CHAPTER

1

History of Financial Globalization, Overview

C.W. Calomiris*, L. Neal†

*Columbia University, New York, NY, USA

†University of Illinois at Urbana-Champaign, Columbus, OH, USA

OUTLINE

References 14

Financial globalization appears to be a recent phenomenon, dating from the end of the Bretton Woods System in the tumultuous years 1971 through 1973 and the increasing removal of capital controls by national governments worldwide since the 1970s. The steady removal of government restrictions on the mobility of capital has created repeated opportunities for managers of financial resources to make ever-larger profits for themselves and their customers as a global securities market has emerged. The importance of the financial sector in all national economies that participate in the global financial markets has increased remarkably as well, illustrating that today – as in the past – domestic financial development and international financial linkages typically are typically complementary phenomena, rather than substitutes. Unfortunately, the scale and frequency of financial crises – especially banking crises – have increased as well.

For financial historians, however, the current era of financial globalization is really the resumption of a process that was well underway from the middle of the nineteenth century and ended only with the outbreak of World War I in July 1914. From 1914 to 1971, the responses of national governments to the economic demands of two world wars, the trauma of the worldwide Great Depression (1929–33), and the division of the world into market-oriented, capitalist economies and centrally planned economies thereafter reversed the course of financial globalization at least until 1973 (Obstfeld and Taylor, 2004).

The analysis of financial crises in the heyday of the classical gold standard does provide some insights into the nature and causes of more recent financial crises, including the importance of asymmetric information problems for explaining illiquidity crises (Calomiris and Gorton, 1991; Neal and Weidenmier, 2003), but historical comparisons highlight differences as much as similarities. Banking crises today are more frequent and more severe and associated with different shocks and different financial system flaws than in the past. Although it is true that fiscal shocks and real estate booms and busts have been consistent contributors to financial crises for centuries, the behavior of banks during and before crises has changed over time. For example, Schularick and Taylor (2011) show that historically, in contrast to recent decades, banks exhibited much lower leverage, and did not expand their leverage procyclically. Studies of bank failures also emphasize that historically, waves of severe bank failure were far less common than today. Both these phenomena are linked by many authors to the recent increase in the extent to which banks' debts are protected by governments, which gives rise to a 'moral-hazard' problem of risk taking; in the past, other aspects of financial system design (e.g., unit banking structure in the United States, as described in the article by Charles Calomiris) were more relevant contributors to cross-country differences in the extent of bank fragility.

The patterns of development of financial globalization in previous ages, however, remain extremely relevant for understanding the opportunities as well as the controversies that have been created by financial globalization in the twenty-first century. Inspired by the issues raised by the current phase of financial globalization, financial historians have been reassessing the historical

Handbook of Key Global Financial Markets, Institutions, and Infrastructure
http://dx.doi.org/10.1016/B978-0-12-397873-8.00001-3

© 2013 Elsevier Inc. All rights reserved.

developments that laid the basis for previous episodes of financial developments, and which were accompanied by both tangible signs of economic progress and occasional financial crises. Tapping into the growing literature that this generation of financial historians has and is creating, the editors responsible for the historical section of the Encyclopedia decided to invite various scholars to contribute essays that would summarize the results of their research with respect to specific episodes that we thought would be especially interesting for general users of the encyclopedia. Not everyone responded, so there are lacunae in our coverage, which in any event could never have been exhaustive. However, most scholars believe, with us, that the foundations for modern finance, especially in its current global manifestation, were laid as far back as Roman times.

Roman law distinguished sharply between private and public spheres of action, reserving the right of contract enforcement to the custom agreed among private individuals or groups while maintaining the priority of reasons of state when public goods had to be financed. Peter Temin's essay describes how private business was financed by banking and how a market for private mortgages on estates arose during the Republic, only to vanish during the Empire. The emperors did not bother to create a long-term government debt instrument, relying instead on the preemptive power of the state to deal with wars, insurrections, or natural disasters, and even public facilities and celebrations. Nevertheless, by extending the privileges of Roman citizenship to men of substance throughout the empire and not just to residents of the city of Rome, extensive trade within the empire and beyond could be financed on the basis of contracts enforceable ultimately by the state. The extension of Roman citizenship in this way extended the mercantile practices of the Greeks and Phoenicians to the entire Mediterranean world and into northwestern Europe.

Moving eastward, Şevket Pamuk describes then how the Ottoman Empire took on the system left by the Byzantine Empire in Eastern Europe to establish a central bureaucracy that managed through its pragmatism and habit of negotiating with local elites and merchants to create a flexible and durable financial system, sidestepping adroitly the strictures of Islamic law against the use of interest. The Ottomans finally entered the international financial markets when they called upon the resources of Britain and France to underwrite their role in the Crimean War of 1854.

Moving even further eastward, Richard Von Glahn explores in detail the various monetary devices of the Chinese imperial dynasties starting with the Sung dynasty (960–1276), which established the world's first viable paper currency, progressive taxation, and the issuance of state monetary and credit instruments. Despite the setbacks from nomadic invasions in the north, starting in 1127, southern China continued to prosper under the Yuan dynasty (1271–1368). The Ming dynasty (1368–1644), however, began with an anticommercial policy that ended this phase of economic expansion, until it reversed course in the sixteenth century. The Qing dynasty (1644–1911) carried out further refinements in financial institutions, especially after the Taiping Rebellion of 1850–64. But, as Debin Ma shows, the weak central state thereafter let a multitude of currencies and units of account proliferate throughout the interior of China. Externally, China's silver standard enabled it to enjoy export-led growth until the Boxer Rebellion that ended the Qing dynasty. China's role in the international economy suffered from civil war and Japanese occupation until complete isolation with the Communist regime in 1948, which maintained its autarkic policy until 1978. The financial experiments in the century between the Taiping Rebellion and the Communist victory in 1948 had little long-term effect on the economy.

Modern financial capitalism is usually said to begin in the West, despite the precedents of the Ottoman and Chinese Empires, especially with the initiatives of the Italian city-states, particularly Genoa and Venice. Claudio Marsilio notes the importance of the Genoese mercantile and political elite combining their interests in financing both the long-distance trade of the city and the military and naval expenses of the city through the facility of the Casa di San Giorgio, created in 1407. This institution, along with the Banco di Rialto (1587) in Venice, served as a model for finance of the various city-states that arose in northern Europe in the centuries following. Luciano Pezzolo argues for the primacy of Venice, however, with its successive issues of government debt and its eventual assurance of payments of interest to outside investors, even those from Genoa. Giuseppe de Luca similarly argues that public debt innovations played a central role in the development of the Duchy of Milan. Piero Fausto Caselli reinforces this theme, describing the financial practices of the papacy, beginning with the Avignon popes in 1348. Papal debt was of long term, regularly serviced until the crises during the Napoleonic Wars when widespread secularization of church properties destroyed the basis for papal revenues, and widely held, even by bankers from Florence, Venice, and Genoa. The accounting practices of the Curia provided models for the effective handling of public debts throughout Europe, while the insistence of the popes on stable coinage ran counter to the general pattern of debasements starting with the influx of American silver in the sixteenth century.

Dennis Flynn's article takes a truly global approach to the understanding of the trade in precious metals historically and draws attention to the global impact of the trade in American silver, which was really a commodity trade globally more than a means of finance of a

new trade. American silver provided the European middlemen a new commodity for them to trade with Chinese merchants, rather than a means of settling international current accounts with capital flows. In this respect, American silver simply added to the supply of copper, cowries, and other tradables that could induce imports of Chinese silks and porcelains and Indian cottons to the Americas via Africa and Europe.

The financial aspects of American silver were felt most directly in Spain under Charles V and Philip II. Mauricio Drelichman discusses how the Spanish kings used their supplies of American silver to finance their constant wars around the periphery of the Holy Roman Empire. Ultimately, even Philip II had to rely on the services of Genoese bankers to make payments to his troops and naval forces, using their networks of correspondents throughout the Mediterranean and into northern Europe. When his revenues failed to cover his debt obligations, he became a serial defaulter, but the Genoese bankers acting in concert forced him to refinance his short-term debts called *asientos* into longer term, and resalable, *juros* backed by specific taxes collected by the bankers or their agents. Even the *asientos* were sold downstream by Genoese, who retained only fractions of the original debts. Ultimately, the accumulated expenses of the Thirty Years War left Spanish central finances beyond even the ingenuity and cohesiveness of the Genoese bankers.

The essay by John Munro describes in fascinating detail how the idea of perpetual rents on state properties could be applied by princes and city fathers to create a financial revolution throughout urban Europe, essentially by claiming to offer debt holders an equity stake in the affairs of the issuing authority and thereby avoiding conflict with the religious strictures against usury. Michael North, however, notes that it took Italian merchant bankers, who were responsible for handling the papal revenues derived from the Baltic states, to bring some of these financial innovations to fruition in the Hanseatic League, while the Dutch provided most of the outside finance for the Baltic trades.

Stephen Quinn analyzes the initial mistakes and eventual successes of the Bank of Amsterdam, deliberately created on the model of the Banco di Rialto of Venice in 1609. Plagued by the confusion of multiple coins produced by competing mints throughout the Rhineland during the Thirty Years' War, the city authorities finally set the Bank's inside unit of account at a fixed value in terms of silver while allowing deposits of outside coins at a variable exchange rate, the agio. This, he argues, was the first step in creating a true central bank with inside money. While the papal, Genoese, and Venetian precedents are important, none of them provided the extensive payment services that the Bank of Amsterdam provided from its founding right through the Napoleonic Wars, when it helped pay for the provisions of Napoleon's armies.

Oscar Gelderblom and Joost Jonker focus on the public finances of the Low Countries, distinguishing between the Spanish Netherlands in the south, which failed to generate a viable public finance based on tradable government debt after its revolt failed, and the new Dutch Republic in the north, which managed to create both a central government debt and consolidated debt by the major provinces, especially that of Holland and the city of Amsterdam.

Anne Murphy dispels the idea that English public finances were improved by adopting Dutch practices, despite the influence of William III's Dutch advisors when he assumed the throne of England in 1688. But the pressures of financing the successive wars begun under William III against the French did bring to fruition the developments underway since the initiatives of war finance undertaken by Cromwell and Parliament during the earlier Civil War in England. In other words, William's international ambitions were more important than his lineage.

The obvious successes of the Dutch and English in public finance, combining both a public bank responsible for the payments of taxes and expenditures by the central government and a body of long-term government debt that was managed by private individuals of sound reputation and available for investment by outsiders, led to the initiatives of John Law in France. François Velde analyzes Law's attempts to reorganize French public finances along the lines so successfully initiated by the Dutch and English, while also drawing on his observations of Genoese practices. Velde concludes that much of Law's system that he constructed was well conceived and sound, but that trying to sustain the market value of his huge *Compagnie des Indes* on the basis of an unrealistically low rate of interest at 2%, using its monopoly over bank notes to support share prices, was a fatal error.

Nearly a century later, however, Alexander Hamilton – who recognized the merits of English public debt markets, the stimulative effects of bank chartering, and John Law's creative ideas about the potential developmental contribution of government to finance – managed to imitate aspects of each of these examples successfully and actually improve on them in the newly founded republic of the United States of America, according to Richard Sylla. Critical to Hamilton's success in organizing the finances of the fledgling republic was to assure outside investors, especially the supportive Dutch but also the previous enemy British investors, that their interest payments would be faithfully serviced.

When the public finances required to finance the increasingly expensive wars among the fractious Europe states were achieved by a combination of control over

minting facilities and assignment of indirect taxes faithfully to service of long-term debts, private finance could be mobilized to underwrite increasing volumes of trade both within Europe and between Europe and overseas. Clemens Jobst and Pilar Nogues-Marco lay out how the leading mercantile powers of the Netherlands, France, and Britain accomplished this by combining the creation of private foreign bills of exchange with the payment services of public banks in the leading merchant cities of Europe. Inferring the short-term private rates of interest charged for financing trade from the differences between sight and time bills of exchange, they find that private rates of interest were significantly lower than the usual rates paid by public authorities on long-term debt. In this way, the long-run complementarity of public and private finance emerged during the rare intervals of peace in Western Europe. Although commercial credit rates rose during wars of the eighteenth century, they quickly fell to lower levels when hostilities ceased.

Meanwhile, the Dutch, British, and French competed to determine the best way to engage in long-distance overseas trade in competition with the earlier successes of the Portuguese and Spanish. Abe De Jong and Joost Jonker begin the Dutch saga with the small *voorcompagnien* that initiated the Dutch intrusion into Portuguese trade with the East Indies. The combination of a number of separate small joint-stock partnerships into the Vereenigde Oostindische Compagnie (VOC) in 1602 established a unique combination of public and private interests. Shares were privately held and eventually high dividends were paid to keep shareholders content, but governance was kept in the hands of the authorities of the seven cities whose *voorcompagnien* had been combined into the VOC. Unfortunately, for the long-run success of the company when it confronted increasing competition from East India companies created by other European powers, the separation of governance from stockholder interests forced it to rely on issuing new debt rather than new equity when it wished to expand operations. This weakness also meant that it could not serve as an effective model for other Dutch joint-stock companies or extended partnerships created to exploit trading opportunities in the West Indies or the Baltic.

French attempts to imitate Dutch success are described by Larry Neal, who emphasizes the persistent problem of state support leading to state interference and withdrawal of private capital from the successive efforts of the French to create joint-stock companies for their overseas trade, companies briefly combined under one megacorporation by John Law, as described by François Velde. By contrast, Ann Carlos describes how the joint-stock companies created in England managed to solve the manifold problems of agency and information asymmetry that plagued both the French and Dutch companies. Employees of the overseas English companies were allowed to trade on their own account, although they were subject to removal and cashing of bonds deposited with the home office, in case of egregious misconduct. Shares in the companies were allowed to be traded widely as only large stockholders had a vote in electing the directors annually, and eligibility to be a director required truly substantial holdings of stock. Maintaining a large and diversified customer base for the shares of the companies required regular and attractive interest payments.

Two factors have led to the rise of finance historically: long-distance trade and long-lived productive assets. Both markets for goods and services and markets for assets required some form of finance to bridge the time between when agreement on a trade was reached and when actual delivery was made. Expanded trade and improved standards of living that resulted from the beneficial uses of finance, however, more often than not have led to increased conflict with outsiders, or even with traditional power elites inside an economy. Preserving the benefits of finance in the long run, therefore, is and always has been very hard. Ultimately, the operations of finance through institutions (banks) or through markets (stock exchanges) have to be supported by and meet the approval of government authorities, who create the legal rights and boundaries of powers that define financial institutions. Coordination of the innovations that arise spontaneously in banking, capital markets, or government powers can be difficult, and societies typically must learn over time how to manage the complexities that financial innovations create for private opportunities and government policy choices.

Financial innovations in the 'modern' era have responded to new economic, military, and political needs – indeed, most of the financial innovations of 'modern' finance were conceived as part of the ambitious public–private strategies that intertwined sovereigns, merchants and financiers, and which promoted the defining accomplishments of empire-building and trade-expansion during the sixteenth to eighteenth centuries. The creation of bills of exchange was crucial as a low-cost means of financing trade, and these instruments also linked global financial centers and facilitated flows of funds among them. Chartered corporations, including banks, funded and organized private and public funding in support of developing new trade routes, conquering new lands, and promoting military victory.

That is not to say, however, that financial 'revolutions' simply occurred passively and predictably in response to the needs for finance. Financing arrangements require active participation by governments to define and protect the property rights associated with bank charters, debt collection laws, and shareholders' rights, and domestic politics may not be favorably disposed toward

creating an efficient financial system. Anders Ogren's entry on the Swedish financial revolution describes the protracted political struggles over the chartering of banks that delayed the Swedish financial revolution for many decades. Calomiris and Haber (2012) show that, more generally, politics is the great constraining force on countries' abilities to create financial systems that permit financial development to assist the process of economic development.

Although the modern world produced the great financial innovations that defined (and that continue to define) financial development – public debt and equity markets, international bills of exchange, negotiable instrument law, the chartering of banks and central banks, the creation of joint-stock corporations and the creation of limited liability incorporation – the origins of modern financial instruments can be found even in the ancient world. On his Web site at the Yale School of Management, Goetzmann (2010) has begun to piece together findings of archaeologists of the ancient world to find evidence of finance in the beginning stages of civilizations. He starts with the evidence of a 'Wall Street in Babylon,' a close-knit neighborhood found in the ruins of ancient Ur, where hoards of financial records in the form of clay tablets and *bullae* were discovered. The records of one family indicate that they flourished by financing long-distance trade and local agriculture until the king, Ram-Sin, issued an edict declaring all debts null and void in 1788 BCE, our first record of a financial crisis. The family was ruined and the remaining records deal only with continuing law suits, a recurring theme throughout financial history!

Perhaps the earliest example of finance providing the necessary sinews of war for military success occurred in Persia in 423 BCE. Darius II managed to seize the throne by borrowing large sums from the wealthy Murashu family to hire an armed force to escort him into the capital city of Persepolis and depose his half-brother Sogdanus, who had claimed the throne on the death of their father. Paul Millett (1991) documents the importance of banking in ancient Athens for financing the long-distance trade necessary to sustain their prosperity while Edward Cohen (1992) relates as well how markets were used to raise money in case of war, our first recorded example of the complementarity between banks and markets for providing finance.

Atack and Neal (2009) points out that in modern systems of finance banks and market systems perform the same five basic functions of (1) providing liquidity, (2) resolving denomination mismatches, (3) reducing credit risk, (4) mediating maturity differences, and (5) bearing interest rate and exchange rate risk, but that financial institutions and markets perform these functions differently, often solving similar problems in different ways. The bank-market distinction may also be seen as the difference between *personal exchange*, based on confidential information between the banker and the client, whether the client is a depositor or a borrower, and *impersonal exchange*, based on publicly available information accessible to all participants. Larry Neal's article on the development of several of the most important securities markets traces the progress in institutional design that encouraged the public trading of debt and equity.

Two implications follow from these distinctive methods of organizing financial intermediation: one is that innovations in either financial institutions or markets create disruptions in the intermediation carried on by the other branch of the system – further financial innovations, and sometimes crises, can be the results. Another implication, however, is that when both components are operating effectively to perform the five financial functions listed above, the performance of each is enhanced by the other, and the economy prospers as a result. The monitoring capabilities of the banks over the credit and liquidity needs of their clients are increased by information obtained from fluctuations in the prices of the securities issued into public markets, whether the securities are bonds or equities. The price discovery function of capital markets, on the other hand, is improved by the operations of financial intermediaries, including banks privy to the confidences of their clients, who can use superior information to buy or sell any given security.

The importance of maintaining personal bonds of trust in finance of operations involving long-distance trade and long-lived assets explains why banks typically dominate the means of finance in earliest times. Darius II was financed by a single, powerful family; Athens raised money to defend against Xerxes from her citizens at large, but only from her citizens and then in open outcry in the agora (Cohen, 1992). Even Venice and Genoa, the Italian city-states given credit for initiating the instruments of modern finance – stable currencies, bills of exchange, and long-term public debt – restricted their issues of debt to their own citizens and kept public records of their claims and only opened up their markets in government debt to outsiders when the rising expenses of war outstripped the resources of local citizens (q.v. entry on Venice). Even the first steps towards use of capital markets by government authorities maintained the essential marks of personal, bank-oriented, exchange through the Banco di Rialto in Venice (q. v. entry on Venice) or the Casa di San Giorgio in Genoa (q.v. entry on Genoa). Peter Temin (q.v. entry on Rome) notes that while Rome clearly had private banks, and private long-term securities in the form of mortgage bonds, there was no public debt to be traded as such, and the same held for imperial China. Oddly, the complementary roles of public markets for government debt and private banks

for private enterprise that maintained the maritime empires of the early Phoenicians and Greeks were eschewed by the land-based empires of Rome and China. These 'balanced-budget' empires relied on forced conscription of soldiers or laborers to meet emergencies arising from local rebellions, foreign invaders, or natural disasters.

Banks dominated historically as the chief form of finance for powerful empires as in the cases of Rome and China, and even as late as the Habsburg empire under Charles V and Philip II. Banks also provided the financing of long-distance trade, typically in stages along the fabled Silk Road of central Asia, or in seasonal voyages in monsoon Asia or in the Mediterranean or North Sea littorals. Open markets for public debt and then private debt of corporations that proved complementary to existing banking practices finally arose as permanent institutions in the Netherlands and Great Britain over the course of the seventeenth century. First the towns of the Habsburg Netherlands opened their books for life annuities to noncitizens in desperate efforts to collect funds from a broader investor base than their own inhabitants. Then the United Dutch East India Company allowed foreigners to invest in its shares, but without allowing them voice in the governance structure of the company, which was firmly held by the city authorities of the six participating ports. When the Dutch stadholder, William of Orange, became William III of Great Britain in 1688, there followed a variety of joint-stock companies chartered by Parliament to help finance the continuation of wars against Louis XIV of France, but each new chartered company, starting with the Bank of England in 1694, explicitly allowed foreigners to own stock. While foreigners could not become directors, they could vote in the annual meetings of major shareholders (Neal, 1990, Chapter 1).

Thereafter, financial innovations flourished. Bank-oriented innovations moved from Genoa and Venice through Amsterdam leading to public banks throughout Europe, culminating, arguably, with the European Central Bank in 1999. Meanwhile, market-oriented innovations were led by the Bisenzone 'virtual market' that Italian bankers created in the sixteenth century, moving to Antwerp, then London's Royal Exchange and eventually to London's Exchange Alley, culminating with the global securities markets after the collapse of the Bretton Woods system in 1973. Both types of innovations proved complementary in the long run, and together, they provided the basis for modern economic growth since 1700.

Bank-led innovations were followed by market responses such as markets for shares in the various *commenda* created by Venetian merchants, markets for the equity shares in the VOC in the Netherlands, and eventually bearer bonds in the form of perpetual annuities in Holland and later in France. The nineteenth century witnessed the explosion of an international market in government bonds and then railroad bonds and shares, eventually culminating in mortgage bonds created in continental Europe.

Market-led innovations were mostly in public debt, although the equity shares of the Dutch East Indian Company were arguably a private security if we overlook the way it was administered as the overseas admiralty of the United Provinces of the Netherlands. Typically, the innovations in public debt developed various means to assure noncitizens that they would also receive continued interest payments on the same basis as citizens. Some innovations were indirectly in public debt through the chartered joint-stock companies in Britain that received their charters and right to issue shares only on the basis of acquiring large amounts of existing, heavily discounted, government debt. These innovations were followed by foreigners setting up banks (Hopes in Amsterdam, Barings in Exeter, Rothschilds in London, Paris, Naples, and Vienna) where a public market for government-sponsored securities existed, helping to finance the expansion of foreign trade. Goldsmiths proved especially capable of intermediating foreign trade throughout the era of metallic currencies in the eighteenth and nineteenth centuries. Merchant banks, such as the Rothschilds and Barings, then dominated international finance over the course of the nineteenth century. Banks from the leading industrial powers – Britain, France, then Germany, and the United States – set up branches around the world. Innovative financial intermediaries such as credit cooperatives emerged in Germany and Scandinavia, mortgage banks in the United States, and especially insurance companies, which moved from marine insurance to fire insurance, and finally life insurance. The international activity of all these intermediaries, however, was sharply curtailed during the retrenchment of global capital markets from 1914 to 1971 and they were forced to concentrate on their respective national markets.

The possibilities of long-run success, however, were often overshadowed by the severity of short-run crises. Bank-led innovations frequently led to stock market crises. Even the VOC suffered a setback in the market for its shares shortly after establishment of the Bank of Amsterdam in 1609. The bear attack of 1610 was led by Isaac Le Maire, a dissatisfied shareholder who had been cut off from influence over the company's trade policies in 1610. When John Law tried to establish the best features of both British and Dutch financial institutions in France by creating a Banque Royale in 1717, the Mississippi bubble in the price of shares in his Compagnie des Indes followed soon afterwards with a dramatic collapse in mid-1720. Law was forced to flee into exile for the rest of his life. A similar scheme initiated in London in 1720 led to the South Sea bubble and the quick collapse by October of the same year in the price

of its new shares. The *Grundungzeit* of imperial Germany's joint-stock corporations funded by the new universal banks founded on the principle of the French Crèdit Mobilière was quickly ended by a general collapse in stock prices.

Market-led innovations such as the *bisenzone*, a virtual market for short-term commercial credit in northern Italy of the sixteenth century (Pezzolo and Tattara, 2008), were sometimes followed by bank failures, such as the collapse of Genoese bankers after the suspension of payments by Philip II on the *asientos* he had sold to them. The collapse of the Mississippi bubble destroyed the remaining banks in France, leaving bank finance ultimately to the Huguenot diaspora operating from Geneva (Luethy, 1959, 1970). There were widespread bankruptcies and prolonged suspensions among London's goldsmith bankers after the collapse of the South Sea bubble and widespread country bank failures after the stock market crash of 1825 in London.

Financial innovations – in financial intermediation, capital markets, and government initiatives in public finance – sometimes have led to crises in the short run, despite their attractiveness as long-run improvements in financial mechanism design. The essential problem, in some cases, has been to reestablish the essential elements of trust when impersonal exchange is substituted for traditional personal exchange. An early answer to that problem appears to have been the creation of a 'brand' by certain intermediaries, exemplified by the Rothschilds in the early nineteenth century and sustained by other leading merchant banks such as J. P. Morgan in the United States right through most of the twentieth century.

The importance of branding by reputable intermediaries is discussed in detail by Marc Flandreau, Juan Flores, Norbert Gaillard, and Sebastián Nieto-Parra in their entry on nineteenth and twentieth-century investment banking. 'Branding,' whether by a merchant bank, or a stock exchange in New York or London, or a government agency such as the Securities and Exchange Commission, can be essential for sustaining a 'trust culture.' Financial innovations require rebranding or at least revalidation of an existing brand to sustain the trust culture. Information flows must continue as well among the banks, markets, and regulators to sustain the trust culture through repeated interactions that generate satisfactory results for all parties. Any interaction, of course, may be disrupted by innovations in the information technology. Price lists for major securities available to the public for purchase in London, for example, appeared as early as 1698 when a new East India Company was chartered by the government. Telegraph facilities were strictly controlled in the London Stock Exchange through the nineteenth century in order to limit access of outsiders to the prices being formed on the floor of the exchange. Flash trading by computer-driven algorithms raises concerns by regulators in the twenty-first century. Innovations that impact either the existing trust culture or information technology require adjustment by banks, financial markets, and government agents. Crises can be part of the learning process of that adjustment.

In the background of the rise of financial capitalism in western Europe from at least the sixteenth century, there lurked even then the influence of what economists call the 'trilemma' faced by economic policymakers who attempt to maintain open capital markets, autonomous monetary policy, and a fixed exchange rate relative to other currencies. Fixed and stable exchange rates promote the expansion of trade while access to the savings of foreign investors allows more investments to be made, but protecting the interests of domestic producers may require the exercise of monetary policy independently of the desirability of maintaining fixed exchange rates and/or capital mobility.

The three leading mercantile powers of early modern Europe – the Netherlands, Great Britain, and France – engaged in extended policy experiments over the period from 1648 to 1815 (Neal, 2000). The Netherlands maintained fixed exchange rates throughout, suffering a lack of monetary independence increasingly from the latter half of the eighteenth century on and then was subject to restrictions on capital mobility under the Napoleonic regime after 1808.

France persistently maintained a claim on monetary independence throughout, variously forsaking fixed exchange rates or capital mobility with the rest of Europe, regardless whether it had the regime of Louis XIV, John Law's System in 1717–20, Cardinal Fleury's metallic standard after 1726, a fiat currency in the initial stages of the French Revolution, or a return to a bimetallic standard overseen by a public bank under Napoleon.

Great Britain, initially the most backward of the three mercantile powers, encouraged capital mobility throughout, even in the extremes of the prolonged wars with France from 1793 to 1815, limiting only the remittance of actual interest payments to foreign creditors who were temporarily under the control of French forces on the Continent. It was evident by the conclusion of the French Revolutionary and Napoleonic Wars that Britain's commitment to capital mobility, forsaking at times monetary independence after the recoinage of 1698 or fixed exchange rates during the 'paper pound' period of 1797 to 1819, was the dominant strategy facilitating the start of modern industrialization as well as enabling victory in most of the wars.

As discussed in the three entries by Rui Esteves, Sarah Cleeland Knight, and Hugh Rockoff, under the classical gold standard of the nineteenth and early twentieth centuries, most of the world participated in an international

regime of fixed exchange rates and open capital markets, in which domestic monetary policy was limited by the need to accommodate the discipline of external balance. Over time, however, and despite the post-World War II attempt to revive the fixed exchange rate regime in the Bretton Woods System, political pressures shifted governments' priorities more toward domestic objectives, leading to the collapse of the international system of fixed exchange rates.

This global moment of upheaval was not unique in world history. Periodically, major international crises have altered the historical development of international finance thereafter. The decree of Rīm-Sîn, apparently a rebel ruler, moved the 'Wall Street of Babylon' from Ur to Larsa upstream and eventually to Babylon (van Mieroop, p. 70). The banking crisis in Rome of 33CE, temporarily solved by the Emperor Tiberius's interest-free lending to banks in support of Roman landholders, augured a changed policy by Rome toward settling its veteran legionnaires. Thereafter, demobilized troops were settled along the frontiers of an overextended empire rather than placing them on existing latifundia. Some historians argue that this was the process that eventually led to the end of an overextended empire. Fortunately for the rise of capitalism and the modern world, later examples of international crises had more pleasant outcomes. Indeed, the 'big bang' of financial capitalism arose with the stock market explosions in France, England, and the Netherlands – the Mississippi bubble, the South Sea bubble, and the subsequent ripples in the Netherlands.

Each stock market bubble was initiated by governments that sought to reduce the fiscal burden of servicing the huge debts they had accumulated in the course of fighting major wars in the period from 1689 to 1713 (the War of the League of Augsburg and the War of the Spanish Succession). To do this, each government took advantage of the anticipated gains from new trade opportunities in the Atlantic, the result of a weaker Spanish empire, to expand existing joint-stock corporations with new capital stock in exchange for cashing in existing, and heavily discounted, government debt. Rentiers in all three countries had suffered either capital losses as in France and Spain or lower rates of return on existing securities as in Britain and the Netherlands. Regardless, financiers everywhere were eager to recoup their fortunes and the opportunities in foreign ventures offered at least the possibility of higher returns.

To meet these demands, John Law's Compagnie des Indes in France was the most ambitious plan, but the South Sea Company in England was a close second and even larger relative to the size of the national economy, while the Dutch only briefly toyed with expanding the stock of their West India Company. As described in the respective entries for France, Britain, and the Netherlands (Velde, Murphy, and Gelderblom-Jonker), each country experienced a stock market bubble and a subsequent collapse.

But the long-run consequences of these crises differed dramatically across countries. The French response was most dramatic, and most damaging in the long run to the future of French finance. When the nobility who had profited from the inflation created by John Law's Banque Royale revolted against his decrees to reduce the nominal value of their accounts, the Regent eventually had to declare the bank bankrupt. The bankruptcy commission then evaluated each account to see how it had been initiated and then wrote down each account by differing amounts, depending on the form of the deposits. Foreigners using bills of exchange drawn by their local bankers on their correspondents in Paris were credited with only 5% of their accounts. French nobles who had deposited royal debts issued by Louis XIV at least 5 years previously, were credited with 90%. No fewer than six different tranches were distinguished by the commission over the next several years. The so-called Visa amounted to a segmented default by the bank, in effect a graduated capital levy by the government. Foreign and commercial investment in France was stymied for the remainder of the century, although foreign trade did resume once a fixed exchange rate was reestablished in 1726. The Compagnie des Indes narrowly escaped bankruptcy as well, as its capital stock had, briefly, been made equivalent to accounts with the Banque Royale. It was eventually allowed to continue just trade with Asia on the basis of a much reduced capital stock, which did not allow it to compete successfully with either the Dutch or English East India companies.

The Netherlands let the individuals who had borrowed funds to speculate on the rise in price of West India Company shares go bankrupt, while the company continued with its market capitalization substantially reduced. Only one new company, a marine insurance company based in Rotterdam, was allowed to continue in existence (eventually to be absorbed by Fortis shortly before that company was forced into bankruptcy at the outset of the subprime crisis of 2007). The other projected companies were allowed to lapse, with losses taken by the remaining subscribers. Meanwhile, Dutch investments in the British securities, especially the new shares that had been issued by the South Sea Company, continued and even increased in the Bank of England in order to gain voting power in the upcoming elections of directors. Eventually, the Dutch financiers turned increasingly to financing other European powers, ending up with the newly formed United States of America, but never managing to establish a domestic manufacturing base competitive with that of Britain.

The British response was to maintain the capital stock of the expanded South Sea Company as much as possible

but first putting the various subscribers all on the same basis. There had been no fewer than four separate subscriptions to the new capital stock and the terms had been made progressively worse for each round of subscribers. The Bank of England, which had agreed to a secured loan to the South Sea Company as the crisis unfolded, was allowed to expand its capital stock by 50% to absorb the equivalent amount of government debt from the South Sea Company. The South Sea Company's remaining capital stock was then split in half, with half converted to perpetual annuities yielding 5% annual interest for the next few years. The conversion was carried out in June 1723 and stock market activity resumed with the annuities eventually rising above the shares of the trading company. In subsequent wars, the British government turned to issuing its own version of the South Sea's perpetual annuities, culminating in the Consolidated Three Per Cent Annuities in 1752, lumping together all the Three Per Cent annuities that had been issued during the preceding War of the Austrian Succession.

The lesson that could have been learned from the three divergent responses to the collapse of the international stock markets in 1720 was that effective government intervention to stabilize the market by offering a new security to refinance the previously issued 'toxic assets' enabled both the capital markets and the banking institutions to resume normal activity and continue as effective complements in providing finance for the expansion of the national economy. Moreover, the 'funds' of the British government were attractive assets for foreign investors, including those in the city of Berne, many Dutch merchants, and even American colonists, including George Washington, who maintained his holdings of Bank of England stock throughout the American War of Independence. The success of the British 'financial revolution' over the period from 1688 to 1752 in providing an international market for its securities enabled the government to sustain military victories in its ongoing conflicts with the Netherlands and France and its private entrepreneurs eventually to finance the investments that led to the classic Industrial Revolution.

The next truly international financial crisis came in 1825, when another stock market bubble occurred in European capital markets, this time focused on the securities offered to European investors by the former colonies of the Spanish empire in Central and South America. These were government bonds issued in imitation of the now favored British Three Per Cent Consol and stocks in the various mines, fabled for their centuries of producing silver. The reduction in yields on government securities that accompanied the end of the Napoleonic Wars and the general return to prewar bimetallic standards for national currencies provided incentives for investors to buy the new, higher yielding, if obviously risky, securities offered by the Latin American republics. From 1822, after the restoration of the gold standard by Great Britain in 1821, the prices of the Latin American securities were bid up for several years, creating another stock market bubble. When it became clear by mid-1825 that the mines were unproductive and the fiscal resources of the rebelling colonies were unequal to the costs of their military adventures, a general collapse in the stock market occurred with a classic scramble for liquidity at the end of the year.

This time, the response of the British government was to force the Bank of England to broaden access to finance by opening up branches to provide local access to its facilities by country banks, allow joint-stock banks to be formed outside London, repeal the Bubble Act of 1720 so that existing companies could explore new forms of business not specified in their original charters, and revise bankruptcy laws to allow bankrupt firms more opportunities to recover from insolvency if it proved due only to a temporary liquidity shock. In the meantime, foreign lending was curtailed, save that intermediated by a few leading merchant bankers, especially Rothschild's and Barings. But the domestic financial sector flourished, first with the rise of bill-broking firms in based in London but operating throughout the United Kingdom and the empire, and later (especially after further reforms in the 1830s and 1840s) with the rise of joint-stock banks with extensive branching networks, some extending overseas as well.

After the gold rush bonanza in California and then Australia enabled much of the industrial world to commit to an international gold standard, a series of international financial crises ensued over the period from 1847 to 1914. In an exhaustive econometric analysis of the transmission of liquidity shocks during the various international financial crises of the classical gold standard period, 1871–1914, Neal and Weidenmier (2003) found that only the panic of 1907, originating in the United States, appeared to have been seriously contagious, with its effects spreading as far as the United Kingdom, Germany, France, and Italy in 1908. Contrary to the claims of Kindleberger (2000), Neal and Weidenmier find that the earlier crises, by contrast, seem to have been remarkably confined to the country of origin, once allowance was made for the close connections with trading partners that existed before the crisis.

Even with the panic of 1907, however, the ultimate source of the panic in New York could be traced back to a change in the way the 'rules of the game' in the gold standard regime were followed by a major player. In this case, it was none other than the Bank of England, which in late 1906 had declared it would no longer rediscount bills of exchange drawn in the United States, an unusual defensive measure against the previous drain of gold as British insurance companies finally made good on the

claims against them stemming from the San Francisco earthquake in April 1906 (Odell and Weidenmier, 2004). The subsequent years leading up to World War I saw more defensive measures taken by countries to protect themselves from being cut off from the London money market or other major money markets in case of exogenous shocks, the most important measure being the creation of the Federal Reserve System in the United States. And, it was quite natural for all major stock exchanges to close down when German troops launched their offensive against France through Belgium in July 1914, each country committed to keeping its gold reserves intact and safe from claims by any of the belligerents.

The articles by Rui Esteves and Hugh Rockoff explore the twentieth-century relationship between world wars and global trade and monetary and capital flows. In Britain, the heart of the prewar gold standard, World War I saw the gold standard abandoned and the money supply expanded. Prices (measured by the GDP deflator) rose by a factor of 2.7 between 1914 and 1920. The aftershocks of the effective closing down of international transfers of funds, save under government oversight, lasted long after the cessation of hostilities in November 1918. The gradual restoration of fixed exchange rates, enabled by reconstruction loans extended by consortia of international bankers and supervised by financial commissioners appointed by the League of Nations, enabled international trade to resume its prewar growth during the years 1924 through 1928. The effects of the gold exchange standard, so-called because countries could back their national currency with either reserves of gold or a key currency that in turn was firmly convertible to gold at a fixed rate, were widely hailed as beneficial, a return to 'normalcy.'

By 1929, most of the prewar trading world was on a gold exchange standard, but with different key currencies as their reserve base. The key currencies were the British pound, the US dollar, the German reichsmark, the Japanese yen, and, from mid-1928 on, the French franc. As Rockoff notes, however, the exchange rates at which the various currencies were fixed to one another reflected either – in the case of Britain – prewar exchange rates, which should have been altered to reflect different inflation policies during the war, or – in the case of France – a conscious decision to set undervalue its currency in order to attract gold inflows. The fundamental misalignment of exchange rates during the 1920s created imbalances across countries that made the maintenance of the fixed exchange rates virtually impossible.

The steady, and at times rapid, increase in French gold reserves, and the decisions by the gold importing countries (France and the United States) not to expand their monetary supply in reaction to gold inflows, combined with an extensive network of fixed exchange rates among the major trading powers, led to global deflation, affecting the prices of all internationally traded commodities. General deflation made it increasingly difficult for debtors (including Germany's government) to make payments on the nominal debts they owed, a problem that became worldwide in 1931 with the collapse of the financial system of Austria, the first country to have begun financial reconstruction under the aegis of the Financial Commission of the League of Nations.

The 'debt deflation' problem created by the failed attempt to replicate the workings of the prewar gold standard through the ad hoc arrangements of the gold exchange standard was magnified by the failures of firms and banks, especially in countries like the United States, which stayed on the gold standard as late as 1933 (Calomiris, 1993; Bernanke, 1995).

The creation of the Bretton Woods system – described in the entries by Hugh Rockoff and Sarah Cleeland Knight – was undertaken by representatives of the United States Treasury and the United Kingdom Exchequer (i.e., their finance ministers rather than their central bankers) during World War II to forestall the development of similar problems that had occurred after World War I when this war ended. A clear motive was to reassure the United States that its financing of the British war effort this time would not lead to postwar recriminations. At a general conference of the financial ministers representing the Allied powers held at the New Hampshire resort of Bretton Woods in 1944, the rules of the game to be played in peacetime were laid out. In place of a gold exchange standard with various currencies competing to be the key currency, it was agreed that the only the US dollar would serve that role. In turn, the United States committed to maintaining a fixed price of gold in terms of dollars, $35 to one ounce of gold. To participate in the gold dollar standard, countries would buy stock in the International Monetary Fund, paying half in their own currency and half in either dollars or gold. Countries were then committed to maintain a fixed exchange rate with respect to the US dollar, and by consequence, with all other participating currencies. Beyond that, however, the central banks of each country were acknowledged to have control over the supply of their domestic currency, which necessarily meant that they could impose capital controls. For the duration of the Bretton Woods era, nominally 1944–73, but more accurately described as running from 1958 to 1971, the macroeconomic trilemma was resolved with fixed exchange rates and monetary independence being maintained at the expense of capital mobility.

Despite the lack of international financial crises during this period, which also witnessed the 'golden age of economic growth,' the Bretton Woods system after World War II was inherently unstable, albeit for quite different reasons than the gold exchange standard after World War I. The credibility of the dollar as the

key or anchor currency of the international monetary system among the market-oriented capitalist economies depended on the credibility of its convertibility upon demand in gold at the fixed price of $35 per ounce of gold. The provision of liquidity to finance the continued expansion of international trade that was essential for maintaining the high and stable rates of economic growth among the IMF countries, however, required the United States to provide the necessary dollars. Inevitably, the continued outpouring of dollars into overseas accounts – the result of inflationary US monetary and fiscal policies – without a comparable increase in the supply of gold reserves in the United States, undermined the credibility of the anchor currency, as the convertibility of dollars into gold came to be questioned. A final surge in US expenditures on the war in Vietnam in 1969–71 led to a surge in dollar reserves among central banks, especially France, which was the favored recipient of flight capital from South Vietnam, and a number of them, starting with France, began converting their dollars into gold from the United States. When even the Bundesbank in Germany presented some of its dollar reserves for conversion to gold, the United States was forced to close the gold window at the Federal Reserve Bank of New York as of 15 August 1971. Technically, the United States abrogated unilaterally the terms of the Bretton Woods treaty by refusing to honor claims for gold from IMF member central banks, and thereby ended the Bretton Woods era.

The oil shocks of 1973 and 1978 forced oil-importing countries, most of the industrialized members of the IMF, to devise new ways to finance the sudden, large deficits on their current accounts. As the oil prices were quoted in US dollars, the huge reserves of dollars owned by the central banks of industrial countries became useful for covering their trade deficits with the oil-exporting countries. Countries whose central banks limited the growth of their domestic money supply relative to the growth of the US money supply found that their currencies rose in value relative to the dollar, and consequently helped absorb the shock of higher oil prices to their economies, especially Germany and Japan. By contrast, countries whose central banks were committed to expanding their money supply to compensate domestic firms and households for the higher price of energy found that their currencies fell in value relative to the dollar, and the oil shocks were amplified, especially France and Italy.

Starting in 1978 in response to the second and most severe oil shock, the outlines of the post-Bretton Woods system began to fall into place. First, the European Monetary System was created to allow the central banks of France and Italy to restrict their money supplies in accordance with the pace of Germany's money supply, all in order to keep within a narrow band of exchange rates with the deutschemark. The new Thatcher government in Britain committed to restricted growth of the supply of sterling, partly in response to having been forced to abandon capital controls on sterling accounts held abroad. By 1980, even the United States changed monetary policy to restrict sharply the rate of increase of the domestic money supply, leading to the so-called 'Volcker shock' named after Paul Volcker, then chairman of the Federal Reserve System. The early 1980s then became a period of general disinflation, sharply reducing the general rates of inflation back to levels that had typified the early Bretton Woods experience in the 1960s. Although exchange rates continued to show volatility that was, and remains, historically unprecedented, central banks were able to exert their authority over monetary policy once again.

While economic growth failed to recover to anything like the rates enjoyed generally in the period 1950–71, industrialized countries were able to recycle petrodollars into their economies by progressively easing capital controls. By the end of the 1980s, capital controls had been eliminated among the European countries and by most of the IMF member countries. The less developed countries were able to attract foreign investment if they removed restrictions as well, leading to a general replacement of import-substitution industrializing strategies by export-led growth strategies. In Latin America, the example of Chile proved enlightening; in Asia, the countries competing with Japan for access to US and European markets imitated the Japanese strategy of fixing their exchange rate at an undervalued level relative to the US dollar and running continued export surpluses. Their success, helped greatly by the collapse of oil prices in 1985, encouraged a general expansion of international trade so that nearly every IMF country in the world found itself more open with the relative importance of exports + imports to gross domestic output rising to new levels. With the collapse of centrally planned economies starting in 1990, the new era of financial globalization that had begun with the collapse of the Bretton Woods system in 1971 finally was able to become truly global once again.

For the core industrialized nations of the world, then, the post-Bretton Woods system has evolved into resolving the trilemma by preferring capital mobility and monetary autonomy over fixed and stable exchange rates. For some emerging market countries, however, an export-led growth strategy that imitates the earlier successes of Japan and Germany under the Bretton Woods system of fixed exchange rates and capital controls, has sometimes been preferred. This so-called 'Bretton Woods II' system, led by China but imitated in great part by the other ASEAN nations, has proven very successful. Given the economic success of the Asian countries under Bretton Woods II, they are unlikely to change policies

soon or not until they have reached comfortable levels of per capita income and income distribution, a process that took several decades in the case of Japan and Germany, both starting with a much better base after World War II. So the 'fault lines' (Rajan, 2010) have developed that are now clearly discernible in the global economy. All parties, however, regardless of their commitment to fixed or flexible exchange rates, are at present firm in their attachment to the global financial markets, whether as a destination for investment with higher returns or as a source for savings to finance continued development.

References

Atack, J., Neal, L. (Eds.), 2009. The Development of Financial Institutions and Markets from the Seventeenth Century to Twenty-First Century. Cambridge University Press, Cambridge and New York.

Bernanke, B.S., 1995. The macroeconomics of the great depression: a comparative approach. Journal of Money, Credit, and Banking 27 (1), 1–28.

Calomiris, C.W., 1993. Financial factors in the great depression. The Journal of Economic Perspectives 7 (2), 61–85.

Calomiris, C.W., Gorton, G., 1991. The origins of banking panics: models, facts, and bank regulation. In: Glenn Hubbard, R. (Ed.), Financial Markets and Financial Crises. University of Chicago Press, Chicago and London.

Calomiris, C.W., Haber, S., 2012. Fragile Banks, Durable Bargains: Why Banking is All About Politics and Always Has Been. Princeton University Press, Princeton, NJ.

Cohen, E.E., 1992. Athenian Economy and Society: A Banking Perspective. Princeton University Press, Princeton, NJ.

Goetzmann, W.N., 2010. Financing Civilization. Work in progress accessed at http://viking.som.yale.edu/will/finciv/chapter1.htm#wallstreet.

Kindleberger, C.P., 2000. Manias, Panics, and Crashes: A History of Financial Crises, fourth ed. John Wiley & Sons, New York.

Luethy, H., 1959. La Banque Protestante en France de la Révocation de l'Édit de Nantes à la Révolution, vol. 3. École Pratique des Hautes Études, Paris.

Millett, P., 1991. Lending and Borrowing in Ancient Athens. Cambridge University Press, Cambridge.

Neal, L., 1990. The Rise of Financial Capitalism: International Capital Markets in the Age of Reason. Cambridge University Press, Cambridge and New York.

Neal, L., 2000. How it all began: the monetary and financial architecture of Europe from 1648 to 1815. Financial History Review 7 (2), 117–140.

Neal, L., Weidenmier, M., 2003. Crises in the global economy from tulips to today: contagion and consequences. In: Bordo, M.D., Taylor, A.M., Williamson, J.G. (Eds.), Globalization in Historical Perspective. University of Chicago Press, Chicago and London.

Obstfeld, M., Taylor, A.M., 2004. Global Capital Markets: Integration, Crisis, and Growth. Cambridge University Press, Cambridge and New York.

Odell, K.A., Weidenmier, M.D., 2004. Real shock, monetary aftershock: the 1906 earthquake and the panic of 1907. The Journal of Economic History 64 (4), 1002–1027.

Pezzolo, L., Tattara, G., 2008. 'Una fiera senza luogo': Was Bisenzone an international capital market in sixteenth-century Italy? The Journal of Economic History 68 (4), 1098–1122.

Rajan, R., 2010. Fault Lines, How Hidden Fractures Still Threaten the World Economy. Princeton University Press, Princeton, NJ.

Schularick, M., Taylor, A.M., 2011. Credit booms gone bust: monetary policy, leverage cycles and financial crises, 1870–2008. American Economic Review forthcoming.