

Credit Booms Gone Bust: Monetary Policy, Leverage Cycles, and Financial Crises, 1870–2008

By MORITZ SCHULARICK AND ALAN M. TAYLOR

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WEB APPENDIX

Appendix Table A1 gives our list of financial crisis dates. The sources for our other data were as follows. The raw data are shown in Appendix Figure A1.

RGDP: Real GDP per capita from Angus Maddison, *Statistics on World Population, GDP and Per Capita GDP, 1–2006 AD*. <http://www.ggdc.net/maddison/>. CPI: unless stated otherwise all data from Taylor, Alan M. (2002), *A Century of Purchasing-Power Parity*, *Review of Economics and Statistics*, vol. 84(1): 139–150; data for 2000–2008 from *International Financial Statistics (IFS)*; GDP and I/Y: unless stated otherwise below pre-1945 data come from Brian R. Mitchell, 1993, *International Historical Statistics: The Americas 1750–1988*, Second Edition, New York, Macmillan; Brian R. Mitchell, 1992, *International Historical Statistics: Europe 1750–1988*. London, Macmillan; complemented by investment data from Jones, Matthew T., and Maurice Obstfeld, 1997, “Saving, Investment, and Gold: A Reassessment of Historical Current Account Data,” NBER Working Paper no. 6103. Dataset:<http://www.nber.org/databases/jones-obstfeld/>; post-1945 data from IFS. STIR: short-term interest rate — unless otherwise stated the pre-WW2 data come from the dataset of Obstfeld, M., J. C. Shambaugh, and A. M. Taylor, 2005, “The Trilemma in History: Tradeoffs among Exchange Rates, Monetary Policies, and Capital Mobility,” *Review of Economics and Statistics* 87:423–38, and from the *League of Nations Statistical Yearbook*, various issues; data for the postwar period are taken from IFS. L: total domestic currency loans of banks and banking institutions to resident companies and households (excluding other financial institutions). C: total domestic currency assets of banks and banking institutions; of which: claims on government and the public sector for 1950–2008 were taken from IFS. NM: narrow money (M1); M: broad money (M2 or M3); E: equity market index; from the *Global Financial Database* unless noted otherwise.

A. *Australia*

L/C: 1870–1945 - table 1, total assets within Australia and total advances in Australia. S.J. Butlin, A.R. Hall, R.C. White, *Australian Banking and Monetary Statistics, 1817–1945*, Sydney 1971; 1953–2008— total loans and bank assets from Reserve Bank of Australia, *Australian Economic Statistics 1949–50 to 1996–97*, http://www.rba.gov.au/statistics/op8_index.html; 1997–2008 - Reserve Bank of Australia, *Assets of Financial Institutions*, table D02 and B01. NM/M: 1870–1983 — PF 57–71 from David Pope, *Australian Money and Banking Statistics*, Canberra, Australian National University, 1986; 1984–2008 — IFS.

B. *Canada*

L/C: 1870–1953 - M.C. Urquhart, *Historical Statistics of Canada*, Toronto 1965, Cambridge UP. Total loans and total assets of banks: series H55-H160. 1953–2008 StatCan, Table 176-0015: Chartered banks, assets and liabilities. NM: 1870–1929 — Rousseau and Wachtel; 1930–1940— League of Nations, *Statistical Yearbook*; 1953–2008— IFS. M: 1870–1938 — Based on unpublished datasets from Michael Bordo (henceforth Bordo); 1948–2008 — IFS.

TABLE A1: CRISIS DATES BY COUNTRY, 1870–2008

Australia	1893	1989							
Canada	1873	1907	1923						
Switzerland	1870	1910	1931	2008					
Germany	1873	1891	1901	1907	1931	2008			
Denmark	1877	1885	1902	1907	1921	1931	1987		
Spain	1883	1890	1913	1920	1924	1931	1978	2008	
France	1882	1889	1907	1930	2008				
U.K.	1873	1890	1974	1984	1991	2007			
Italy	1873	1887	1891	1907	1921	1930	1935	1990	2008
Japan	1882	1900	1904	1907	1913	1927	1992		
Netherlands	1893	1907	1921	1939	2008				
Norway	1899	1922	1931	1988					
Sweden	1878	1907	1922	1931	1991	2008			
USA	1873	1884	1893	1907	1929	1984	2007		

Sources: Bordo et al. (2001); Reinhart and Rogoff (2009); Laeven and Valencia (2008); Cecchetti et al. (2009). See text.

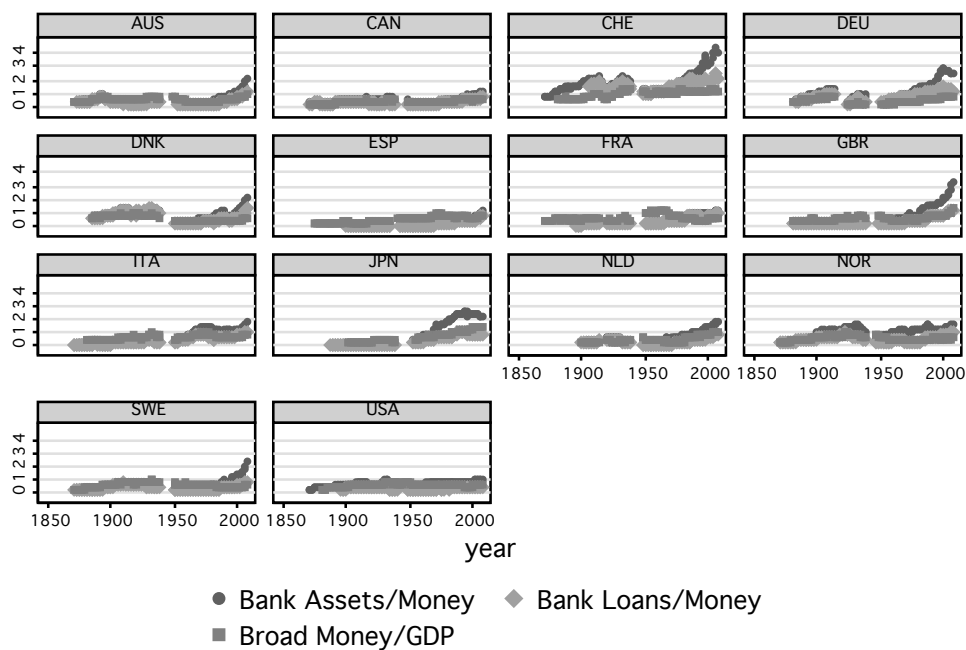


FIGURE A1: RAW DATA

C. Denmark

L: 1885–1938 — table 6.6, loans of commercial banks 1885–1938, Hans Chr. Johansen, *Dansk Historisk Statistik* 1814–1980; 1951–2008: total lending (excl. MFI's) of commercial banks and savings banks: Kim Abildgren, *Financial Liberalization and Credit Dynamics in Denmark in the Post-World War II Period*, Danmarks Nationalbank, Working Papers 47/2007. C: table 6.6 - assets of commercial banks, Hans Chr. Johansen, *Dansk Historisk Statistik*; 1981–2008 — series L plus holdings of securities and other assets from OECD (2009). NM/M: 1870–1940 — table 6.2, 6.6, 6.8 in Hans Chr. Johansen, *Dansk Historisk Statistik*; 1950–2008 — IFS.

D. France

L: 1870–1940 from Saint Marc, Michelle, *Histoire monétaire de la France, 1800–1980*, Paris, 1983, who used credit data for *Crédit Lyonnais, Société général, Comptoir national d'escompte and Crédit industriel et commercial*. She assumed that total loans in the French economy averaged about twice that amount before 1940; 1945–2008: data for 1945–1969 from Conseil National du Credit (data kindly shared by Eric Monnet, Paris); 1970–1984 from INSEE (“Crédit à l'économie de caractère bancaire”); 1985–2008 from Banque de France (MFI loans to private sector residents, A20.A.1.U6.2200.Z01). The pre-1895 loan data are subject to very crude rounding errors and are not used. NM: 1870–1940 from Saint Marc (1983); 1949–2008 from IFS (M1). M: 1920–1940 from Patat, Jean-Pierre and Michel Lutfalla, *Histoire monétaire de la France au XXe siècle*, Paris 1986; 1949–2008 from INSEE and Banque de France (M2). E: Hautcoeur, Pierre-Cyrille and D. Le Bris, “A Challenge to Triumphant Optimists? A New Blue Chips Index for the Paris Stock-Exchange (1854–2007),” *Financial History Review*, 17 (2), 2010, pp. 141–83.

E. Germany

L: 1880–1940 - table B1 1.05, total loans of Aktienbanken, Sparkassen, Hypothekenbanken and Genossenschaftsbanken; Deutsche Bundesbank, *Deutsches Geld- und Bankwesen in Zahlen, 1876–1975*, Fritz Knapp: Frankfurt am Main, 1976. 1948–2008 - Bundesbank, Lending to domestic non-banks (All categories of banks, OU01115). C: 1880–1940 - table A 1.01, total assets of Aktienbanken, Sparkassen, Hypothekenbanken and Genossenschaftsbanken; Deutsche Bundesbank, *Deutsches Geld- und Bankwesen in Zahlen, 1876–1975*, Fritz Knapp: Frankfurt am Main, 1976. 1950–2008 — Bundesbank: Balance sheet total (All categories of banks, OU0308). NM: 1876–1940 — Bundesbank (1976); 1950–2008 from IFS (M1). M: 1880–1940 from Bordo; 1950–2008 from IFS (M2).

F. Italy

L/C: 1870–1940 — unpublished workfile: Alfredo Gigliobianco, Claire Giordano and Gianni Toniolo, “Regulators and Innovators Play Tag: The Italian Historical Experience”, forthcoming. The datasources are De Mattia, R. (1967), *I bilanci degli istituti di emissione italiani 1845–1936*, Vol. 1, Banca d'Italia: Rome, for the period 1870–1889; Cotula F. et al (1996), *I bilanci delle aziende di credito 1890–1936*, Editori Laterza: Rome-Bari, for the period 1890–1935; Unpublished data, Bank of Italy, for the period 1936–1973. 1950–1994 — Bank of Italy, total bank loans (S858159), extended 1995–2008 using growth rates from IFS and Bank of Italy (S515363M and S640592M, “lending to domestic non-financial enterprise and households”); assets 1950–2008 - Bank of Italy, series S049387, extended 1997–2008 using growth rates of banking sector assets from Bank of Italy (S463168M). NM/M: 1870–1939 M0 — Fratianni, M. and F. Spinelli, *A Monetary History of Italy*, Cambridge 1997; 1880–1945 M3 from Bordo; 1948–2008 - Bank of Italy, M1 and M2 Plus; after 1998 Italian contribution to Eurozone M1 and M3 from the Bank of Italy. E: Da Pozzo M. and Felloni G., *La Borsa Valori di Genova nel secolo XIX*, Torino, ILTE, 1963, Tab. LXVII, p. 499; and Parodi S., *Il mercato finanziario genovese dal 1895 al 1914*, unpublished thesis (tesi di laurea), University of Genoa, 1966, Tab XLV, p. 238. Data made available by Angelo Riva (Paris).

G. Japan

L/C: 1870–1940 — Bank of Japan, *Hundred-year Statistics of the Japanese Economy*, Tokyo 1966 (Meiji-Iko Hompo Shuyo Keizaitokei); 1953–1982 — Tamaki, Norio, *Japanese banking: a history, 1859–1959*, Cambridge 1995, and IFS, 1983–2008 — Bank of Japan (series FA'FAABK-FAAB2DBEA40, Loans of domestically licensed banks less loans to other financial institutions); total domestic credit 1953–2008 from IFS. CPI: 1885–1940 — Obstfeld and Taylor (2003); 1950–2008 — IFS. NM: 1880–1940 — Bordo and Eichengreen (2001); 1955–2008 — IFS (M1). M: 1901–1918 — Bordo;

1919–1940 — Mitchell; 1955–2008 — IFS (M2). STIR: 1870–1940 from Bank of Japan, Nihon Ginko Hyakunen-shi Shiryo-hen (Bank of Japan: The First Hundred Years-Materials), Tokyo 1986 - <http://www.boj.or.jp/type/pub/hyakunen/hyakus.htm>; 1950–2008 from IFS.

H. Netherlands

L: 1900–1982 sum of “Korte vorderingen op privatesector”, “Onderhandseleeningen”, “Hypothecaireleeningen”, “Diverse binnenlandactieve,” table 3.1 - De Nederlandsche Bank, Nederlandse financiele instellingen in de twintigste eeuw: balansreeksen en naamlijst van handelsbanken, DNB Statistische Cahiers Nr. 3, 2000; 1982–2008 DNB, Banking statistics, table 5.6ek. C: 1900–1945 Bilans total (excl. foreign assets) of commercial banks, table 3.1 - De Nederlandsche Bank, Nederlandse financiele instellingen in de twintigste eeuw: balansreeksen en naamlijst van handelsbanken, DNB Statistische Cahiers Nr. 3, 2000; 1948–2008 IFS. NM: 1900–1992 — Bordo and League of Nations; 1993–2008 — DNB, Table 5.4, Contribution of the Netherlands to euro area monetary aggregates, Guilder M1; 1945–1998 — IFS; 1999–2008 — DNB, Table 5.4, Contribution of the Netherlands to euro area monetary aggregates, Guilder M3. GDP and I/Y: 1880–1913 — van Zanden et al., National Accounts of the Netherlands, 1880–1913; <http://nationalaccounts.niwi.knaw.nl/start.htm>; 1918–1940 — Mitchell; 1948–2008 — IFS. E: Tweehonderd jaar statistiek in tijdreeksen, 1800–1999, University of Groningen and Centraal Bureau voor de Statistiek, Voorburg/Heerlrm 2001, Table 10. Data made available by Peter Koujdis (Barcelona).

I. Norway

L/C: table A2 and A4, Eitrheim, Klovland, and Qvigstad (eds.), Historical Monetary Statistics for Norway, Chapter 10: Credit, banking and monetary developments in Norway, Norges Banks Occasional Papers nr. 35, Oslo 2004. Datafile: <http://www.norges-bank.no/templates/article....42927.aspx> NM/M: table 2a, Jan T. Klovland, Monetary Aggregates in Norway 1819–2003, chapter 5, in: Eitrheim et al. (eds.), <http://www.norges-bank.no/templates/article....42935.aspx> GDP, I/Y: Ola H. Grytten, The gross domestic product for Norway, 1830–2003, chapter 6, in: Eitrheim et al. (eds.), <http://www.norges-bank.no/templates/article....42937.aspx>

J. Spain

L/C: 1900–2000 — Entidades de credito, table 9.12 from A. Carreras and X. Tafunell (eds.), Estadísticas Históricas de España, Madrid 2005. 2000–2008 — growth rates of loans and assets for MFI's from Bank of Spain - Residentes en España, total prestamos (BE060106) and total activos (BE060102). NM/M: 1870–1998: A. Carreras and X. Tafunell (eds.), Estadísticas Históricas de España, Madrid 2005, table 9.16; 1998–2008 IFS. GDP/IY: 1870–2000 Prados de la Escosura, Leandro, El progreso economico de Espana, 1850–2000, Madrid 2003, Appendix M.

K. Sweden

L: Table 2, Bank lending, monthly figures 1871–1938, Riksbank, Historical monetary statistics for Sweden, 1668–2008, Swedish Monetary History Project. C: table 8 — Income Statement items of the Swedish commercial banks 1870–2005, total assets of commercial banks (minus foreign assets), Riksbank, Historical monetary statistics for Sweden, 1668–2008, Swedish Monetary History Project. NM/M: 1871–2008 — Historical monetary statistics for Sweden. GDP, I/Y: Rodney Edvinsson, Historical national accounts for Sweden 1800–2000 (Historiska nationalräkenskaper för Sverige 1800–2000) Version 1.0. E: Waldenström, Daniel, Swedish stock prices and returns and bond yields, 1856–2006, forthcoming in R. Edvinsson, T. Jacobsson and D. Waldenström, Historical Monetary and Financial Statistics for Sweden, Volume 2, Sveriges Riksbank.

L. Switzerland

L: 1906–1992 - total loans, Swiss Economic and Social History Online Database (<http://www.fsw.uch.ch/histstat/>); 1993–2008 — Swiss National Bank, Banks in Switzerland 2008, (<http://www.snb.ch/en/iabout/stat/statpub/bchpub/stats/bankench>). C: 1870–1945 - Franz Ritzmann, Die Schweizer Banken, Bern und Stuttgart 1973; 1948–2008 - Swiss National Bank, Banks in Switzerland (2008): total balance sheet assets (less foreign assets). NM: 1880–2008 - Swiss National Bank, Historical time series: the monetary base and the M1, M2 and M3 monetary aggregate (<http://www.snb.ch/en/>)

iabout/stat/statpub/histz); M: 1880–1914 — Bordo; 1914–1950 — M3, Swiss Economic and Social History Online Database (<http://www.fsw.uch.ch/histstat/>); 1950–2008 - M3, Swiss National Bank, Historical time series: the monetary base and the M1, M2 and M3 monetary aggregate (<http://www.snb.ch/en/iabout/stat/statpub/histz>).

M. United Kingdom

L/C: 1870–1939 - consolidated total assets of all financial institutions and consolidated bank loans and advances from table 3.4, David K. Sheppard, *The Growth and Role of UK Financial Institutions, 1880–1962*, Methuen & Co., London 1971; 1945–2008 Sterling loans (excl. loans to other financial institutions) from Bank of England; total domestic credit (32) from IFS. NM/M: 1880–1945 - Sheppard (1962); 1947–2008 - Bank of England.

N. United States

L: 1896–1941: Total loans and leases of commercial banks from Board of Governors of the Federal Reserve, US All Bank Statistics 1896–1955, Washington D.C., 1959; 1947–2008 - total loans and leases and security investments of commercial banks from the Board of Governors of the Federal Reserve H.8 release. C: Total bank assets are defined as the sum of loans and leases and security investments. Total assets of banks from Rousseau and Wachtel (1998), series BANKA, taken from: US historical statistics, Bureau of Census (1973); 1929–1940 - Board of Governors of the Federal Reserve, US All Bank Statistics 1896–1955, Washington D.C., 1959; 1950–2008 total domestic credit — IFS. NM/M: 1870–2008 — monetary base from the Federal Reserve Bank of St. Louis, Adjusted Monetary Base (available at <http://research.stlouisfed.org/fred2/data/AMBSL.txt>); money stock 1880–1918 from Rousseau and Wachtel (1998), 1919–1940 - Bordo; 1945–2008 — data for M2 are from IFS. E: Robert Shiller (2000), *Irrational Exuberance*, Princeton University Press, 2009, updates from <http://www.econ.yale.edu/~shiller/data.htm>.