served by a chartered bank. Many of these private banks, which operated without any regulatory oversight whatsoever, failed, inflicting significant losses on the small communities they served, as brought out in debates in the House of Commons at the time (Neufeld 1972, 173–5). Similarly, the early building societies in Canada mostly ended badly.

In the interwar period, Canada had exactly one bank failure, Home Bank in 1923, which led to the establishment of the office of the Inspector General of Banks in 1924. Due to a continued steady pace of consolidation through merger, however, Canada entered the Depression years with just 11 banks in operation.

The consolidation wave continued through the Depression. There was only one major acquisition – that of the Weyburn Security Bank with its 30 branches by the Canadian Imperial Bank in 1931. The archival evidence clearly shows that this acquisition was facilitated as a pre-emptive move to avert Weyburn's failure (Carr, Mathewson, and Quigley 1995). The main action in terms of consolidation was through closure of branches, which had essentially the same effect as unit bank failures in the United States in terms of reducing banking capacity, but without the disruptions to creditor-debtor relations that are attendant on failures. From a peak of over 4,600 branches in 1920, the Canadian bank branch system shrank to about 3,600 in the 1940s. Some of this was due to the merger wave of the 1920s, some due to reduction of capacity during the 1930s. Canada exited the Depression with 10 banks still standing.

During the troubled 1980s, Canada lost three small banks: two to failure (Canadian Commercial Bank and the Northland Bank, both based in Canada's oil patch) and one through an assisted merger (Bank of British Columbia, which was taken over by Hong Kong Bank of Canada). No depositor lost a cent and there was no crisis. The cost to the federal government amounted to $1.39 billion, of which $875 million was payouts to uninsured depositors, $316 million losses incurred by the CDIC and $200 million injected by the federal government to facilitate the takeover of Bank of British Columbia (Chant et al. 2003). This understates somewhat the full extent of the reduction of banking supply capacity in Canada at the time because a number of foreign-owned banks also exited the Canadian market.

Canada's trust and loan companies, the successors to the building societies, also experienced a series of failures in the troubled 1980s and early 1990s. Of the 40 trust and loan company failures the CDIC lists since it came into existence in 1967, 38 of them occurred between 1980 and 1996, coinciding with the years of heightened rates of bank failure and the savings and loan crisis in the United States. The last deposit-taking institution to fail in Canada was Security Home Mortgage Corporation in 1996, although there were some near-misses later.

No depositor lost money, and the failures did not trigger a crisis – although Chant et al. (2003) list them as a "borderline crisis." The handling of the failure in 1992 of Central Guaranty Trust Company (CGT), Canada's fourth-largest trust company with $12 billion in financial assets and the largest financial institution to fail in Canada's history, was described by CDIC president Michelle Bourque in a speech to the C.D. Howe Institute in 2014 as follows: "CGT closed at midnight on December 31, 1991, and was reopened a minute later as a part of Toronto-Dominion Bank. Depositors did not have to lose a minute of sleep, nor did they lose a single dollar of their money. The cost of the failure was recouped through premiums collected from our member institutions" (Bourque 2014). The total amount in deposit repayments or rehabilitation laid down by the CDIC amounted to $10.2 billion, with total losses of about $1.7 billion (based on a

compilation from CIDC annual reports).

The Canadian banking system sailed through the various bouts of market turbulence from the late 1990s through the subprime crisis without systemic crisis – apart from liquidity support during the subprime crisis when global funding dried up – or major financial institution failures.

To be sure, the stark differences in the above accounts are at least somewhat misleading. The great number of US bank failures reflects in good measure the fact that the US system had evolved for much of its history with unit banks. By contrast, Canada, like most other countries, had branch-banking systems (on the significance of this difference, see, for example, Bordo 1995). Accordingly, Canada had far fewer banks than the United States, while the number of branches of Canadian banks was generally similar to the number of unit banks in the United States on a per capita basis. For example, in 1910, when Canadian bank-branch density reached what proved to be a relatively stable level of about one per every 3,000 Canadians, there was one bank for every 3,770 Americans (Davis and Gallman 2001).

Considered in this light, the failure of Home Bank in 1923, which involved the closure of over 70 branches,[9] scaled up by a factor of 10 to account for the relative sizes of the two economies, would be roughly equivalent to the closure of over 700 US unit banks – a figure that would not be out of place in the litany of US bank failures during the 1920s, when more than 600 banks failed annually (Bean et al. 1998). Similarly, there was a considerable contraction in the number of branches in Canada during the Great Depression. Scaling the Weyburn branch number by a factor of 10, this would have been roughly equivalent to 300 US unit bank failures in that period, to which total must be added a scaled-up figure to account for branch closures that would have corresponded to several thousand US bank failures during the same period. This was, however, less than proportionate compared to the number of US bank failures in this period (Haubrich 1990) and without the damaging consequences for depositors or bank clients (Bordo, Rockoff, and Redish, 1994).

Also, it is important to note that many crises were averted by problems having been “swept under the rug,” so to speak. During the 1930s, the federal government bailed out Newfoundland, Manitoba and Saskatchewan, which indirectly staved off problems for the Canadian banks that were heavily exposed to them (Dimand and Koehn 2009). During the Latin debt crisis, the Inspector General of Banks exercised “regulatory forbearance” to avoid triggering action when the entire banking system was technically insolvent due to excess exposure to non-performing sovereign debt.[10] And, in the subprime crisis, the federal government (and interestingly the US Federal Reserve) provided massive liquidity support to the Canadian chartered banks when global funding dried up. This was hardly immaterial given that the hardest-hit Canadian bank, CIBC, which reported a loss of US$4.3 billion for 2008 (Lam 2009), received liquidity support well in excess of its total capital base (Macdonald 2012), while some $32 billion of non-bank asset-backed commercial paper

9 Noiseux (2002) lists 86 branches, while Tedesco and Turley-Ewart (2009) give a figure as low as 72.

10 It is worth noting that the regulatory response in the United States to the Latin debt crisis was similar – and in fact this was one of the few opportunities for a financial crisis that the United States did not seize. As described by the FDIC (1997, 204), the major US money centre banks were allowed to remain open despite being technically insolvent by a judicious reinterpretation of the rules concerning exposure to individual borrowers – that is, “regulatory forbearance.”

(ABCP) became illiquid in the crisis in that market, which erupted in August 2007, triggered by the US subprime event (Chant 2008).[11]

In a similar vein, this narrative does not delve into the experience of the credit union movement in the two countries, where the experience appears to be more similar than dissimilar, as both systems emphasize amalgamations and purchases of troubled credit unions over costly liquidations.[12]

In summary, while Canada's record is not quite as clean as it is often made out to be, its financial sector did show much greater stability overall than did the US system, at least after its early years – and without any significant penalty in terms of efficiency (Allen and Engert 2007; Bordo 1995; Witmer and Zorn 2007). The difference in the performance of the Canadian financial sector thus appears to have deep roots. Several key factors that influenced the evolution of the Canadian system in a way that might have accounted for this difference are examined below. This understanding is important for the evaluation of transportability of the Canadian "model" to other jurisdictions.

The Evolution of Regulatory Policies

The main elements of Canada's early banking regulation from a prudential perspective reflected instructions from the British Treasury issued in 1833 (Curtiss 1948). Almost two centuries later, these elements read remarkably well in terms of establishing a sound basis for the operation of a financial institution:

- banks had to make return or statement of affairs, which as early as 1856 was to be made on a monthly basis and made public (thus providing for transparency);
- shareholders were liable for the amount of their shares, which amounted to "double liability" in

11 The Ontario Securities Commission case brought against Conventree, the largest sponsor of ABCP in Canada, accounting for 46 percent of the market, put the size of the market at $35 billion. The ABCP crisis ("fiasco" in David Dodge's description), shared all the features of the US subprime crisis – "conduits" sponsored by offshore parties passing off complex assets to credulous investors – which included Crown corporations, pension funds, financial institutions, business corporations and individual retail investors (Ontario Securities Commission 2009) – depending on credit rating agency sign-offs that exempted the securities from regulatory controls, apparently uncalculated risk, failure to report material changes in the risk of the assets and exposure of particular note series to the US subprime market (Ontario Securities Commission 2009) and so forth. Here is Chant's description:

"The ABCP note typically had a maturity of 30, 60 or 90 days and were backed up by liquidity arrangements that would enable the conduits to meet their repayment obligations under specified conditions, which for third-party conduits were dependent on a 'general market disruption.' The assets held by third-party conduits were divided between traditional assets (29 percent) and synthetic, or derivative, assets (71 percent). Of the derivative assets, $17.4 billion (59 percent of total assets) were Leveraged Super Senior Swaps through which the conduits provided protection for others against credit losses. In addition to the sponsors and their conduits, credit rating agencies and investment dealers and their sales representatives were critical to the market's development. Credit rating agencies provided the rating that exempted ABCP from prospectus requirements and made it an eligible investment for many investors. Investment dealers and their sales agents distributed and marketed ABCP to financial institutions, pension funds, governments and their agencies, corporations, individuals and other investors" (Chant 2008).

Fortunately for Canada, the scale was too small to bring down the system.

12 On the US preference for amalgamation and purchase agreements for troubled credit unions, see, for example, Ames, Hines, and Sankara (2014). Although a comparable overview study of the Canadian experience is not readily available, it may be noted that Ontario lists 183 recently closed credit unions, of which only 34 were resolved through bankruptcy, dissolution or liquidation; the vast majority were resolved through amalgamations or purchase agreements (FSRA 2023). In any event, credit union failures have not been implicated in the financial crises that bank failures have triggered.

the event of a failure (thus providing a discipline against undue risk taking);

- issue of banknotes – which represented Canada's currency before the Bank of Canada took over the role on an exclusive basis – was regulated with reference to paid-in capital;
- provision was made for a sufficient reserve fund;
- banks were required to remain lenders, and not allowed to become partners in the businesses to which they lent (thus separating banking and commerce); and
- limitations were placed on loans to officers and directors, and a ban placed on banks' investing in their own stocks or lending on the security of these stocks (that is, no "self-dealing").

The concern with financial soundness and the protection of bank creditors seems to have been internalized by Canadian authorities from the beginning. As Shearer (1977, 6) notes "the very first enquiry – the 1868 Select Committee on Banking and Currency of the Dominion – was motivated by a concern that [as Hansard recorded] 'for both circulation and deposits there should be the fullest measure of security given to the public.'"

With two notable exceptions – the reforms prompted by the 1964 Porter Royal Commission's investigation into banks and banking and the comprehensive 1987–92 reforms – the Canadian system subsequently evolved through a gradual accretion of amendments rather than as the result of any grand design. In part, this was due to a series of ad hoc legislative developments at the time of Confederation, which resulted in the life of the banks' charters being established on a uniform basis at 10 years in the 1870 *Bank Act*. Periodic revisions of the *Act* were needed to extend individual banks' charters – the first decennial revision took place with the 1880 *Bank Act* – and provided an opportunity to make timely adjustments as circumstances dictated, with adequate time for preparatory analysis and reflection (Shearer 1978). At the same time, the regular reviews prevented the build-up of issues that would have warranted major overhauls, at least for banks: Canada's federal non-bank financial institutions legislation was not regularly updated until the introduction of the five-year review cycle for all federal financial institutions in the 1992 reforms.[13]

While the early history of Canada's bank regulation emphasized prudential concerns, it also featured substantial pushback from Canadian financial institutions against regulatory intervention. As Shearer (1977) noted, the proposal by Canadian authorities in the late 1860s to introduce measures already adopted in the United States that required banknotes in circulation to be backed by government securities was "vigorously opposed by the banking interests and ultimately withdrawn … leading to the resignation of Canada's first minister of finance." Similarly, there was resistance from the chartered banks to the introduction in

13 The advantages of the sunset provisions have long been recognized. The 1933 Macmillan Royal Commission, whose report led to the establishment of the Bank of Canada, observed that this requirement "has the advantage of enabling Parliament to review and revise the national banking code from time to time in the light of growing experience" (Macmillan Commission 1933, 19). This perspective has been reaffirmed repeatedly by Canadian officials. Freedman (1998, 1) describes this feature of Canada's framework as "crucial." Dodge (2011, 85) states: "The importance of this clause can hardly be exaggerated because it has imposed a continuous adaptation of laws and regulations to changes in financial instruments and markets rather than infrequent but massive overhauls. This adaptive process has more chance to bring and preserve the right balance of efficiency and stability." By contrast, Perino (2012) emphasizes the role that crisis and scandal play in generating "political moments" that allow financial regulation policies to pass in the United States. He points to the unprecedented expansion of financial regulation in the New Deal – including federal insurance on bank deposits, regulation of the securities markets and securities offerings, the creation of the Securities and Exchange Commission and the FDIC and the enhancement of the powers and responsibilities of the Federal Reserve Board – the Sarbanes-Oxley reforms following the dot-com bust and the Dodd-Frank reform initiative following the subprime crisis.

the (delayed) 1913 revision of the *Bank Act* of a more rigorous shareholders' audit pursuant to the recommendations of a Commission of Enquiry into the failure of the Farmers Bank of Canada. The Commission had determined that the bank's failure resulted from "gross extravagance, recklessness, incompetency, dishonesty and fraud" on the part of management (Porter Royal Commission, quoted in Shearer 1977).

Canada did not establish a banking supervisory office until 1925 (introduced pursuant to the 1924 *Bank Act* revision).[14] A supervisory office had been suggested as early as 1880, but the chartered banks successfully resisted the proposal; a supervisory office for insurance companies, the Office of the Superintendent of Insurance, was created in the late 1800s. By contrast, the United States had established a national bank regulator, the Office of the Comptroller of the Currency, as early as 1863.

Canada did not establish a central bank until 1935,[15] again in part due to resistance from the chartered banks, while the United States established the Federal Reserve System in 1913. Canada did not introduce deposit insurance until 1967; the United States established the Federal Deposit Insurance Corporation in 1933. Thus, although Canada started with sound regulatory principles and conservative attitudes regarding prudential matters, it lagged the United States in the development of a formal supervisory framework and systemic measures to address financial instability.

It might be tempting, given this record, to infer that the greater stability of the Canadian system might have reflected the *absence* of deposit insurance or government supervision, and thus was due to more prudent behaviour by financial institutions instilled by market discipline, in the context of generally sound, if minimalist, rules of the road. There are many claims to this effect. Wells (1987) uses this argument in a comparison of the early Canadian and US banking histories; Bordo (1990) summarizes the perspective of "free-banking" advocates on the disutility of government regulation of banks, an issue revisited below.

Following the early changes to tighten regulation, subsequent reforms in Canada started to move in the direction of promoting competition and expanding the supply of financial services to the Canadian economy. A major reason for this shift in emphasis was the phasing out of banknotes issued by the chartered banks as circulating currency with the 1934 *Bank Act* revision. With this reform, the function of issuing banknotes was vested with the Bank of Canada following its establishment in 1935.[16] With the phasing out of note issue

14 This measure was a response to the 1923 Home Bank failure, which also led to the striking of a Royal Commission of Inquiry. The complicated and painful process of (partial) compensation of creditors can only have reinforced the predisposition born of expedience and self-interest, on the part of both the banks and the regulators, to use the merger route to deal with a troubled situation.

15 A rediscount facility was established in 1914 as an emergency wartime measure; it served later to provide conventional central banking liquidity support services to the chartered banks through the worst of the Depression years, but was discontinued with the creation of the Bank of Canada.

16 It might be noted in passing that the national character of banking in Canada owes very much to the fact that banks issued the nation's currency at the time of Confederation; when this function was nationalized with the creation of the Bank of Canada, this substantive rationale for exclusive federal jurisdiction over "banks and banking" was eliminated. The banks became just another sector of the financial services industry, which deals in claims on property and contracts, areas that are under exclusive provincial jurisdiction. Notably, the only federal financial institutions act that includes a section on personal property rights is the *Bank Act* – the other federal financial institutions acts do not because this is clearly provincial turf. In any area where the provinces have pushed for jurisdiction over banks – for example, labour laws – they have prevailed.

by the commercial banks, the double liability of shareholders was also phased out.

Many of the measures introduced in Canada in this more recent history parallel those that have come under fire in the United States as contributing factors to the US subprime crisis.

In the immediate postwar period, concern about the supply of housing led to initiatives such as the establishment of Canada Mortgage and Housing Corporation[17] to administer the *National Housing Act* (NHA) of 1938, a Depression-era measure to boost housing construction. In the 1954 revisions to the NHA, the chartered banks were allowed to make loans at NHA terms to expand the supply of capital for the housing market and to improve the distribution of loans in smaller communities (Poapst 1956). Previously, long-term illiquid loans such as mortgages had been thought inappropriate to back the short-term demand liabilities with which banks funded themselves. Provision was also made for the development of a secondary market in NHA loans to bring in funds from investors who were not allowed to be primary issuers of such loans; the extent of marketability of the mortgage loans was thought to be important to the extent of engagement of chartered banks in this market (Poapst 1956, 238–9).

The 1967 *Bank Act* revisions, which followed the first ever in-depth review of the micro structure of Canada's financial sector (Shearer 1977) by the 1964 Porter Royal Commission, continued in this vein. As Shearer noted, "Porter was much less concerned with 'soundness' and more concerned with efficiency and innovativeness than was traditional." Notably, in this regard, the 1967 revisions relaxed the restriction on bank mortgage lending by permitting non-insured, conventional mortgage lending.[18]

Nonetheless, two measures introduced in the 1967 *Bank Act* revision proved to be particularly valuable in preserving stability in Canada's financial sector, although for reasons unrelated to the prime motivations behind the measures.

First, regulations on bank lending rates were removed to level the playing field for the banks vis-à-vis near-banks that were not subject to interest-rate regulation.[19] This deregulation of interest rates preceded the corresponding deregulation in the United States by some 13 years. These were important years, however, as they witnessed the acceleration of inflation that generated powerful stresses in the US financial sector in the context of ongoing interest-rate restrictions; the savings and loan debacle in the United States can be traced in good measure to this interaction of accelerating inflation and regulated interest rates. Canada avoided these stresses by the timely removal of the 6 percent ceiling on bank lending rates before this had a chance to create a snowballing crisis as it did in the United States.[20]

17 Originally Central Mortgage and Housing Corporation, the change to the current name was made in 1979.

18 Conventional mortgage loans were subject to a ceiling of 10 percent of bank deposits. Freedman (1998) notes that the cap was not binding at the time, and subsequent amendments in 1980 and 1992 removed quantitative restrictions on banks' mortgage lending.

19 The 6 percent ceiling on bank loans had driven the banks out of the residential mortgage market when market interest rates moved above the ceiling (Freedman 1998).

20 As Freedman (1998) describes, "[t]he extreme case of such [maturity transformation] was the savings and loan associations in the United States, which held 25-year mortgages and issued savings account and short-term deposits. The mismatch to which this type of behaviour gave rise proved to be very costly when short-term rates rose well above longer-term rates. While Regulation Q remained in force, the savings and loan associations faced serious disintermediation [because they could not raise deposit rates], and when it was removed, they faced severe losses."

Second, the 1967 *Bank Act* revision introduced a restriction on ownership of chartered bank shares to 10 percent. This was ostensibly for antitrust reasons (Shearer 1978), although the measure was prompted largely by the perceived threat of foreign takeovers in the wake of Citibank's interest in a non-bank financial institution in Canada. In time, this measure came to be seen as a primary regulatory bulwark against related party transactions – since widely held banks had no related parties through shareholding structures – and involvement in commercial, non-banking activities through upstream related parties.[21]

The 1980 *Bank Act* was notable primarily for bringing the Canadian activities of foreign banks, which had been conducted through a variety of non-bank mechanisms, under the *Act*. This measure, which required the establishment of separately capitalized foreign bank subsidiaries, had overt prudential aspects: ensuring adequacy of capital in Canada to cover liabilities in Canada, which insulated the solvency of the subsidiary from the foreign parent. It also had competitive aspects, mostly in terms of restricting competition. First, limits were placed on the size of loans made by the foreign banks based on ratios of the loans to the capital in their Canadian subsidiary, rather than to the parent's worldwide capital. In practice, this was more a nuisance factor than a constraint given the flexibility that lenders have to organize loan syndicates, which could of course include their parents – Canada's having a wide-open capital account. Second, new branches of the foreign bank subsidiaries were subject to approval; this hardly deterred the expansion of foreign banks in Canada, however, as no application for branching was ever denied. Third, total foreign bank assets were subject to a ceiling based on a percentage of total banking system assets in Canada. Even this widely criticized measure had no real effect since the ceiling was never actually binding, as it was raised when approached. With the Canada-US free trade agreement, US banks were no longer subject to the asset ceiling;[22] the requirement to operate in Canada through a subsidiary rather than a branch was lifted in 1999,[23] and the number of foreign banks now operating in Canada through branches now outnumber those using the subsidiary route.[24]

The closest thing to the implementation of a grand regulatory design in Canada's financial sector regulatory system was the overhaul in the late 1980s and early 1990s. These reforms started with the intent to modernize the non-bank financial institutions statutes, which had not had a thorough updating since the early 1900s. With the approach of the scheduled 1990 *Bank Act* revision, however, the reform initiative expanded to include the *Act*. Based on an extensive review of the formal barriers

21 The proposal to introduce regulated financial institution holding companies in the process leading up to the 1992 reforms was intended to buttress the separation of finance and commerce while allowing horizontal diversification within the financial services industry.

22 This exemption was extended in 1994 to Mexican banks under the North American Free Trade Agreement and in 1995 to all foreign bank subsidiaries pursuant to Canada's commitments under the World Trade Organization Agreements.

23 Foreign bank branches were, however, restricted to the wholesale deposit-taking business – that is, deposits were subject to a minimum value of $150,000 to avoid potential issues under Canada's deposit insurance system. See Allen and Engert (2007).

24 The June 1999 legislation allowed foreign banks to establish operations in Canada through either full-service branches or lending branches. Full-service branches are permitted to take deposits greater than $150,000, while lending branches are not permitted to take any deposits and are restricted to borrowing only from other financial institutions. Currently, there are 27 full-service branches and 4 lending branches in Canada, compared with 15 foreign bank subsidiaries. See OFSI (2022).

that up to that time had existed between banking, trust, insurance and securities dealing, the reforms replaced the "four pillar" framework with what was essentially a universal financial services model, albeit one that required these various activities to be conducted through separate affiliates.[25]

Nominally, the reforms extended powers of the financial institutions considerably; however, the review that preceded these reforms had concluded that the fungible nature of financial instruments had already allowed considerable functional competition across the formal regulatory barriers. For example, life insurance companies had started to issue short-term, daily interest, deferred annuities that competed directly with deposits. Securities dealers had introduced the "bought deal," in which securities underwriters took on large corporate issues on their own books before distributing them to final purchasers through jobbers; previously, underwriters had lined up their distribution beforehand. With this innovation, securities dealers were able to sharpen competition with banks' commercial loan facilities. Banks, meanwhile, were acting like insurers, building up contingent liabilities by issuing guarantees to gain fee business while minimizing capital requirements. To a good extent, therefore, the universal financial services omelette had already been made de facto; the reforms simply acknowledged and regularized these developments.

While extending the business powers of financial institutions, these reforms were also informed by the lessons learned from the failures of banks and non-bank financial institutions in Canada, by the lessons from the US savings and loan crisis, by the contemporaneous development of international standards for capital requirements and the financial market trends and innovations of the day. Accordingly, the reforms were more in the sense of re-regulation than de-regulation.

- Business barriers that might expose individual financial institutional groups to disintermediation at particular points in the business/credit cycle were eliminated.
- In terms of balance-sheet regulation, there was a review of risk-related capital requirements, risk-diversification requirements, restrictions on active involvement in non-financial businesses and "matching" requirements between assets and liabilities in terms of appropriate security, yield and term.
- A hard look was taken at related-party transactions (especially with majority shareholders in the non-bank financial institutions); attempts were made to tighten controls on conflicts of interest.
- Various proposals were considered to improve the functioning of boards of directors; some were eventually adopted (requirements that audit committees be composed of outside directors to ensure effective oversight by the board), while

25 The Department of Finance reform proposals were set out in a series of reports, The *Regulation of Canadian Financial Institutions: Proposals for Discussion* (the "Green Paper") in April 1985; the Technical Supplement to the Green Paper in June 1985; *New Directions for the Financial Sector* (the "Blue Paper") in 1986; and *Proposed Legislation to Revise and Amend the Law Governing Federal Trust and Loan Companies* (the "White Paper"), December 1987. The process leading up to the 1984 Green Paper included an internal review of issues to be addressed and a series of discussion papers that were considered by the Dimma Commission, appointed by then junior minister of finance Roy MacLaren. Several key external reports that fed into the reforms included: *A Study to Assess the Current Mandate and Operations of The Office of the Inspector General of Banks* by Coopers and Lybrand, April 1986; and the Report of the *Inquiry into the Collapse of the CCB and Northland Bank* chaired by the Honourable Willard Z. Estey of the Supreme Court of Canada.

many were dropped as impractical.[26]

- Attempts were made to enhance external scrutiny by increasing disclosure requirements and by requiring a 35 percent public float of the shares of otherwise closely held companies in order to involve securities markets and rating agencies in analyzing performance.
- An extensive debate was conducted on the role that deposit insurance and implicit guarantees to large institutions that are "too big to fail" might have in heightening moral hazard, and consideration was given to various means of potentially limiting such moral hazard (for example, risk-related premiums for deposit insurance).
- The supervisory agencies were consolidated to facilitate supervision of financial conglomerates – for example, to address practices such as "kiting" of assets between linked institutions to keep problems about the balance one step ahead of supervisors – although the Estey Commission's recommendation to merge the Office of the Inspector General of Banks with the CDIC was not adopted.
- Many of the problems raised when supervisory officials take control of institutions were addressed, including the criteria to use in deciding to step in – that is, when the institution is insolvent on a net worth basis based on assets marked-to-market versus when it is unable to pay bills as they come due (the operational definition of insolvency).

Interestingly, these reforms included the introduction in Canada of one of the factors that is often argued to have been responsible for the US financial system meltdown – namely, the 1999 repeal of the *Glass-Steagall* separation of investment and commercial banking. Canada anticipated the US action a dozen years earlier in its 1987 "mini Big Bang," which echoed the "Big Bang" regulatory reforms in the City of London in 1986. Accordingly, one would have to appeal to contextual factors that would have made the *Glass-Steagall* repeal particularly dangerous in the United States, whereas a similar reform in Canada proved to be innocuous to sustain this argument. Notably, the Canadian reforms were introduced just months ahead of the October 1987 stock market meltdown. The chartered banks were given a six-month head start in acquiring securities firms and might have bought high, but the system emerged from the meltdown unscathed.

The 1997 reforms, which were introduced in Bill C-82, An *Act* amending certain laws relating to financial institutions, focused on consumer privacy and coercive tied selling. Amendments to the regulatory framework in the 2000s relaxed, rather than tightened, regulatory controls. Interestingly, even as the US mortgage system was about to tank, Canada was modifying its regulations to allow its institutions to follow the US lead, including in areas such as mortgage lending rules.

To summarize, Canada did many things well in the area of financial regulation but was generally more concerned in recent decades with competitiveness than with soundness. In searching for the secret of Canada's financial sector stability,

26 Various proposals were made to improve internal governance that were not ultimately adopted, but are noteworthy for the extent of the review conducted. For example, consideration was given to setting higher standards for boards, including to raise the standard of care from that expected from the "ordinary prudent person" to that of an "experienced business person qualified to be a director of a regulated financial institution"; in the end, the standard "prudent person" rule was adopted. Other proposals aimed at improving the functioning of boards of directors that did not make it into the legislation included limits on the size of boards to increase their effectiveness, attendance requirements to ensure a high level of diligence, limits on interlocking directorships and greater responsibility and greater authority for audit committees. Consideration was also given to increasing the standards for, and independence of, internal auditors, to increase their access to the audit committee (in a "whistle-blowing" sense) and to increase interaction with supervisory authorities.

one has to go beyond the role of rules and their enforcement.

The Tipping Points and Contributing Factors

Interbank Cooperation: The Scottish Model

Given the tribulations of the Royal Bank of Scotland in the subprime crisis (Mor 2018), it is ironic to note that one of the seminal factors in Canada's tradition of stability was that, although banking regulation was initially laid down by the Crown, Canada's early banks were founded and managed in the Scottish tradition, which featured a high degree of interbank cooperation and employed what one would now term social networks to discipline behaviour. Bankers are strongly averse to instability because of the negative spillovers of such failures on their own banks and on the value of their bank charters. The tradition established in Scotland whereby the largest banks would step into the breach in times of crisis was transferred to Canada with the Bank of Montreal, which also acted as the government's banker and lender of last resort to troubled banks.

The US system was also exposed to the same influences. Calomiris and Gorton (1991), in a study that deserves more attention, documented the differences across US states in banking failures depending on the extent of interbank cooperation arising out of the clearing houses established for interbank payments purposes. The private banking associations established for this purpose provided ready-made institutions for coordinating member banks' responses to panics, including through the provision of lender-of-last-resort loans, the issue of bankers' notes that circulated as money and implicit deposit insurance.[27] The natural counterpart to these undertakings was the institution of self-regulatory disciplines, including monitoring risk taking, setting capital requirements and imposing penalties for rule violations.

The banks were mutual competitors but also cooperated. In this sense, the system featured not unadulterated competition but a blend of cooperation and competition – which might be termed "co-opetition." This hybrid concept has been promoted by Brandenburger and Nalebuff (1996) who emphasize that, although business strategies are often described in terms of game theory, business is not a game in which someone has to lose – profitability of one enterprise, as they note, does not require that others must fail. In banking, the massive externalities that flow from one bank's failure have long made it apparent that it is in the interest of all that none fails – thus overriding ambitions on each other's market shares.

Confederation and the Choice of Branch Banking versus Unit Banking

Perhaps the single most obvious difference between the Canadian and US banking sectors – and one that is front and centre in all analyses of the difference between the two countries in terms of financial sector stability – is the prevalence of branch banking in Canada and of unit banking in the United States. In Canada's very early history, pre-Confederation, individual banks were started principally by provincial charters, which were individual acts of the legislature. Unit banking was nonetheless introduced in Canada by the 1850 *Free Banking Act*, "An *Act* to establish freedom of Banking in this Province, and for other purposes relative to Banks and Banking. 10th August, 1850." This was enacted by the province of Canada (which resulted from the merger of Upper and Lower Canada); the provisions were modelled directly on

27 Grossman and Rockoff (2015) comment on these roles of clearinghouses, albeit without emphasizing regional distinctions within the United States.

the nascent US unit-banking system. Unit banking failed to take root in Canada, however: only a few small banks were formed under the *Act* and the legislation was repealed by the new Dominion of Canada in 1880 (Curtiss 1948). This clearly was the first important tipping point.

The reason unit banking failed to take off appears to have been Confederation. The *British North America Act* vested regulatory jurisdiction over banks and banking unambiguously with the federal government because the chartered banks issued the currency of the land. This legislative outcome resulted in provincial bank charters becoming in effect Dominion charters as of 1867 (Curtiss 1948). In turn, this empowered the existing banks to operate in all provinces of the new Dominion of Canada. With both options available, the Canadian system "chose" branch banking, and the free-banking option withered on the vine. The regulation of other financial matters, including insurance, trust and contracts, remained with the provinces as part of the property and civil rights head of power.[28]

Many analysts have concluded that Canada's branch-banking system allowed it to escape the wave of bank failures experienced by unit banks in the United States during the Great Depression (and earlier) because of portfolio diversification and efficiency gains from economies of scale (see, for example, Bordo 1995; Friedman and Schwartz 1963). However attractive this theory might be at first blush, there are many nagging doubts.

First, Canada's record on bank failures pre-1900 was far from stellar. In part, this reflects the fact that, notwithstanding their branch-based structure, Canada's chartered banks were not then all that well diversified regionally (see Davis and Gallman 2001). After 1900, regional diversification was of little benefit in the face of nationwide shocks, such as the Depression (Wagster 2009).

Second, turning to the US experience, over the years the US system has made significant strides in the direction of nationwide branch banking. This has occurred as the result of state-level regulatory reforms since the 1970s that have eased restrictions on intrastate branching, reciprocal state-level legislation permitting interstate branching and banks' circumvention of the restriction on interstate branching through the development of holding companies (Bordo, Rockoff, and Redish 1994). Indeed, the failure of Washington Mutual during the subprime crisis, the largest bank failure in US history, involved a bank with 2,239 branch offices in 15 states – a branch network as impressive as that of any major Canadian bank (Sidel, Enrich, and Fitzpatrick 2008). Simply put, regional diversification is of little help when a crisis results in correlation of previously uncorrelated risks.

That being said, the branch-banking character of the Canadian banking system was clearly instrumental in facilitating reduction of banking system capacity in a non-disruptive fashion through consolidation of non-viable branches of individual banks or absorption of branch networks of the least viable banks by stronger banks through mergers. For example, the intervention into the Weyburn Bank, in which 30 branches were absorbed, was accomplished in one regulatory process involving one set of shareholders and one set of senior managers. A comparable process in the United States, scaled up for size of the institution, would

28 The federal government was assigned power over: "Banking, the incorporation of banks and the issue of paper money." Other closely related heads of power assigned to the federal government included currency and coinage, legal tender, bills of exchange and promissory notes, and interest. Notably, the *Bank Act* is the only federal financial institutions statute that includes provisions concerning personal property. In non-bank financial institutions statutes, these provisions are omitted. This illustration of the federal-provincial allocation of powers was made stark by the formal template approach to revising and update the non-bank statutes in the 1992 reform.

have been substantially more transaction intensive, as it would have involved the absorption of some 300 individual banks.

Decennial Revisions

Because the charters of Canadian banks are issued for a limited time, there is a built-in requirement for Parliament to pass new legislation to extend them. This requirement, which occurs every ten years (the length of the original charters), provides a natural opportunity for the government to address any issues that have arisen in the meantime. Importantly, the arbitrary timing of the charters' expiry means that reforms introduced at these times are not driven by immediate crisis. Many Canadian observers have commented on the importance of this feature. In the 1992 reforms, the ten-year review period was shortened to five years and extended from the *Bank Act* to all federally regulated financial institutions statutes. Interestingly, the first US banks were also federally chartered with time-limited charters – in this case 20 years. But this did not result in a Canadian-style regular review – the US system chose a different path.

As the account above makes plain, however, although a number of the changes introduced in decennial revisions proved in hindsight to have been very important in mitigating risks to the system – particularly the removal of interest-rate regulations in 1967 before the acceleration of inflation that wreaked havoc with regulated interest rates – there is little evidence of prescience in terms of reforms anticipating problems. The interest-rate deregulation, for example, was introduced for reasons of financial sector industrial policy, not prudence; and the consolidation of the banking and insurance supervisory bodies into OSFI was driven by the de facto integration of Canada's insurance and deposit-taking sectors, not by concern over banks' off-balance-sheet liabilities, nor did it prevent individual Canadian banks from taking a bath in the subprime mortgage debacle.

It could be, of course, that Canada simply had a lucky run, in which case its regulatory authorities should become ultra-conservative since such runs of luck inevitably end. This suspicion, however, should not cause us to suspend the search for deeper reasons for the difference between Canada and the United States in terms of financial sector stability.

The 1890 and 1900 Bank Act Reforms

The point in time at which the Canadian system began clearly to demonstrate greater stability can be identified quite exactly: with the passage of the 1900 *Bank Act*. Previously, most bank disappearances took place through failure; afterward, the vast majority occurred through mergers, many – if not most – effected under circumstances in which the acquired bank was under some duress.[29]

The 1900 *Bank Act* revision facilitated the merger of chartered banks by transferring approval from the legislature to the cabinet, and conferred on the Canadian Bankers Association particular duties in respect of failed banks and banknotes in circulation. The latter measure followed the introduction

29 The sharp difference in comparative failure and merger rates pre- and post-1900 tends to undermine the argument that the difference in preparedness to close banks in Canada compared to in the United States reflects the fact that Canadian banks from the early days combined both savings bank and commercial bank functions, while in the US system savings banks were for the most part distinct from commercial banks. In other words, according to this argument, Canada had an implicit deposit-insurance motive for avoiding bank closures, while the United States did not (see, for example, Kryzanowski and Roberts 1993). The change in patterns pre- and post-1900 points to a different institutional factor. Bordo (1986) also notes the role of the newly established Canadian Bankers Association in pre-empting destabilizing failures.

pursuant to the 1890 *Bank Act* of a redemption fund for notes in circulation issued by failed banks. The chartered banks had to subscribe 5 percent of the value of their own banknotes in circulation to this fund, which was managed by the government. This made the chartered banks mutual guarantors of the money they put into circulation (Curtiss 1948), which gave them an important incentive to deal with troubled banks early. With the facilitated merger provisions in the 1900 *Bank Act*, the banks adopted that route with alacrity.

This is not to go as far as to assert that the acquiring banks were engaged in charitable exercises, taking on losses at their own expense to avert losses to creditors of failing banks. Carr, Mathewson, and Quigley (1995) point to evidence that target banks were weak but not yet insolvent at the time of their takeover. This evidence includes the fact that takeover prices paid by the acquiring bank for stock in the target were consistent with or even above market prices; as well, correspondence among various parties to the deals attests to the adequacy of paid-in capital, reserves and double liability obligations of shareholders to cover the obligations of the target bank. Carr, Mathewson, and Quigley (1995) argue that market forces account for the mergers: that the assets of the weaker, smaller banks were more valuable to the shareholders of the larger banks, which could take advantage of economies of scale and superior technology. There is no compelling reason to believe, however, that these market advantages asserted themselves only after 1900 and not before. The sharp change in systemic behaviour at the dawn of the twentieth century suggests that it was the federal government working hand-in-glove with the Canadian Bankers Association in facilitating mergers to pre-empt risks to the stability of the system that was responsible for the sharp reduction in the rate of failures.

This contrasts sharply with the US situation, where closing a unit bank was a routine affair. Thus, where the United States became proficient at closing banks, Canada became proficient at avoiding closures. It is hardly surprising, therefore, that moral hazard, an argument that justifies bank closures, figures so prominently in US thinking about financial regulatory issues, while Canada has tended toward an approach that de-emphasizes hard and fast rules – which, of course, affords greater latitude for regulatory forbearance, an important feature of a system that leads administrators to seek to buy time to work things out quietly.[30]

It is important to underscore in making this argument that the CBA no longer has the roles assigned to it in the 1900 *Bank Act*. The significance of the 1900 legislation is that it served as a tipping point, implying a path dependence in the evolution of the institutional culture for Canadian banking regulation.

30 For a pejorative take on this issue, see Boone and Johnson (2010):

"The other systemic strength of the Canadian system is camaraderie between the regulators, the Bank of Canada, and the individual banks. This oligopoly means banks can make profits in rough times – they can charge higher prices to customers and can raise funds more cheaply, in part due to the knowledge that no politician would dare bankrupt them. During the height of the crisis in February 2009, the CEO of Toronto Dominion Bank brazenly pitched investors: 'Maybe not explicitly, but what are the chances that TD Bank is not going to be bailed out if it did something stupid?' In other words: don't bother looking at how dumb or smart we are, the Canadian government is there to make sure creditors never lose a cent. With such ready access to taxpayer bailouts, Canadian banks need little capital, they naturally make large profit margins, and they can raise money even if they act badly."

For a positive take on this issue see Chant et al. (2003, 100–01): "[OSFI's] mandate emphasizes the importance of early intervention in the affairs of troubled institutions…With a formal process for early intervention there is a greater likelihood of averting institutional failures by providing incentives for institutions to conduct their business prudently."

The Role of Regulatory Forbearance

Regulatory forbearance[31] also appears to have played an important role in allowing Canada's financial system to weather the larger shocks without triggering failures. Kryzanowski and Roberts (1993, 1998, 1999) argue that many of Canada's large financial institutions, including the chartered banks and large mutual life insurance companies, were technically insolvent in the 1930s, but that implicit government support in the form of regulatory accounting window dressing allowed them to remain in business.

Although this early record of regulatory forbearance is disputed,[32] such an approach clearly was at play in several more recent bouts of global financial stress. During the developing country debt crisis of the 1980s, the major Canadian banks had loan exposure to developing countries that exceeded their base capital, engaged in involuntary lending to provide the debtor countries with funds to meet interest payments, rescheduled short-term loans as longer-term loans to dress their balance sheets and took advantage of rules allowing the averaging of loan losses over five years to soften the blow of non-performing loans on their balance sheets (McDade 1989).

Interestingly, perhaps the only major financial crisis that the US system has dodged was the developing country debt crisis – because, for once, the US authorities exercised regulatory forbearance, an action that has been openly acknowledged in the United States. According to US observers, banks with heavy loan exposure to developing countries were not required to set aside reserves to fully cover non-performing sovereign debt. This forbearance was necessary because seven or eight of the ten-largest banks in the United States might then have been deemed insolvent, which would have precipitated an economic and political crisis (FDIC 1997, chap. 5).

Regulatory forbearance by government regulators can be readily understood as the transporting of bankers' private self-regulatory interest in avoiding a mutually damaging failure of one of their number into public regulatory practice. Arguably, this is not an independent reason for Canadian banking sector stability, but a direct consequence of the early tipping points that drove its evolution down the path it ultimately took.

The Role of Ownership Restrictions

Another aspect of Canada's banking system that deserves more than passing mention with regard to the history of stability in the more recent era is the ownership limit that became part of the *Bank Act* in 1967. As is clear from the late date of the measure, it was not responsible for the history and legacy of stability, but one can argue that it was (fortuitously) an added bulwark during the recent period of global financial instability. How it did this was precisely for the reason that the measure is typically vilified in the more fundamentalist economic commentary: it insulated Canadian banks from hostile takeovers, thus easing the market pressures to which bank executives are exposed and which can lead to greater risk taking – recall in this context the famous statement from Citi's Chuck Prince about having to

31 For a discussion of regulatory forbearance, see Santomero and Hoffman (1998).

32 The view that regulatory forbearance explains the lack of failures of Canadian banks during the Depression is challenged by Carr, Mathewson, and Quigley (1995), who argue that Canadian banks actually were solvent during the 1930s.

dance when the music is playing![33]

This is a factor that cuts two ways, of course: market pressures can also drive efficiency, and for most of the past four decades this latter consideration has tended to dominate the mostly negative commentary on Canada's system.[34] Responding to that commentary, the ownership restrictions were eased in 2001, with banks with capital of $5 billion or more subject to 20 percent individual ownership limits, banks with capital between $1 billion and $5 billion allowed to be closely held but with a requirement for 35 percent public ownership and smaller banks with capital of less than $1 billion allowed to be closely held (Finance Canada 2006). In retrospect, however, the Canadian system might have dodged a bullet by not going further in the direction suggested by most advocates.

But the Canadian banking system is in fact highly efficient – even though it might not be at the frontier for that measurement at any particular point in time. For example, Allen et al. (2007) find that (a) Canadian bank labour productivity is as high as or higher than that in the United States in generating assets and net operating revenue; (b) cost-inefficiency for Canadian banks averages about 6.5 percent, much less than for US bank holding companies (about 14 percent); and (c) Canadian banks have moved closer to the efficiency frontier over time, and in fact their technological progress exceeds that of US banks. Although Allen, Engert, and Liu (2007) find that Canadian banks still have not exploited economies of scale fully, there is no evidence for a productivity or efficiency gap vis-à-vis US banks. In short, there is no particular empirical evidence for an efficiency-instability trade-off – Canada does not buy its stability through efficiency-choking regulation.

To the extent there is such a trade-off, however, Canada's banking system history shows that, in a dynamic system, staying away from that frontier is vital for the longer-term health of the system, given the significant role of externalities in system stability. Market purists will not like this analysis, but the principle is there to be seen in probably most spheres (I am tempted to say all spheres) of human endeavour. Efficiency is a good thing, for

33 The actual quote cited in Wighton (2017) is, "When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you've got to get up and dance." The quote is rightly notorious – if somewhat unfairly so to Prince himself, as Wighton goes on to argue – as it lines up with Keynes's comment: "A sound banker, alas, is not one who foresees danger and avoids it, but one who, when he is ruined, is ruined in a conventional way along with his fellows, so that no one can really blame him" (quoted in *Guardian* 2007). This in turn lines up neatly with Alan Greenspan's (in)famous comment that his mistake was in depending on the market's self-correcting mechanisms to rein in ruinous behaviour (Andrews 2008). Prince, in testimony before Congress, stated: "My belief then and my belief now is that one firm in this business cannot unilaterally withdraw from the business and maintain its ability to conduct business in the future" (quoted in Sanati 2010). Prince emphasized in his testimony that he had requested regulators to impose limits. One can interpret the Canadian restrictions on takeovers through ownership limits as, in fact, removing that imperative to dance when the music is playing.

34 For example, the OECD's chief economist, in a review of Canada's economy in 2006, commented on the financial sector as follows:

"The size of the financial sector in Canada, defined as total loans to the private sector and security market capitalization relative to GDP, is not much more than half that of its US counterpart. Canada in 2000-03 had the fourth lowest share of cross-border loans in total domestic borrowing among OECD countries and foreign banks have low penetration of the domestic loan market ... [Although] foreign ownership ownership restrictions in the banking sector were eliminated in the mid-1990s. ...there are domestic constraints limiting concentration of ownership and maintaining a political step in the process of approving bank mergers. This works against large new players, foreign or domestic, entering the market. Hopefully, both these issues will be carefully examined in the upcoming review of the *Bank Act*" (Cotis 2006).

example, but redundancy is vital to robustness. Complex systems have "sweet spots" that balance opposing tensions.

Big Shall Not Buy Big

One of the idiosyncratic curiosities that emerged from the 1992 financial sector reforms was the policy of "big shall not buy big." This was not part of law or regulation; it was simply announced, although that should not be taken as a sign of its relative importance (or lack thereof).[35]

The background to this policy is as follows. As the financial reform package was being put together, it was foreseen that the removal of the restrictions on formal linkages between banks, trust, insurance and investment dealers would result in a wave of mergers and acquisitions. The potential for a reduction of competition was obvious; at the same time, the potential for gains from economies of scope and scale was also thought to be significant. Canada, it was concluded, would get the best of both worlds by allowing industry consolidation – but only up to a point. That point was set by the policy: "big shall not buy big." In Canada's financial system, it was easy to do the arithmetic: if the five major banks, the two large mutual life insurance companies, and the odd investment dealer and trust company created diversified financial groups, the system would have a critical mass of competition – especially with Canada's strong cooperative credit system serving as a vital check and balance.[36]

This was industrial policy. Students of Japan's MITI/METI policies over the postwar period – when Japan promoted industry consolidation, but only up to a point, such that Japanese industry would benefit from fierce domestic rivalry while at the same time its companies would be viable international competitors – will have no trouble seeing the family resemblance in the policies. Even the essentially informal approach – not adopted through formal regulation or legislation – has echoes of Japan's industrial policy approach.[37]

This policy came into play when four of the five Canadian chartered banks announced in 1998 their plans to amalgamate, in violation of their undertakings at the time the 1992 reform package was put together. Famously (or notoriously, depending on one's perspective), Finance Minister Paul Martin rejected the mergers.

Again, the government's policy decision was vilified. Charles Baillie, Chairman and Chief Executive Officer of Toronto Dominion Bank, in addressing the House of Commons Standing Committee on Finance, referenced this policy in a pejorative manner:

> The other road is to say no to mergers, to say that big shall not buy big ... to say that our institutions are big enough for Canada, and to rule out our competing effectively in world markets. Canadian financial institutions would also see their domestic market shares dwindle, squaring off against much larger foreign-owned competitors. That would be a valid choice, if your vision for Canada does not encompass excellence. Such a choice would not be catastrophic. It would not be a crisis. The decline of our influence as institutions, and Canada's

35 Shaw (2006, 480) calls it a "perceived" policy: this is hardly the word to describe it. "Big shall not buy big" was a linchpin policy that permitted what in retrospect was a massive deregulation of the system. Certainly, to those involved in the framing of the policies and the regulation, it was paramount.

36 This discussion is based on the present author's personal experience as Chief, Financial Institutions Section and Project Director, Financial Institutions Reform Project, Finance Canada.

37 I hasten to add that this was not apparent to me, or to my knowledge to anyone else involved in the reform project at the time; the connection, however, leaps out upon reflection.

> position as a global financial centre, would be gradual. Our major banks and insurance companies and mutual fund companies are large enough to continue to operate profitably, and to develop strategies to operate in a narrower range of businesses, in order to generate acceptable returns for shareholders. But what of the long term – where would we be? Certainly, with consolidation continuing elsewhere – and make no mistake, bank mergers are a worldwide phenomenon – we would gradually lose our place at the table. There would be certain areas and businesses in which we simply could not compete; consolidation elsewhere results in our major institutions ranking further and further from the top tier, farther and farther from the table. (Baillie 1998.)

Baillie's perspective was, of course, not borne out by history. Canada's banking sector did not dwindle, thwarted by policies that prevented "excellence" – which is to be read as emphasizing one particular element of the system to the extreme, in exclusion of all others. "Big shall not buy big" turned out to be a pragmatic, intuitively conceived policy that balanced competing imperatives. A fan of either of the competing imperatives necessarily will see the policy as badly flawed. Only an appreciation of the critical nature of a "sweet spot" in complex dynamic systems that is attained when valid imperatives compete with one another and the ideal outcome is a compromise, a draw, an unsettled tension, allows an understanding of why this policy was in fact ideal.

Concluding Thoughts

As a footnote and a segue back to the present, the policy of "big shall not buy big" may have prevented the Canadian banks from taking excessive risks in a North American acquisition strategy predicated on successful mergers in the run-up to the subprime crisis. This approach foreshadowed TD Bank's escape from its planned merger with a US bank as the SVB crisis unfolded.

The history of Canadian and US banking sectors is a puzzle that rewards the study and continues to provide a reference point for contemporary practice in dealing with troubled banks. Calomiris and Haber (2014) theorize in their concept of "The Game of Bank Bargains," which they describe as a game that is played between bankers, governments, and interest groups with political power, that countries do not "choose" their banking systems, but rather they "get" a banking system consistent with the institutions that govern the distribution of political power within their societies (for a review of this book with specific comment on Canada, see Ciuriak 2016). The present *Commentary* builds a case that, at least in terms of stability, countries do get to choose: they can choose to address the negative externalities of bank failures, or choose not to. For Canada, these lessons appear to be fully internalized in Canada's approach to financial sector regulation and supervision. For the United States, there are lessons there for the taking.