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Alexander Hamilton, Central Banker: Crisis Management during the U.S. Financial Panic of 1792

Most scholars know little about the panic of 1792, America's first financial market crash, during which securities prices dropped nearly 25 percent in two weeks. Treasury Secretary Alexander Hamilton adroitly intervened to stem the crisis, minimizing its effect on the nascent nation's fragile economic and political systems. U.S. policymakers soon forgot the crisis-management techniques Hamilton invented but failed to codify. Many of them were later rediscovered and became theoretical and practical standards of modern central-bank crisis management. Hamilton, for example, formulated and implemented "Bagehot's rules" for central-bank crisis management eight decades before Walter Bagehot wrote about them in *Lombard Street*.

The panic of 1792, the first crisis to strike the financial system of the newly formed United States, was an episode of crucial economic and political importance. Had the panic fomented a prolonged economic downturn, the highly polarized nascent nation might have disintegrated

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under the strain. Despite the panic's importance and an extensive early historical treatment of it in 1917, most historians and economists have paid the crisis little attention.[1] Not until its fourth edition in 2000 did Charles Kindleberger's *Manias, Panics and Crashes* mention the panic, and then only as an entry in an appendix that lists major financial crises throughout the world dating back to the Thirty Years' War.[2]

Our understanding of history, as well as of economic theory and policy, is at stake. As an historical event, the panic did not derail the development of the U.S. financial system, although it might have done so. During Alexander Hamilton's tenure as first U.S. Treasury secretary, and largely as a result of his strategies and tactics, the United States experienced a successful financial revolution. When Hamilton left office in 1795, his adopted homeland harbored six critical institutional components that characterize modern financial systems: stable public finances and debt management; stable money; an effective central bank; a functioning banking system; active securities markets; and a growing number of business corporations, financial and nonfinancial. When Hamilton accepted his post in 1789, the new nation enjoyed none of those six components. Combined with the salutary effects of the Constitution, the U.S. financial revolution fueled decades of virtually uninterrupted economic growth that strengthened the nation's initially weak and fractured polity.[3] Although deeply divided along ethnic, religious, economic, and ideological fissures, early Americans agreed, largely for the sake of peace and prosperity, to give the new Constitution a chance. In 1812–15, 1832–33, and 1861–65, however, it became clear that not all Americans were

[1] Joseph Stancliffe Davis, *Essays on the Earlier History of American Corporations* (Cambridge, Mass., 1917), 1: 278–345. More recent discussions of the panic include David J. Cowen, *The Origins and Economic Impact of the First Bank of the United States, 1791–1797* (New York, 2000), 89–136; David J. Cowen, "The First Bank of the United States and the Securities Markets Crash of 1792," *Journal of Economic History* 60 (Dec. 2000): 1041–60; Cathy Matson, "Public Vices, Private Benefit: William Duer and His Circle, 1776–1792," in *New York and the Rise of American Capitalism: Economic Development and the Social and Political History of an American State, 1780–1870*, ed. William Pencak and Conrad E. Wright (New York, 1989), 72–123; Robert Sobel, *Panic on Wall Street: A History of America's Financial Disasters* (New York, 1968), 8-31; David Sterling, "William Duer, John Pintard, and the Panic of 1792," in *Business Enterprise in Early New York*, ed. Joseph Frese and Jacob Judd (Tarrytown, N.Y., 1979), 99–132.

[2] Charles P. Kindleberger, *Manias, Panics and Crashes: A History of Financial Crises* (New York, 2000), 225; Edwin Perkins, *American Public Finance and Financial Services, 1700–1815* (Columbus, Oh., 1994).

[3] Since the publication of Perkins's *American Public Finance*, a number of scholars, including Peter Austin, Howard Bodenhorn, David Cowen, Farley Grubb, Eric Hilt, James Karmel, Richard Kilbourne, Christopher Kingston, Naomi Lamoreaux, Paul Lockard, Sharon Murphy, Ronald Michener, Peter Rousseau, Richard Sylla, Daniel Wadhwani, Ta-Chen Wang, Jack Wilson, and Robert E. Wright have published a slew of papers, articles, books, and dissertations describing America's financial revolution in considerable detail, largely supplanting earlier financial histories by Davis Dewey, Paul Studenski and Herman Krooss, Margaret Myers, and others.

fully wedded to the union. A major early economic shock could have ended the national experiment almost before it began.[4]

Comparative history also suggests that, had it not been dealt with as effectively as it was, the panic of 1792 might have destroyed America's financial revolution and with it the country's relative prosperity and political peace. Earlier in the eighteenth century, John Law had attempted to modernize France's financial system, but his efforts backfired when he failed to prevent the collapse of the Mississippi Bubble in 1720. At the same time, across the Channel, the collapse of the related South Sea Bubble also led to financial crisis. The British financial system, however, was more developed than that of France, as Britain had begun the modernization process in 1688, whereas France did not do so until 1715. A wounded but robust British financial system survived the shock, although legislation passed during the crisis stunted the development of Britain's corporate sector for a century. Armed with its (mostly) modern financial system, Great Britain won all its wars save one between 1688 and 1815, traversed the first industrial revolution, built a worldwide empire, and preserved constitutional government. Devoid of a modern financial system, France lost its wars with Britain, suffered through a protracted and bloody political revolution, lost a colony to slaves, and endured Bonaparte's dictatorship.[5]

In the United States, financial and economic wounds resulting from the crisis of 1792 healed quickly, but political rancor continued unabated. Emboldened by the panic, Thomas Jefferson, James Madison, and their Republican followers continued to critique the policies of Federalists George Washington and Hamilton to the ends of their days. When they assumed leadership of the U.S. government after 1800, the Republicans even undid elements of the Federalist financial revolution, only to come to regret their folly and to reinstitute what they had allowed to be undone.[6]

[4] Numerous studies attest to America's early diversity. Good starting places for readers interested in such issues are David H. Fischer, *Albion's Seed: Four British Folkways in America* (New York, 1989), and Owen Ireland, *Religion, Ethnicity, and Politics: Ratifying the Constitution in Pennsylvania* (University Park, Penn., 1995).

[5] In addition to Kindleberger's *Manias*, readers interested in those episodes can also consult Stuart Banner, *Anglo-American Securities Regulation: Cultural and Political Roots, 1690–1860* (New York, 1998); Edward Chancellor, *Devil Take the Hindmost: A History of Financial Speculation* (New York, 2000); Charles Mackay, *Extraordinary Popular Delusions and the Madness of Crowds* (New York, 2003).

[6] Discussions of the early U.S. political system are too numerous to list here. The best overview of the emergence of the first party system is still probably Stanley Elkins and Eric McKitrick, *The Age of Federalism* (New York, 1993). Many important studies, including Joseph J. Ellis, *Founding Brothers: The Revolutionary Generation* (New York, 2001), neglect the panic. For specific discussions of the political implications of the panic, see Howard Rock, *Artisans of the New Republic: The Tradesmen of New York City in the Age of Jefferson* (New York, 1984), 24, and Robert E. Wright and David J. Cowen, *Financial Founding Fathers: The Men Who Made America Rich* (Chicago, 2006), 83–86.

Apart from the heated political fallout, the panic actually strengthened the financial revolution. Among other things, it led directly to a more effective securities trading and clearing system and to the founding, in 1792, of what would become the New York Stock Exchange. Further, because the panic was successfully contained, the U.S. financial system (especially in the Northeast, an entity more comparable to Great Britain or England in size and economic structure than the entire United States) continued to develop so rapidly that it would come to equal, even to surpass, that of Britain by the 1830s. Energized by the Federalists' financial revolution, the U.S. economy grew substantially faster in terms of product per person than did that of Britain, despite its industrial revolution, which lasted from the 1790s to the 1830s.[7]

The panic of 1792 is also important for economic theory and policy. What should a responsible authority do in an asset-price bubble? Should the authority attempt to prick and slowly deflate the bubble before it becomes too large and bursts? Or, recognizing that bubbles may not be surely known and recognized until after they have burst, should the authority wait watchfully and then move quickly when the bubble bursts to contain and minimize the potentially bad economic effects that might ensue? Alan Greenspan as chairman of the Federal Reserve System was the responsible authority after the stock-market crash of 1987 and after the Internet- and telecom-market bubble collapsed beginning in 2000. Greenspan has argued for the latter view of watchful waiting and then pouncing to contain the fallout of a collapse, an approach his successor, Ben Bernanke, also employed in the wake of the subprime mortgage fiasco in the summer of 2007. Today, central bankers in the United States and abroad can draw on a long history of central banking, crisis containment, and lender-of-last-resort theory, and they have done so effectively to contain recent crises.[8]

Treasury Secretary Hamilton was the responsible authority in 1792. The central bank that he founded, but as a strong believer in central bank independence could only influence rather than control, had just opened when the 1792 crisis began. In the bank's first weeks and months

[7] Richard Sylla, "Comparing the U.K. and U.S. Financial Systems, 1790–1830," in Jeremy Atack and Larry Neal, eds., *The Origin and Development of Financial Markets and Institutions, from the Seventeenth Century to the Present* (Cambridge, 2009), ch. 7, 209–40.

[8] The Greenspan Fed was not always reactive, however. Among other things, Greenspan warned of "irrational exuberance" in December 1996, in advance of the late 1990s bubble, and the Fed added liquidity to the markets in 1999 in anticipation of a potential Y2K problem. See Mark Carlson, "A Brief History of the 1987 Stock Market Crash with a Discussion of the Federal Reserve Response," FEDS working paper no. 2007-13, SSRN_ID982615_code358088.pdf; Jeffrey Frankel, "Responding to Financial Crises," KSG working paper no. RWP07-010, SSRN_ID963133_code385205.pdf; Robert Kuttner, "The Bubble Economy," *American Prospect* 18 (1 Oct. 2007). An excellent nontechnical overview of current monetary policies worldwide is Frederic Mishkin, *Monetary Policy Strategy* (Cambridge, Mass., 2007).

of operation, it probably acted to make the crisis inevitable. While watchfully waiting as the bubble grew, Hamilton attempted to induce the nation's few, mostly new, banks to restrain credit creation gradually, in order to contain the bubble before it popped. But the banks stepped on the monetary brakes too hard, precipitating a burst.

Hamilton then moved quickly to minimize the economic fallout. Like Greenspan two centuries later, he was successful. Unlike Greenspan, Hamilton could not rely on history, but instead had to invent central bank crisis-containment techniques and lender-of-last-resort theory on the spot. Among other things, Hamilton invented what would later be termed "Bagehot's rules" for how a central bank should act in a crisis some eight decades before they were rediscovered by Walter Bagehot, who likely was unaware of Hamilton's financial creativity.

In this article, we employ newly compiled data on early U.S. securities prices, government documents on U.S. sinking-fund operations in 1791–92, and the written correspondence of Hamilton and others, some of which has only recently become public, to describe the financial crises of early U.S. history and demonstrate that Hamilton, rather than Bagehot or other British writers, deserves credit for first developing several important modern central-banking crisis-management techniques.

America's Financial Revolution

In January 1790, Hamilton presented to Congress his first *Report on Public Credit*, which called for funding the national government's domestic debts at par and assuming the debts the states had incurred when fighting the War of Independence. The report also suggested reducing the rate of interest paid on the restructured domestic national debt from 6 percent to 4 percent, but paying off the debt to foreign nations according to the terms of the original debt contracts.

After six months of debates and political dealings behind the scenes, Congress in July 1790 adopted the essence of Hamilton's recommendations. Holders of old evidences of debt began voluntarily to exchange them for packages of new Treasury debt consisting of 6 percent bonds, or sixes—6 percent "deferred" bonds (interest at 6 percent would commence in 1801, so for ten years these were "zeros") or deferreds—and for 3 percent bonds, or threes, all repayable at the pleasure of the government, that is, with no fixed maturities.[9] About 50 percent of the

[9] The precariousness of U.S. finances was most likely the reason for issuing bonds without fixed maturities. Leading European states tended to favor debt in the form of perpetuities that paid only interest and not principal. American opinion frowned on perpetual debt and strongly favored paying down and even eventually extinguishing public debt. That opinion

Table 1

Volume of Public Securities Trading in Selected U.S. Markets by Year, 1790–1800

Year	*Total Volume of Trades ($)*	*Total No. of Trades*
1790	447,857.92	246
1791	7,846,219.00	5,566
1792	7,171,626.47	7,077
1793	2,593,669.39	2,556
1794	1,936,077.64	2,074
1795	2,224,321.83	3,228
1796	1,585,086.93	2,108
1797	1,080,420.78	1,247
1798	1,061,315.79	950
1799	1,019,449.19	1,069
1800	2,970,559.22	2,186

Source: Robert E. Wright, "U.S. Government Bond Trading Database, 1776–1835," http://eh.net/databases/govtbond/.

eventual total of $64.5 million of domestic debt had been converted by September 30, 1791; 90 percent by the end of 1793; and 98 percent by the end of 1794.[10] Nonetheless, as Table 1 indicates, active secondary markets for the new issues emerged when they first appeared in the autumn of 1790.

The sinking fund, a seemingly minor feature of Hamilton's plan for restructuring U.S. debts, ostensibly designed to assure the public that the new government was committed to redeeming its debts, played an important part in the management of the financial crises in 1791 and 1792. Hamilton proposed in his January 1790 *Report on Public Credit* that the sinking-fund commissioners, later specified as the vice president, the secretaries of state and the Treasury, the attorney general, and the chief justice of the Supreme Court, be authorized to borrow money to purchase public debt on the open market "while it continues below its true value." Hamilton anticipated that financial crises would occur and that mechanisms needed to be in place to allow liquidity injections

increased the concern of investors that their bonds might be called by the government for payment at any time, a concern Hamilton and Congress met by stipulating that only a small percentage (2 percent) of the outstanding 6 percent bonds, the main issue, could be called in for repayment in any one year.

[10] Rafael A. Bayley, *History of the National Loans of the United States from July 4, 1776 to June 30, 1880* (Washington, D.C., 1882), 403.

through open-market purchases. The ability to make such purchases was the true purpose of his sinking fund.[11]

In December 1790, Hamilton delivered to Congress his *Report on a National Bank*, which called for Congress to incorporate a Bank of the United States (BUS) capitalized at $10 million (25,000 shares of $400 par value each). The U.S. government was to take a 20 percent ownership stake, and private investors were to take the remaining $8 million, one-quarter of which was payable in specie (gold or silver), and the remainder to be payable in the new U.S. debt securities. Congress agreed to charter the BUS, and, after some political suspense, Washington in late February 1791 signed the bill into law.

On July 4, 1791, the BUS direct public offering of securities was heavily oversubscribed. Investors that day paid only $25 per "scrip," a call option on a share. To obtain a $400 full share, the owner of a scrip had to make additional payments of $100, one-quarter in specie and three-quarters in U.S. debt, on January 1 and July 1, 1792, and January 1, 1793, with a final payment of $75 in U.S. debt due on July 1, 1793.[12] The BUS became organized in the autumn of 1791, and its Philadelphia headquarters opened for business that December. The Bank also opened branches in Boston, New York, and Charleston in early 1792, in the midst of the panic; launched a branch in Baltimore in June 1792; and, later, opened the doors of additional branches in Norfolk, Washington, D.C., Savannah, and New Orleans.

In December 1791, Hamilton delivered to Congress his *Report on Manufactures*, the most visionary of his famous reports but the one least related to the financial revolution. Although this report is often described as having fallen on deaf ears at the time it appeared, we now know that virtually all its recommendations for increasing revenues were enacted within a few months. In time, many other recommendations of the *Report on Manufactures* would become U.S. economic policy.[13] Hamilton also put the U.S. dollar unit of account on a sound footing by inducing Congress to define it explicitly in terms of gold, silver, and a variety of foreign coins, the international reserves of the day.[14] Thanks in large part to the fiscal, debt, bank, and currency innovations at the federal level,

[11] For a full discussion of sinking funds in U.S. debt management, including Hamilton's initial provision for them, see Richard Sylla and Jack W. Wilson, "Sinking Funds as Credible Commitments: Two Centuries of U.S. National-debt Experience," *Japan and the World Economy* 11 (Apr. 1999): 199–222.

[12] Cowen, *Origins and Economic Impact*, 37.

[13] Douglas Irwin, "The Aftermath of Hamilton's Report on Manufactures," *Journal of Economic History* 64 (Sept. 2004): 800–21.

[14] Robert E. Wright, *The First Wall Street: Chestnut Street, Philadelphia and the Birth of American Finance* (Chicago, 2005), 44–65.

state chartering of banks and other business corporations increased markedly in the 1790s, soon rendering the United States a world leader in corporate development.[15]

In short, all six essential components of a modern financial system —effective public finances and debt management, a stable monetary unit, a central bank, a banking system, securities markets, and more accessible chartering provisions for business corporations—were put in place during the early 1790s. The financial revolution most likely was a crucial factor in jump-starting America's long and sustained economic expansion. Recently compiled macroeconomic data show that U.S. industrial production and its gross domestic product grew at high rates starting in 1790, with little indication of an industrial revolution or even much of a gradual acceleration of growth in the nineteenth century.[16] Fortified with modern financial arrangements and constitutional government, the U.S. economy grew at modern rates from the start.

Early U.S. Securities Markets

Early U.S. securities markets were not the sole province of large speculators but, rather, were populated with thousands of investors, large and small. The surviving records reveal that over 3,600 economic entities (individuals, partnerships, corporations, municipal governments, trusteeships) owned about $12.4 million of federal bonds on January 1, 1795. Assuming the data represent a random sample, we estimate that about 21,500 different economic entities, or more than 1 percent of the adult population, owned the $65 million of federal bonds then outstanding. Most holders owned between $100 and $10,000 of bonds.[17]

Additional insight is offered by a table appearing in Samuel Blodget's *Economica*, showing that on June 30, 1803, a U.S. domestic debt of $70.1 million was owned by 14,236 bondholders. The heaviest concentrations were in the states of Massachusetts (4,199 holders), New York (2,204 holders), and Pennsylvania (2,746 holders), where the three main U.S. securities markets were located. Separately, the U.S. Treasury itself registered 2,152 holders, many of whom may have been foreign holders, since foreign investors held nearly half of the U.S. debt in 1803. Since the U.S. debt was approximately the same size in 1792 (although

[15] Davis, *Essays*; George Evans, *Business Incorporations in the United States, 1800–1943* (New York, 1948).

[16] Joseph H. Davis, "An Annual Index of U.S. Industrial Production, 1790–1915," *Quarterly Journal of Economics* 119 (Nov. 2004): 1177–215; Louis D. Johnston and Samuel H. Williamson, "What Was the U.S. GDP Then?" MeasuringWorth.Com, 2007.

[17] Robert E. Wright, *One Nation Under Debt: Hamilton, Jefferson, and the History of What We Owe* (New York, 2008), 162, 308.

still in the process then of being converted from the old to the new form) as in 1795 and 1803, it seems safe to say that there were participants numbering in the thousands in each of the major markets—New York, Philadelphia, and Boston—in 1792.[18]

Figure 1 plots the price patterns for a variety of securities from 1789 to 1792. The main contours are perhaps best revealed in Figure 1, because the U.S. 6 percent bond was the main issue of the new national debt as restructured by Hamilton. It began to be traded in several city securities markets by October 1790. Visually, the three markets appear price integrated. New York and Philadelphia prices track each other with more precision than either one tracks Boston prices because they were the main markets, separated by about a day in the flow of information, and arbitrageurs were active. Boston, for which we have only monthly prices for most of the period, was several days to a week distant from New York.

Sixes show three concentrated periods of rapid upward price movement—December 1790, July and early August 1791, and December 1791 to January 1792. The first of these rises requires little attention here, because it was clearly based on investors' realization that Hamilton's debt program would work and that the new bonds could be tendered at par value to subscribe for three-fourths of the cost of a share in the proposed BUS. In Philadelphia, the prices of sixes rose from 70 (percent of par) on December 9, 1790, to 75 on December 15, to 83.50 on December 18, to 90 on December 22. It did not take long for the markets to realize that Hamilton had designed the BUS to support the restoration of public credit, and had restored public credit in turn to support the BUS.[19]

The sharp run-ups of prices during July–August 1791 and December 1791–January 1792 are more interesting for our present purposes, as they were followed by crashes. Worth noting also are the rather wild price swings from January to March 1792 in New York, the center of speculative activity leading up the panic and crash of March–April 1792. Such swings are less evident in Philadelphia and Boston, due in part to less frequent data points. The period of steepest decline is, of course, the March–April 1792 panic crash just noted, but a steep decline also took place in mid-August 1791. That mini-panic provided a trial run for the crisis-containment techniques Hamilton was to employ during the more serious price collapse in 1792.

[18] Samuel Blodget, *Economica: A Statistical Manual for the United States of America* (Washington, 1806), 199.

[19] Robert E. Wright, *The Wealth of Nations Rediscovered: Integration and Expansion in American Financial Markets, 1780–1850* (New York, 2002), 137–48.

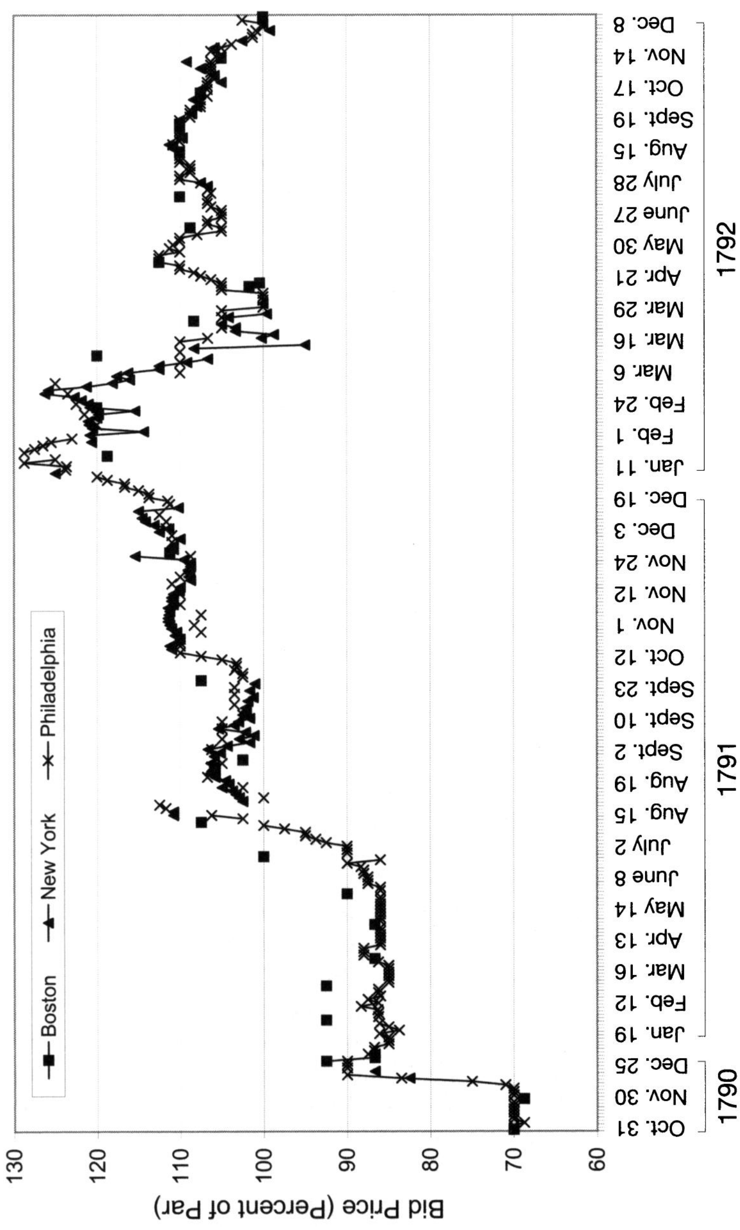

Figure 1. U.S. sixes: Boston, New York, and Philadelphia. (Source: Richard E. Sylla, Jack Wilson, and Robert E. Wright, "Early U.S. Securities Prices," http://eh.net/databases/early-us-securities-prices.)

Trial Run: The Bank Scrip Bubble and Collapse of August–September 1791

The BUS direct public offering led to six weeks of heated financial speculation, the likes of which had never before been witnessed in America. Bank scrips purchased at $25 quickly doubled in price and remained at that level for most of July. In early August, they soared, reaching a bid of 264—280 asked in New York on August 11, and reportedly more than 300 in Philadelphia the same evening. Then they tumbled, in Boston from 230 on August 12 to 112 on August 14, to 154–59 in New York on August 16, and to 125–37 in Philadelphia the same day, before rallying later that month.[20]

Government bonds also rallied, sixes jumping from 90 in early July to 112.50 in Philadelphia on August 13. Then they fell to 100 by August 17, prompting Hamilton to swing into action. Hamilton witnessed the drop in Philadelphia and also received a warning from Rufus King, U.S. senator and a director of the Bank of New York, about a similar decline in New York. On August 15, Hamilton convened a meeting of the commissioners of the sinking fund (attended by himself, Secretary of State Thomas Jefferson, and Attorney General Edmund Randolph—Vice President John Adams and Chief Justice John Jay being absent) and induced them to authorize open-market purchases of U.S. debt in amounts of $300,000 to $400,000 in Philadelphia and New York. Prices were not to exceed 100 (par) for sixes, 60 for threes, and 62.5 for deferreds.

To execute the open-market purchases in New York, Hamilton relied on the Bank of New York (BONY), a private institution that he had helped found in 1784, because the BUS was not yet operational. (Cooperation of private institutions with public authorities in financial-crisis management was new in 1791, but would recur many times in later U.S. history.) Hamilton immediately sent a copy of the sinking fund's resolution to BONY cashier William Seton and authorized him to purchase up to $150,000 of public debt in New York. Hamilton simultaneously requested that the BONY advance the funds to Seton, to be covered by Hamilton from government revenues or other sources after he had learned of the amounts actually employed in the operations.

In his correspondence, Hamilton noted that his "principal object" was to "keep the Stock from falling too low in case the embarrassments of the dealers should lead to sacrifices," so he recommended that Seton should endeavor to ensure "that the purchases . . . not be below the prescribed limits." He also instructed Seton to inform market participants that the purchase was made "on account of the United States but this need not precede the purchase, and it will be best that there should be

[20] Davis, *Essays*, 1: 203–11.

no unnecessary demonstration lest it should raise hopes beyond what will be realised."[21] In short, Hamilton wanted it to be known that the Treasury was acting to alleviate financial distress by supporting the bond market, but, perhaps recognizing the moral hazard of a "Hamilton put" and the crucial role of expectations in price determination, he wanted the announcement to be muted rather than trumpeted.[22]

On September 5, Seton reported to Hamilton officially that he had completed the $150,000 of purchases, but he wrote in a private letter, "Great as the relief has been to the holders, it is far short of preventing that universal panic & want of money which now prevails." Another $150,000 of government purchases, however, "would be of immense consequence to this Community, & I believe would readily fill."[23] Two days later, Hamilton requested the BONY to furnish its cashier with a further $50,000 to purchase public debt, informing it that he would the next day issue a warrant to cover the initial $150,000 already expended. Hamilton also privately informed Seton of his belief that "the timid will soon rally" and that U.S. Treasurer Samuel Meredith, Hamilton's subordinate, was making open-market purchases in Philadelphia simultaneously with Seton's purchases in New York.[24] That information and Seton's further purchases calmed nerves and steadied prices.

On September 12, Seton informed Hamilton that news of the additional purchases "flew over the Town like Wildfire." Before Seton arrived at "the Coffee House at Noon, everyone was prepared, and no one would offer to supply at less than the former prices." Seton "thought it prudent to accept at that, and to diffuse the benefit," so he rationed his purchases in $5,000 increments. "You have the blessings of thousands here," Seton gushed to Hamilton.[25] The mini-panic of August–September 1791 had come to an end, thanks in large part to $148,984.71 of public-debt purchases in Philadelphia and exactly $200,000 worth in New York. Purchases of sixes were at or near par, but because threes and deferreds, which constituted most of the purchases, were well below par, the total face value of the securities purchased in approximately one month came to more than $560,000, or about 2 percent of the federal bonds outstanding at the time.[26]

[21] Harold C. Syrett and Jacob E. Cooke, eds., *Papers of Alexander Hamilton* (New York, 1961–87), 9: 71–72 (hereafter, PAH).

[22] A "put" is an option to sell an asset at a price set earlier. If purchasers of assets believe that public authorities, such as finance ministers or central bankers, will not allow prices of assets to fall below some particular level, they might think they have such a put option and hence speculate more recklessly.

[23] PAH, 9: 122, 176.

[24] PAH, 9: 82, 184–85.

[25] PAH, 9: 202–3.

[26] In terms of the national debt of 2008, that would correspond to an open-market purchase in one month of some $100 billion, a very large amount indeed.

The U.S. Treasury was unable to finance the purchases from tax revenues. The newly created Treasury was empty when Hamilton took office in September 1789. The new federal government exercised its taxing power by levying duties on imports and tonnage in July 1789, but it took some time to organize revenue collection, and even more time for revenues from it to arrive, in part because importers were given several months' credit after goods arrived. Moreover, demands on the Treasury were great, largely due to the interest owed on the national debt both at home and abroad. Federal tax revenues would not exceed expenditures, including debt charges, until 1793. Hamilton therefore borrowed the money to finance open-market purchases of 1791 from two of the four domestic banks then in existence, and he later repaid the bank loans with proceeds from loans the U.S. government negotiated with Amsterdam bankers.[27]

The BUS, William Duer and "Company," and the Bubble of 1792

Traditionally, accounts of the bubble and crash of spring 1792 focus on William Duer, a New York speculator, well-connected businessman, erstwhile governmental official in both the old and new governments, and personal friend of Hamilton.[28] The scheming and operations of Duer and other members of his speculative "company" drove securities prices to new highs early in the year. In March, when Duer could not repay the large amounts of money he had borrowed to implement his plans, the market crashed and panic ensued.[29] The scheming involved an attempt in January to launch a large new bank in New York City in order to drive down the price of BONY stock, which would allow Duer to obtain control of it. Then, Duer and his compatriots planned to corner the market for U.S. sixes, which subscribers to the BUS would need to meet their future payments for BUS shares.

Traditional accounts are correct but incomplete, because they ignore or slight other crucial events. As Charles Kindleberger and other scholars note, speculative bubbles typically need to feed on newly created credit. Because of their reputations, Duer and his fellow speculators in "the company" could raise credit locally in New York by issuing their own notes and mutually endorsing them, and they did so. But they

[27] Jonathan Elliott, *The Funding System of the United States & Great Britain* (Washington, D.C., 1845), 197.

[28] Davis, *Essays*; Robert F. Jones, *"King of the Alley," William Duer: Politician, Entrepreneur, and Speculator* (Philadelphia, 1992).

[29] Davis, *Essays*; Matson, "Public Vices"; Cowen, *Origins and Economic Impact*; Cowen, "The First Bank."

also borrowed, directly or indirectly, from the newly formed BUS, the largest bank in the United States by far. The BUS began making discounts in Philadelphia on December 20. By the end of the year, it had issued $1.10 million of monetary liabilities in the form of notes and deposits, and had discounted $0.96 million of bills.[30] This was largely new money and credit, and it was only the beginning of a much larger expansion. By January 31, 1792, BUS monetary liabilities had nearly doubled to $2.17 million, and discounts had almost trebled to $2.68 million, or over 7.5 times the $0.35 million Hamilton had used to squelch the August 1791 mini-panic.[31]

Simultaneously, and not coincidentally, prices of public securities rose sharply in Philadelphia and New York. Sixes, for example, rose in New York from 110 in early December 1791 to 125 on January 16, 1792. In Philadelphia, they increased from 111 on December 3 to 128.75 on January 31. Hamilton observed the market behavior in both cities and the antics of the speculators in New York. "I have learnt with infinite pain the circumstance of a new Bank having started up in your City," he wrote Seton on January 18. "Its effects cannot but be in every view pernicious," he explained, because they injured "the whole system of public Credit, by disgusting all sober Citizens and giving a wild air to everything." He then hinted that Seton should quietly inform New Yorkers of his displeasure.[32] Seton responded that the BONY had no intention of entering into "a Coalition with these madmen." He then explained how speculators had tried to ruin the BONY by depositing large sums of BUS notes with it, then running down their deposits with requests for specie. "Our refusing to take the paper (though we still have about 100,000 Dollars in hand) has raised a great clamour," Seton explained, "but I trust you will view the maneuver in a proper light & approve of it."[33] Seton also worried that the transfer of the government's banking business to the BUS could weaken the BONY by draining its specie reserves.

Hamilton assuaged Seton's worries by explicitly directing Meredith "to forbear drawing on the Bank of New York, without special direction from me. And my intention is to leave you in possession of all the money you have or may receive 'till I am assured that the present storm is effectually weathered." He reassured Seton that everyone saw the "propriety of your having refused the paper of the Bank of the United States in such a crisis in your affairs." He also promised to bolster the BONY if need be. "If you are pressed," he wrote, "whatever support may be in my

[30] Cowen, *Origins and Economic Impact*, 93.

[31] Discounts could exceed monetary liabilities because the BUS lent some of its capital as well as lent by creating monetary liabilities.

[32] PAH, 10: 525.

[33] Ibid., 528–29.

power shall be afforded. I consider the public interest as materially involved in aiding a valuable institution like yours to withstand the attacks of a confederated host of frantic and I fear, in too many instances, unprincipled gamblers."[34] Five days later, Hamilton received a letter from his father-in-law, Philip Schuyler, who reported that "the bank Mania has somewhat subsided" and confidently and correctly predicted that the legislature would not grant a corporate charter to the speculators' newly proposed bank.[35]

But neither Hamilton's letter nor what Schuyler described could fully calm Seton. He wrote to Hamilton again on February 6 to express his concern that if the BUS deposit balance in BONY (then $176,000) and the Treasury balance of $232,000 were demanded in specie, it would strain BONY's specie reserves (then around $600,000). But he also noted that BONY held $230,000 of BUS notes and expected to be paid $205,000 more when bills drawn on Amsterdam that the Treasury had lent to merchants were repaid. "It is therefore of great consequence to us as well as to the Bank of US, that the paper we have of theirs should be set against what we owe them & the Public—that neither may be forced to an interchange of Specie."[36] Without such offsets, Seton intimated, a drain of specie might force the BONY to contract its lending. Hamilton replied on February 10, further to assuage Seton's fears, but also to imply that the BUS itself was facing some difficulties and to recommend that all banks ought gradually to begin tightening credit. "The superstructure of Credit," Hamilton noted, "is now too vast for the foundation. It must be gradually brought within more reasonable dimensions or it will tumble," a sentiment much like Greenspan's famous claim of "irrational exuberance" in the stock market in 1996.[37]

Hamilton clearly saw trouble brewing at the BUS, which had recklessly overexpanded its credit creation when it first opened. By February, the BUS suffered the consequences of that credit overexpansion as holders converted its liabilities into specie at the bank's counters. Its specie reserves declined from $706,000 on December 29, to $510,000 on January 31, and then to $244,000 on March 9. In response to the drain, the BUS sharply contracted its discounts, which declined from $2.68 million on January 31 to $2.05 million on March 9.[38] Between those two dates, BUS monetary liabilities declined less, from $2.17 million to $2.06 million, and its notes outstanding actually rose by $5,000. But, at the same time, deposits held at the BUS, other than those of

[34] Ibid., 562–63.
[35] Ibid., 580.
[36] PAH, 11: 18.
[37] Ibid., 28.
[38] Cowen, *Origins and Economic Impact*, 93.

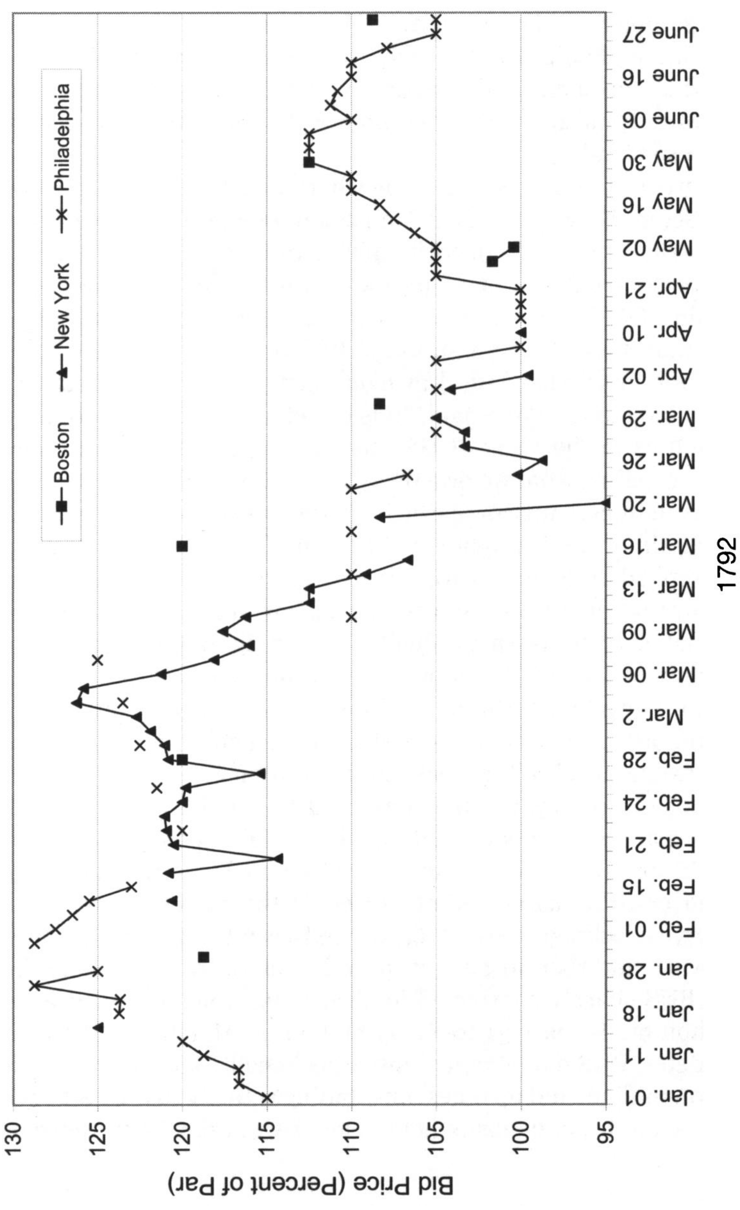

Figure 2. U.S. sixes in three markets during the panic of 1792. (Source: Richard E. Sylla, Jack Wilson, and Robert E. Wright, "Early U.S. Securities Prices," http://eh.net/databases/early-us-securities-prices.)

the U.S. government, declined from $0.81 to $0.57 million. Thanks to Hamilton's transfer of deposits from the BONY, public deposits at the BUS actually rose from $0.47 million on January 31 to $0.60 million on March 9.[39]

Nonetheless, the contraction of BUS discounts by $0.62 million from January 31 to March 9 severely damaged speculators like Duer and "company," who were longs in the public debt market and who financed their securities purchases by borrowing. The BUS was saved, but the speculators faltered. Sixes in New York fell from 125.83 on March 5 to 116.25 on March 8, the day before Duer stopped paying his debts. Duer's default caused a contagion of further defaults, as well as panic selling of securities. Sixes dropped to 95 on March 20, a decline of 25 percent in two weeks. Philadelphia prices mirrored New York's, but the chain of debt defaults there was not as great as in Manhattan, where speculators were more highly leveraged. (See Figure 2.)

Crisis Containment

On March 11 or 12, Duer informed Hamilton by letter of his default. He provided a sort of Enron-type explanation of his fall: "The Fact is that I have been compelled to do it, with Respect to a certain Description of Notes, which were issued by my agent during my absence from this City—the Circumstances are too long and too Painful to detail." Hamilton wrote back briefly on March 14, advising Duer to "act with *fortitude* and *honor*."[40] On March 19, Hamilton's old friend Robert Troup wrote from New York that "Duer's total bankruptcy will affect the public interest by bringing the whole funding system into odium."[41] Hamilton hardly needed to be reminded that the panic threatened to undo the financial revolution he was directing, and he already was doing all he could to disarm the threat.

That very day, in fact, Hamilton wrote to Seton to begin a series of lender-of-last resort operations that would last for several weeks. After reassuring Seton that the BUS would "maintain the most perfect & confidential communication with your institution & . . . cooperate in mutual & general accommodation," he urged the BONY to consider "how much more can be done in favour of parties who can pledge *public Stock* as collateral security. This foundation of Credit," he reminded Seton, "you are sure is a good one." He also intimated that the bank could "boldly accommodate" New York merchants who owed the government money

[39] Ibid.; PAH, 11: 112–13.
[40] PAH, 11: 126, 131.
[41] Ibid., 157.

under customs bonds, "under an assurance that the money shall in no event be drawn out of your hands in less than three Months, unless perfectly agreeable to you."[42]

Also on March 19, Hamilton reminded the BUS that the collector of customs duties in its district had been authorized to receive post notes of the BUS with a maximum maturity of thirty days "upon equal terms with cash," and he encouraged the BUS "to make operations payable in such notes, which might not be convenient if payable immediately in specie or cash notes." He added that it was "particularly desirable, at the present crisis, that every reasonable accommodation should be afforded," especially to those who owed the government money.[43]

Hamilton's day was not yet done, as he also initiated open-market purchases. The following day, March 20, Hamilton wrote fellow sinking-fund commissioners Adams and Jefferson that they "may have heard that the Treasurer was in the Market last night and may be at a loss concerning his authority," which, Hamilton explained, was a little over $50,000 left unexpended from the previous summer's authorization. In a crisis, act first, explain later. Hamilton also called the sinking-fund commissioners—himself, Jefferson, Adams, Randolph, and Jay—to meet the following day to make further authorizations. Jay was absent, performing his judicial duties in New York, and the other four divided evenly on a fine point of what the sinking-fund law allowed. Adams and Hamilton favored action, while Jefferson and Randolph wanted to delay action until Jay returned from New York to vote, or at least to explain to the other commissioners what the law meant when it said purchases could be made at prices "not exceeding the par or true value thereof." Time was lost in conveying the question to Jay, who did not formally give his opinion that "true value" meant market price until March 31.[44]

Jay wrote Hamilton informally from New York on March 23 to ask for clarification of the issues and to report that Duer's misfortunes "have affected all money operations here, and I believe it is still doubtful whether any favorable change *likely to last*, will soon take place."[45] While waiting for Jay, Randolph joined Hamilton and Adams on March 26 in authorizing a further $100,000 of open-market purchases of sixes at par, because it was thought "necessary to operate immediately, if at all." Hamilton had probably advised his fellow commissioners of the gravity of the situation and persuaded Randolph to support authorization of the purchases.[46]

[42] Ibid., 155.
[43] PAH, 26: 651–52, a letter that surfaced after publication of PAH 11 in 1966.
[44] PAH, 11: 214–16.
[45] Ibid., 172–73.
[46] Ibid., 193.

Jefferson—the leader of the Republican opposition to Hamilton's policies, although still a member of Washington's cabinet—continued to object, and he objected again when the sinking-fund commissioners on April 4 authorized, based on Jay's opinion, purchases of threes at prices up to 60 percent of par and of deferreds at 62.5 percent of par. Jefferson later wrote that his dissents from the sinking-fund open-market purchase authorizations of March and April 1792 were based on his opinion that the "true values" of threes and deferreds were lower than their market prices.[47] More likely, Jefferson objected because he wanted to injure Hamilton and the political party and financial revolution he led. The political rivalry of Jefferson and Hamilton was a year old by the spring of 1792, and it would become much more intense over the next few months.[48] Jefferson's delaying tactics, though, had little effect. While waiting for Jay's opinion to persuade Randolph to join the sinking-fund commissioners' majority in favor of open-market purchases, Hamilton invented other ways to alleviate the crisis.

Even before the sinking-fund commissioners began to dither, Seton tacitly admitted to Hamilton that the BONY looked to protect itself in the crisis. In Duer's failure, Seton explained, "so many were tainted it is next to impossible to say whom can be counted on again in advance." The state of credit was "so deranged, and the evil resulting from the Creating of this Mass of artificial credit supported only by usurious Loans is so universal," he further explained, "that there is no forming a judgment of the evil situation of individuals." Obviously unaware of the deliberations of the sinking-fund commissioners, he then suggested that open-market purchases in New York would prove salutary.[49] Hamilton would have liked nothing more, as his remarkable letter, not in the public domain until 2005, to Seton on March 22 made clear. In that letter, Hamilton formulated Bagehot's rules eighty-one years before Bagehot. In his 1873 book *Lombard Street*, Bagehot had written:

> And with the Bank of England, as with other Banks in the same case, these advances, if they are to be made at all, should be made so as if possible to obtain the object for which they are made. The end is to stay the panic; and the advances should, if possible, stay the panic. And for this purpose, there are two rules:—First. That these loans should only be made at a very high rate of interest. . . . Secondly. That at this rate these advances should be made on all good banking securities, and as largely as the public ask for them. The reason is simple. The object is to stay the alarm, and nothing therefore should be done to cause alarm. But the way to cause alarm is to refuse some one who has good security to offer. . . . If it is known

[47] Ibid., 224–25, n2.

[48] Ibid., 158–61, 172–75, 193–94; Forrest McDonald, *Alexander Hamilton: A Biography* (New York, 1979), 244–49.

[49] PAH, 11: 163–64.

that the Bank of England is freely advancing on what in ordinary times is reckoned a good security—on what is then commonly pledged and easily convertible—the alarm of the solvent merchants and bankers will be stayed.[50]

Here, in part, is what Hamilton advised Seton:

> I need not tell you how much I have participated in the distress of your City. . . . I should have come to your aid on the spot but for a difference of Opinion among the Trustees of the Sinking Fund. I am now in the market—and hope if necessary to be enabled to come into it with more power—Mr. Jay has been sent for—This rather in confidence or only for discreet communication. If your distress continues would not the following plan be advisable for your institution? Let deposits of Stock be received to an amount not exceeding a million—Six per Cents at *par* three per Cents at 10 shillings on the pound and deferred at 12 shillings—Let credits be passed on your books in favor of the Depositors for the amounts, according to those values, transferable at the Bank as in the case of deposits in the Bank of Amsterdam. . . . Let the terms of the deposit be that the Depositors may withdraw their Stock at any time paying in specie the sums credited whenever the Credits have been transferred—with a right to the Bank after six months to sell the Stock and pay them the overplus. Let the Bank engage at the end of six months to pay the amount of these Credits in Gold or Silver; for the undertaking which let them receive a compensation in Interest at the rate of 7 per Centum per annum. I take it for granted in the prevailing disposition of your City, transfers of these Credits under the promise of the Bank to pay in Specie at the end of six months would operate as Cash in mutual payments between Individuals—while the Bank would be safe from the danger of a run & undoubtedly safe eventually. To render the operation more perfectly safe to the Bank, I will engage at the expiration of six months to take off your hands at the rate specified to the amount of 500,000 Dollars—in case the parties should not redeem & there should be no adequate demand. Which however is not supposeable. I have thought a good deal of this plan & I really believe it is a good one & will tend to obviate the necessity of ruinous sacrifice of the Public Stock by parties indebted—Such as it is however I give it to you. Perhaps a change in your affairs for the better may render it unnecessary.[51]

Here Hamilton exhibits financial creativity of an uncommonly high order, as well as an instinct for what needed to be done in a crisis, namely,

[50] Walter Bagehot, *Lombard Street: A Description of the Money Market* (London, 1873), 96–97.

[51] Ned Downing, a collector of scripophily and former stockbroker, owns Hamilton's original letter, which is missing in PAH. Downing several years ago graciously shared the letter with the authors before publishing it (with a typo—"? per Centum" instead of "7 per Centum") in an appendix to the chapter he contributed to William N. Goetzmann and K. Geert Rauenhorst, eds., *The Origins of Value* (New York, 2005), 271–98.

as Bagehot later argued, to lend on what in normal times is considered good security (U.S. government bonds), but at a "penalty rate" of 7 percent (the New York usury ceiling), when the normal rate of discount for banks was 6 percent. Hamilton placed a limit of $1 million on these credits, but $1 million was quite a large sum in 1792, and even the Bank of England in Bagehot's day, as well as before and after, did not have the capability of unlimited lending. Moreover, Hamilton realized that Seton and the BONY would be reluctant to lend in the panic. So, after naming the prices of securities to be allowed in collateralizing bank loans, Hamilton combined his Bagehot-like plan with a repurchase (repo) feature. Should the BONY for whatever reason get stuck with the collateral, the secretary of the Treasury would take at least half of it off the BONY's hands at the prices he had named. But Hamilton thought that eventuality "not supposeable," or in other words, highly unlikely.

Seton reported to Hamilton on March 26 that "our Directors have given out that they will discount on a Deposit of Stock," and "the Large Dealers in Stock are to have a meeting this Evening and it is reported will enter into an absolute agreement not to draw out any Specie from the Banks for 3 Months to come—So that from tomorrow I hope the prospect will brighten." He also reported that the Amsterdam loan (discussed below) gave "most universal satisfaction."[52] The next day, Philip Livingston, who seems to have been a trusted New York agent of the Treasury secretary in Philadelphia, confirmed that the meeting of bond dealers had taken place, that the dealers would collateralize U.S. bonds at the prices Hamilton had suggested, and that they would cooperate in the crisis by not acting to drain specie from banks.[53] When the New York branch of the BUS opened on April 2, it too discounted, according to a local businessman, "pretty liberally."[54] The new U.S. central bank, having initially contributed to the bubble, began to contribute to the alleviation of the bubble's collapse.

In the interim, Hamilton authorized Seton to make open-market purchases for the sinking fund. The private letter was dated March 25, before the sinking-fund commissioners had formally voted to approve the purchases, so Hamilton advised Seton not to "declare on whose account you act." "It will be very probably conjectured that you appear for the Public," Hamilton predicted, "and the conjecture may be left to have its course but without confession." Hamilton also told Seton to announce that the U.S. government had "effected a loan for Three Millions of Florins [$1.2 million] at 4 P Cent Interest on account of the

[52] PAH, 11: 194–95.
[53] PAH, 26: 663, another letter that surfaced after PAH 11 was published. Emphasis added.
[54] Davis, *Essays*, 309–10.

United States" in Amsterdam.[55] As noted above, the next day the sinking-fund commissioners authorized purchases of $100,000 of public-debt securities.

On March 28, Hamilton requested John Kean, cashier of the BUS in Philadelphia, not to "draw out from the Bank of N America any further *sum* without a previous communication to me."[56] Apparently, the BUS home office was competing, rather than cooperating, with the other Philadelphia bank in the crisis, a definite no-no, and Hamilton had to whip it into line. The next day, Hamilton requested the Bank of Maryland to extend credit to merchants having duties to pay and simultaneously informed the institution that he promised to "leave a sum of money equal thereto in your hands, for sixty days after the dates of the notes." In other words, the government would deposit with the Bank of Maryland the money it needed to make loans to merchants to pay their duties into the Treasury. To make sure that the bank got the message, he reiterated his proposal in another letter dated April 10 and made a similar proposal to the BUS on the same day.[57]

On April 4, Hamilton authorized Seton to make more open-market purchases in New York. He left its disposal to Seton's discretion but suggested that, rather than apply the entire $50,000 at once, he should hold it until another shock. "To relieve the distressed and to support the funds are primary objects," he reminded his agent. On April 9 and 11, Seton wrote that "every thing is still going down Hill," and that the consensus opinion was that "this week will be the most distressing period of any." He therefore heeded Hamilton's advice and held off making purchases. He also informed Hamilton that the BONY continued to "discount twice a week on a deposit" of federal bonds "& has very considerably by this means extended its loans." "But so many failures are daily happening" that, Seton feared, "many of the loans are in jeopardy," and he beseeched Hamilton to increase his purchase authorization limit.[58]

On April 12, Hamilton trebled the authorization for open-market purchases and reiterated another of his tactics, one that apparently had not been implemented, for crisis containment:

> All parties concerned to agree to *liquidate* all contracts not executed by stating Stock at a liberal value say 22/6 [115 percent of par] for 6 P Cents 12/ [60 percent of par] for three's 13 [65 percent of par] for deferred—to adjust all differences according to the actual differences between these rates and the sums stipulated & to pay and receive

[55] PAH, 11: 190–92.
[56] PAH, 26: 665.
[57] PAH, 11: 263; 26: 665–68.
[58] PAH, 11: 225, 257–58, 263–64.

> those differences in Stock at the above prices. Many good consequences would have arisen from such a plan. I think it might have parried misfortune. I fear it is now too late but something like it may perhaps break the force of the Evil.[59]

Seton reported on April 16 that he had made all the purchases authorized and allocated them widely to accommodate "upwards of 80 persons, from which you may form a judgment that your orders for purchase were well timed—at the same time it is an evidence of the great and universal distress which prevails, which I am sorry to say is such that it would be utterly impossible to make purchases equal to the relief." But the worst had passed, and Hamilton knew it, although Seton did not. While Seton continued to fret and expect worse to come, Hamilton wrote William Short, the U.S. government agent in Amsterdam, that the panic of 1792 was almost over. "The specie is returning from the Country and the heaviest private engagements having now fallen due," Hamilton explained, "the declension of Stock may be considered as arrested." He predicted that "changes of a favorable complexion" would soon appear and "afterwards such as will carry the funds up to their due value."[60] As usual, Hamilton was right: market distress virtually disappeared after mid-April 1792.

The 1792 purchases turned out to be roughly $100,000 less than had been expended during the smaller crisis of 1791, because such purchases were only one component of crisis containment that Hamilton now had at his disposal. He had more banks, including the BUS, to cajole into granting discounts to those who needed credit to pay customs duties falling due and other important obligations. He also employed news of the Dutch loan to the United States to reassure the markets of the strength of the government's finances and the more attractive yields available in domestic U.S. markets. And finally, while inventing Bagehot's rules, he coordinated a clearing-house type of arrangement among New York securities dealers and bankers. The arrangement called for lender-of-last-resort loans to dealers on good security at a penalty rate. At the same time, the agreement of the New York dealers to accept Hamilton's plan provided for economizing on the amount of bank-specie reserves needed to support a given amount of credit, and it imposed sanctions on those who did not abide by the agreement. By employing all of those tools, more or less simultaneously, Hamilton ended the crisis in roughly one month.

As in 1791, Hamilton initially funded the open-market purchases of 1792 with loans from domestic banks, which he later repaid with money

59 Ibid., 266, 272–73.
60 Ibid., 288–91.

borrowed mostly from the U.S. government's Dutch bankers.[61] He minimized political controversy by emphasizing that the purchases were made to reduce the national debt, a policy nearly all congressmen of either party supported, not to alleviate a financial crisis in the United States' nascent securities markets. Had Hamilton admitted that his interventions were intended to relieve the distress of speculators, it would have triggered charges of a government-led bailout and further incited Republican opposition to Federalist policies. Even today, central-bank crisis interventions provoke charges of a bailout for financiers.

Consequences

The panic of 1792 barely fazed the U.S. economy. Industrial production and the gross domestic product grew every year from 1790 to 1796.[62] The financial system remained remarkably stable after April 1792. The United States did not suffer a bank failure until 1809, nor did it undergo another systemic peacetime financial crisis until 1819. In part, early U.S. financial stability resulted from similar crisis-management interventions by Hamilton's successors, Oliver Wolcott and Albert Gallatin, who had witnessed and understood the beneficial effects of Hamilton's actions in 1791 and 1792, and had acted in conjunction with the BUS to alleviate later crises when they threatened.[63]

If Alan Greenspan was the central-bank "maestro" of recent decades by not allowing any major negative effects on the U.S. economy to result from the crash of 1987, the Russian/Long-Term Capital Management (LTCM) crisis of 1998, the collapse of the securities-market bubble after 1999, or the September 11, 2001, terrorist attacks, then Alexander Hamilton in 1791 and 1792 was the "virtuoso." Unlike Greenspan, Hamilton did not have a history of financial-crisis management to draw on, although he was a penetrating student of financial history. Hamilton went about inventing crisis-management tactics in what can only be regarded as a masterful way. In doing so, he saved the financial revolution that was a component of his larger plan to enhance the economic and political power of the young United States.

At the same time, Hamilton's crisis management in 1791 and 1792 may illustrate the moral-hazard problem inherent in financial-crisis management. By coming to the aid of the markets in 1791, Hamilton may have encouraged the speculative bubble of 1792 by making market participants believe that there was something like a "Hamilton put" on

61 Elliott, *Funding System*, 197.

62 Davis, "A Quantity-Based Annual Index"; Johnston and Williamson, "What Was the U.S. GDP Then?"

63 See Cowen, *Origins and Economic Impact*, 153–59.

the table. Two centuries later, it was said that Greenspan's actions in dealing with the Asian, Russian, and LTCM crises of the 1990s created a "Greenspan put" that fueled the so-called dot.com bubble of the late 1990s. When that bubble collapsed, Greenspan's Federal Reserve drove interest rates to such low levels that it was accused of fueling the housing bubble that burst in 2006, with major negative financial ramifications in 2007 and beyond. Effective management of a financial crisis, in other words, may sow the seeds of another one.

After 1792, however, the United States did not suffer another financial crisis until 1819, despite the turmoil of the French Revolution and the Napoleonic Wars. Evidently the moral hazards of Hamilton's interventions in 1791 and 1792 were not large. It helped that major speculators like Duer lost almost all their wealth and ended up in debtors' prison, a cruel reminder to all who would try to get rich quick.[64] In contrast, Duer's modern counterparts, leaders of major financial institutions suffering large losses from unwise risk-taking with other people's money, have walked away with large severance payments after being fired from their jobs.

Regrettably, Alexander Hamilton, who led a busy yet short life, never wrote down for the benefit of posterity a definitive account—based on his thinking, actions, and results of those actions—of how a responsible authority ought to act in a financial crisis. Nor did others who knew much of what Hamilton was thinking, doing, and directing others to do, such as Samuel Meredith or William Seton, publish any accounts of what happened in 1791 and 1792. Because the Americans of the 1790s did not do that, central-banking history credits British writers with developing central-bank crisis-management theory. John Wood's recent history of central banking in Britain and the United States notes, as have others, that Sir Francis Baring, English merchant banker, applied the term *dernier resort* to the Bank of England in 1797. A few years later, in 1802, English banker Henry Thornton laid down a rule of behavior he thought proper for the Bank of England during a crisis.[65] Those early English writers, who may have been influenced by what the Bank of England did and did not do in English financial crises of their era, are often thought to have been the anticipators of Bagehot, who more clearly laid down the rules for central-bank crisis containment in 1873.[66] Until recently,

[64] Bruce Mann, *Republic of Debtors: Bankruptcy in the Age of American Independence* (Cambridge, Mass., 2003).

[65] John H. Wood, *A History of Central Banking in Great Britain and the United States* (New York, 2005), 27, 44.

[66] The Bank of England in the eighteenth century never reported that it had made any attempts to alleviate financial crises with lender-of-last resort interventions. But in the latter part of the century it may have intervened in that way without admitting it. Michael C. Lovell, "The Role of the Bank of England as a Lender of Last Resort in the Crises of the Eighteenth Century," *Explorations in Entrepreneurial History* 10 (Oct. 1957): 8–21.

no one could have been aware that Hamilton had formulated the essence of Bagehot's rules in 1792. Since British investors were active in the U.S. markets in 1792, it is possible that accounts of their experiences made their way back to England. But there appears to be no evidence in the writings of either Baring or Thornton that they were aware of the U.S. events.

Hamilton's role in establishing the New York Stock Exchange was also forgotten long ago. On May 17, 1792, twenty-four of New York's broker-dealers met under a buttonwood tree on Wall Street and signed an agreement to trade with each other on preferential terms. No fewer than ten of the twenty-four Buttonwood signers were named in Seton's account of those from whom he bought securities at Hamilton's direction in April. Some of the securities dealers also likely cooperated with each other and with the BONY to implement Hamilton's March 22 plan to alleviate the crisis by extending bank credit on securities collateral. It seems possible that, by fostering a spirit of cooperation during crisis among members of the New York financial community, Hamilton's plan might have paved the way to the foundation of the New York Stock Exchange. The brokers' club of May 1792 definitely introduced an improved trading technology for securities markets. Hence, the panic of 1792 very likely resulted in institutional changes with long-run benefits for the development of U.S. securities markets.[67]

Like the Continental Army in which he had served during the Revolution, Hamilton snatched victory from the jaws of defeat in 1792. Unlike the American revolutionary battlefield victories, however, the details of Hamilton's financial victories during the crises of 1791 and 1792 have taken more than two centuries to come to light.

[67]We compared Seton's list with the Buttonwood-agreement signers as given in Walter Werner and Steven T. Smith, *Wall Street* (New York, 1991), 212. Richard Sylla, "Origins of the New York Stock Exchange," in *Origins of Value*, ed. Goetzmann and Rauenhorst, 299–312.