CHAPTER 17

American Monetary Standard

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17.1 Unit of Account

Until the mid-1790s the monetary system of colonial times continued to exist in its basic form in the United States. The most important feature of that system was the dichotomy between the medium of exchange and the unit of account. The "Spanish dollar"—a silver coin produced in Mexico and Peru as well as Spain, and therefore sometimes called the "Mexican dollar"—was the dominant coin in transactions. Known in Spanish as the peso or piastre, it was termed the "dollar" or "piece of eight" in England and the colonies. The word "dollar" is a corruption of "thaler," an abbreviation of "Joachimsthaler," a silver coin produced in 1517 in a Bohemian county of the same name.[1] The smallest subdivision of the peso was the "real," one-eighth of a dollar. The term "piece of eight" flowed naturally for the entire peso.[2]

In contrast, the unit of account was based on the English system of pounds(£), shillings (s.), and pence (d.), where £1 = 20s. and 1s. = 12d.The phrase "based on" rather than "equivalent to" is used advisedly, because "a shilling from the British mint was not a shilling in any colony" (Carothers 1930, p. 34). Instead of a national, homogeneous, standard

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of value, the individual states, as the colonies before them, had their own units of account. For example, a British shilling (1 s.) was equal to 1s. 6d. in Massachusetts but 2s. in New York (Carothers 1930, pp. 34, 47; Stewart 1924, p. 19).

These properties of the colonial monetary system continued to exist after General Cornwallis surrendered at Yorktown in 1781, ending the American Revolutionary War, and even after the Articles of Confederation were superseded by the US Constitution in 1789. However, reform of the standard of value was on its way. In 1782 Robert Morris, Superintendent of Finance under the Confederation (equivalent to Secretary of the Treasury under the Constitution), submitted a report—in response to a directive from Congress but apparently already completed and by his assistant, Gouverneur Morris (no relation—that recommended a decimal system of currency, with "units" (mills), "cents" (100 units), and "marks" (1000 units). Morris understood the concept of a unit of account; for he notes that "there is no necessity that this money unit be exactly represented in coin."[3] Morris was the first author in history to suggest a monetary framework (unit of account and medium of exchange) based on a decimal system.

The monetary reform of Congressman Thomas Jefferson, probably writing in 1783, also involved a decimal system, with the dollar as the basic unit, a "tenth (of a dollar]" or "bit," forerunner of the dime, and the smallest coin a copper "hundredth [of a dollar]," what would be called the cent.[4] The Jefferson plan was embodied in a report dated May 13, 1785, of the Congressional Committee on Finance ("Report of a Grand Committee on the Money Unit"), which also allowed for a copper piece of l/200th of a dollar. The first legislation on the subject occurred on July 6, 1785, when Congress resolved that the money unit of the United States should be the dollar with a decimal system of coinage ("the several pieces shall increase in a decimal ratio") and smallest coin a copper l/200th of a dollar. It was followed by the Act of August 8, 1786, which specified "that the money of account…proceed in a decimal ratio," with mills (1000 to the money unit), dimes (ten to the unit), cents (100 to the unit), and dollars (the money unit).[5]

On April 15, 1790, the House of Representatives directed that Alexander Hamilton, Secretary of the Treasury, prepare a report on the establishment of a mint. Hamilton reported to the House on January 28, 1791, with a recommendation for a decimal system of account implicit in his coinage: the dollar, "tenth part" of the dollar, and "hundredth part"

of the dollar (and also a "two-hundredth" part of the dollar).[6] Still, the standard of value remained as it had been in colonial America.

Finally, on April 2, 1792, Congress passed the Mint Act, which declared that "the money of account of the United States shall be expressed in dollars or units, dismes or tenths, cents or hundredths, and milles or thousandths." The decimal system was adopted! Further, for implementation: "all accounts in the public offices and all proceedings in the courts of the United States shall be kept and had in conformity to this regulation."[7] As commented by Stewart (1924, p. 18):

> At one fell swoop with a few chosen words the English system of accounting with pounds, shillings, and pence that had been used by the people under the Colonial government of Great Britain and continued after the Declaration of Independence, as a matter of necessity down to the passage of this momentous Act of Congress, was obliterated as far as public records were concerned.

It took until about 1800 for the private sector to follow the government and courts in moving to the uniform national decimal accounting system from their states' specific pound-shilling-pence units of account.[8]

17.2 Metallic Content of the Dollar and Coinage Denominations

It also took a long time for the United States to reform the media of exchange that it inherited from colonial times. The new nation continued to rely on foreign coin, with the Spanish dollar and its fractional parts dominant. This dollar was rated by the individual states at differing values in terms of the local unit of account (although some valuations were common to several states—Stewart 1924, p. 19). A silver standard was in effect, then, and its basis was the Spanish dollar. It is true that the dollars in circulation tended to vary greatly in weight and fineness (ratio of pure metal to total weight). This was because of the practice of sending the full-bodied coins abroad to settle balance-of-payments deficits, the lack of quality control at the Spanish mints in Mexico and Peru, and the private clipping and sweating of coins (in order to remove particles of silver prior to recirculation). Yet a dollar coin, irrespective of its condition, was acceptable "by tale" everywhere in the United States (as it had been in the colonies), that is, at its full assigned nominal value in local

currency. While some gold coins did circulate, they were rated in dollars according to actual pure metal content.[9] This practice also dated from colonial times.[10]

The reform offered by Robert Morris involved a silver standard with the money unit only 0.25 grain of silver and equal to l/1440th of the Spanish dollar.[11] The largest-denomination coin, the mark, would equal 1000/1440th of the dollar. The number 1440 was selected so that the shilling of each state (excluding South Carolina, an outlier due to paper-money inflation) could be converted into the smallest whole number of units based on the state's valuation of the Spanish dollar. Thus Morris would effect a reconciliation of the Spanish dollar, the new national unit, and the individual states' existing units of account. "The Morris plan was not only ingenious, but the most cumbersome scheme for coinage ever devised by Man" (Taxay 1966, p. 16).

In contrast, Jefferson advocated as the monetary unit the dollar, equal in value to the Spanish dollar and composed of 365 grains of pure silver (purported to be the fine-metal content of the newest Spanish dollar). He would coin also a silver half-dollar and lesser denominations, along with a $10 gold piece. Thus there would be a bimetallic standard, and the gold/silver price ratio (ratio of silver to gold per dollar coinage) would be set at 15. The British fineness (ratio of pure metal to total weight) of 11/12th would be adopted. The Finance Committee report of 1785 modified Jefferson's plan, principally by having a 362 rather than 365-grain silver dollar and a $5 rather than $ 10 gold coin. It was followed by three reports on coinage and a mint, produced by the Board of Treasury, that took over the responsibilities of the Superintendent of Finance after Morris resigned. The Act of August 8,1786 was heavily influenced by these reports.[12]

On October 16, 1786, Congress passed its first bill to establish a mint, in accordance with the Act of August 8, 1786, which authorized the coinage of a silver dollar and half-dollar, and a $10 gold piece, called the eagle, and a half-eagle, plus smaller denominations. Table 17.1 assembles all legislation and practice on the gold and silver value of the dollar from the first Mint Act to 1934. The final column of Table 17.2 presents the most important element in Table 17.1, the fine-metal content of the dollar, to the present day.

The specified amount of fine (pure) metal in a coin is the product of the standard fineness and standard weight. The standard fineness is the stipulated proportion of the weight consisting of pure metal, the

remainder being alloy and considered worthless. The standard weight is the specified gross weight (pure metal plus alloy). Gold or silver of standard fineness is called "standard gold" or "standard silver." It is the relative amount of fine metal in gold and silver coins for a given valuation (say, a dollar) that defines the gold/silver price ratio (called the mint ratio), which was 15.25 under the 1786 legislation. However, except for a few copper pieces produced by a private contractor, the legislation was not put into effect and the mint was not established.

Yet the impetus for change was strong. In his report of January 1791, Hamilton investigated the specie market value of the Spanish dollar in the United States. Merchants valued the dollar at 24.75 grains of fine gold, while examination of the existing dollar coins in circulation revealed a gross weight of 416 grains on average and a fine weight of 368 and 374 grains for the two most recent dollars minted. These figures yield market gold/silver price ratios of 14.87 and 15.11, leading Hamilton to suggest a mint ratio of 15, resulting in a dollar of 24.75 grains of pure gold and 371.25 grains of pure silver. With fineness of 11/12th, standard weights would be 27 grains for the gold dollar and 405 for the silver.[13] Hamilton also recommended the minting of a $10 gold piece but not a half-dollar silver coin. The reverse coinage was inconceivable. Given the high valuation of gold relative to silver, a $10 silver coin would have been much too large and a half-dollar gold coin too small.

On March 3, 1791, Congress ordered that a mint be established, and on April 2, 1792 it passed the second Mint Act in US history but the first under the Constitution. Relying heavily on Hamilton's recommendations, Congress nevertheless deviated from them in authorizing the coinage also of gold half-eagles and quarter-eagles and of silver half-dollars and quarter-dollars. Also, incredibly, it legislated a cumbersome fineness of the silver dollar, at 1485/1664th (see Table 17.1).[14]

The first coinage of the mint consisted of experimental half-dimes, probably produced in July 1792.[15] While coinage of minor copper coins began the following year, gold and silver could not be processed until the assayer and chief coiner posted a $10,000 bond, under the Mint Act, and the appointees were unable to do so. Thomas Jefferson as Secretary of State wrote to President Washington about the problem, and on March 3, 1794 Congress reduced the amount of the bond required.[16]

With the posting of bonds, the mint could effectively function. The first deposit of bullion (which was silver), however, did not take place until July 1794, and its coinage was completed on October 15.[17] This began

Table 17.1 Gold and Silver value of American Dollar, 1786–1934

Authority	*Date*	*Type of Specification*	*Gold Dollar*			*Silver Dollar*			*Gold/Silver Price Ratio*[a]
			Fineness	*Weight (grains)*		*Fineness*	*Weight (grains)*		
				Standard	*Fine*		*Standard*	*Fine*	
Congress	August 8, 1786	Legal	11/12	26.8656[b]	24.6268[b]	11/12	409.7891	375.64	15.25
Congress	April 2, 1792	Legal	11/12	27[b]	24.75[b]	1485/1664	416	371.25	15.00
US Mint	October 15, 1794[c]	Practice	11/12	27[b]	24.75[b]	9/10	416	374.4	15.13
Congress	June 28,1834[d]	Legal	116/129	25.8[b]	23.2[b]	1485/1664	416	371.25	16.00
Congress	January 18, 1837	Legal	9/10	25.8[b]	23.22[b]	9/10	412.5	371.25	15.99
Congress	February 12, 1873	Legal	9/10	25.8	23.22	–	–	–	–
Congress	February 28, 1878	Legal				9/10	412.5	371.25	15.99
Congress	March 14,1900	Legal	9/10	25.8	23.22				
President	January 31, 1934	Legal	9/10	15 5/21	13 5/7				

[a] Ratio of fine-silver to fine-gold content of dollar
[b] Weight of gold dollar is 1/10 of eagle ($10 gold piece)
[c] Terminated October 28, 1795
[d] Effective July 31,1834
Sources Huntington and Mawhinney (1910, pp. 475, 496–7, 502, 534–5, 579, 610), *International Monetary Conference* (1879, p. 450), Krooss (1969, p. 2805), Select Committee on Coins (1832, p. 17)
Congress = Act of Congress
President = Presidential Proclamation

an amazing episode in American monetary history. For over a year—overlapping the tenure of two directors of the mint—silver was coined at a convenient fineness of 9/10th rather than the slightly lower fineness of 1485/1664th specified by law (see Table 17.1). The practice was quite deliberate, though with the expectation that the law would be changed to correspond to mint practice. Instead, in the short run, the mint practice changed to correspond with the existing law; for, when the third mint director took office on October 28, 1795, he ordered that the legislated fineness be followed.[18] However, 42 years later, the law would be amended to conform to the 1794–1795 mint practice.

On June 28, 1834 Congress passed legislation (effective July 31) that drastically changed the mint ratio, from 15 to slightly over 16. The silver dollar was left unchanged, but the standard and fine weights of the gold dollar were reduced non-proportionately, resulting in an unwieldy fineness of the gold dollar (I16/129th) to accompany that of the silver dollar (1485/1664th). These deficiencies were removed with the legislation of January 18, 1837, when the fineness of both gold and silver coins was changed to 9/10th, the former by increasing the fine metal in a dollar's worth of coin, the latter by reducing the standard weight of a silver dollar. The mint ratio now moved slightly below 16.[19]

The *mint price* of gold or silver is the value of domestic money that the mint will coin per physical unit of bullion deposited with it. The standard weight of the gold dollar established in the legislation of 1837 was to remain until 1934 (see Table 17.1). From the standard weight, one can obtain the mint price of standard gold: the price per "standard ounce" (meaning ounce of standard fineness) at which bullion is converted into coin at the mint. From 1837 to 1934, the mint price of standard gold was $18.604651+ per ounce, obtained as the ratio 480/25.8, where the numerator is the number of grains per ounce, the denominator the standard weight of the dollar in grains, and " + " represents additional decimal places. Taking 10/9th of that price, where 10/9th is the reciprocal of the standard fineness, the mint-price equivalent per ounce of fine gold was $20.671834+.

The Act of March 3, 1849 authorized coinage of gold dollars and double-eagles ($20 coins). The former was not popular, in part because of its small size, in part because of the introduction of subsidiary silver coinage in 1853 (see Sect. 17.3), with less than $20 million produced in total until the coin was discontinued by the Act of September 26, 1890. The Act of February 21, 1853 allowed for coinage of a $3 gold

piece, an unusual denomination that also was discontinued by the 1890 legislation, with less than $2 million having been struck. In contrast, the double-eagle was enormously successful, and the preferred coin of those engaged in international gold operations (see Officer 1996, Sect. 2.2.1(2) of chapter 9); almost $3.5 billion of this coin was produced in total. The Act of February 12, 1873 summarized the coinage authorizations and standards for gold. Both this act and that of March 14, 1900 are distinguished by defining the dollar directly in terms of gold, whereas all earlier legislation had established the weight of the gold dollar implicitly via the eagle.[20].

Even World War I did not disturb the established weight of the gold dollar. However, the Act of May 12, 1933 authorized the President to reduce the gold content of the dollar to a minimum of 50% of its existing weight. Subsequently, the Gold Reserve Act of January 30, 1934 amended that provision by authorizing the President by proclamation to fix the weight of the dollar at any level between 50 and 60% of its current weight. On January 31, 1934 President Roosevelt reduced the weight of the dollar to 59.06% of its existing level. With the 9/10th fineness retained, the fine weight of the dollar became 13.7142+ (13 5/7) grains of gold and the "mint-price equivalent" 480/(13.7142+) = $35 per fine ounce.[21]

Turning to Table 17.2, the Smithsonian Agreement of December 18, 1971 increased the price of pure gold to $38 an ounce, implying a fine gold weight of the dollar equal to 480/38 = 12.6315+ (12 12/19) grains. The final official action on the dollar/gold price occurred on February 13, 1973, when the dollar was devalued to $42.22… per ounce, equivalent to 480/42.22 … = 11.3684+ grains of pure gold in a dollar (where "…" indicates an infinitely recurring pair of numbers, in this case "22").

17.3 Legal-Tender Status of Coin

The Mint Act of 1792 established full legal tender for all gold and silver coins issued by the mint, those of less than full weight at values proportional to their weight. With the other prerequisites of a specie standard satisfied (see Officer 1996, Sect. 2 of chapter 2), bimetallism was legally installed. The Act of 1837 declared legal tender at full nominal value, with no reduced value for lightweight coin—a status received also by the new denominations of gold coin in the Acts of 1849 and 1853.

Table 17.2 Effective American monetary standards, 1791–present

Time Period	*National Standard*	*Exceptional Standard*	*Fine Metal in Dollar*[a] *(grains)*
January 1, 1791–March 2, 1794	Silver	–	371[b]
March 3, 1794–October 14, 1794	Silver	–	371.25
October 15, 1794–October 28, 1795	Silver	–	374.4
October 29,1795–August 29, 1814	Silver	–	371.25
August 30, 1814–February 19, 1817	Paper	silver (New England)[c]	371.25
February 20, 1817–July 30, 1834	Silver	–	371.25
July 31, 1834–January 17, 1837	Gold	–	23.2
January 18, 1837–May 9, 1837	Gold	–	23.22
May 10, 1837–May 9, 1838	Paper	–	23.22
May 10, 1838–October 9, 1839	Gold	paper (Philadelphia)[d]	23.22
October 10, 1839–March 17, 1842	Paper	gold (New England and New York)[e]	23.22
March 18, 1842–October 13, 1857	Gold	–	23.22
October 14, 1857[f]–December 13, 1857	Paper	gold (Alabama, Kentucky, and New Orleans)	23.22
December 18, 1857 [g]–December 29, 1861	Gold	paper (Philadelphia, Baltimore, and South)[h]	23.22
December 30, 1861–September 24, 1873	Paper	gold (West Coast)[i]	23.22
September 25, 1873–October 22, 1873	Currency[j]	gold (West Coast)	23.22
October 23, 1873–December 31, 1878	Paper	gold (West Coast)	23.22
January 1, 1879–August 2, 1893	Gold	–	23.22
August 3, 1893–September 2, 1893	Gold[k]	–	23.22
September 3, 1893–October 30, 1907	Gold	–	23.22
October 31. 1907–December 30, 1907	Gold[k]	–	23.22
December 31, 1907–April 5, 1917	Gold	paper (New York)[l]	23.22
April 6, 1917–March 17, 1922	Paper	–	23.22

(continued)

Table 17.2 (continued)

Time Period	*National Standard*	*Exceptional Standard*	*Fine Metal in Dollar*[a] *(grains)*
March 18, 1922–March 5, 1933	Gold	–	23.22
March 6, 1933–January 30, 1934	Paper	–	23.22
January 31,1934–August 14,1971	Paper	gold (official foreigners)[m]	13 5/7
August 15,1971–December 17, 1971	Paper	–	13 5/7
December 18, 1971–February 12, 1973	Paper	gold (official foreigners)[m]	12 12/19
February 13, 1973–present	Paper	–	11.3684

[a]Metallic dollar, even during periods of paper standard
[b]Average weight of two Spanish-dollar issues in circulation, as computed by Alexander Hamilton
[c]Also, silver standard continued in Ohio and Kentucky until January 1, 1815, and in Nashville, Tennessee, until August 1815
[d]Until August 13,1838. Also, banks in the South and West
[e]Also, in Pennsylvania January 15 - February 3, 1841, and elsewhere around that time
[f]Date pertains to New York. September 24–26 in Baltimore and Philadelphia. A large part of the banks in Pennsylvania, Virginia, Maryland, and Rhode Island also suspended before New York
[g]Date pertains to New York. Baltimore and Philadelphia returned to gold February 3–5, Virginia May 1, 1858
[h]Virginia, Baltimore, and Philadelphia banks suspended November 20–22, 1860, followed by St. Louis, South Carolina, and Georgia banks November 28–30. Philadelphia and Baltimore banks resumed February–March 1861
[i]Also, Ohio, Indiana, and Kentucky banks did not suspend until January 1861, March 1861, and March 1862, respectively
[j]Notes only, excluding certified checks
[k]Obtainable at par from currency only, not certified checks
[l]August-October 1914
[m]US Treasury bought gold from anyone but sold it only to foreign monetary authorities and licensed industrial users
Sources Bolles (1894, vol. II, pp. 264–5, 322, 328), Brown (1940, p. 37), Calmoris and Schweikart (1991, pp. 822–3), Chandler (1958, pp. 103–4), de Vries (1985, vol. I, pp. 66, 69), Dunbar (1904, pp. 280–4, 288, 309–10), Friedman and Schwartz (1963, pp. 7, 27, 471), Hammond (1957, pp. 227, 246–8, 481), Knox (1900, pp. 76, 504–5, 512, 514), McGrane (1965, p. 201), Mitchell (1903, pp. 40–1,141, 144–7), Nussbaum (1957, pp. 174–80), Secretary of the Treasury (1830, p. 47; 1838, p. 5; 1920, pp. 181–2; 1922, p. 72), Smith and Cole (1935, pp. 26–9), Sprague (1910, pp. 57, 67,187, 280–2; 1915, p. 528), Sumner (1874, pp. 68, 74, 140, 144–6, 151–2), Temin (1969, p. 113), Yeager (1976, pp. 65, 580–1). Also, Table 17.1 and see text

In the meantime the legal-tender status of foreign coin, particularly the Spanish dollar, required attention. After all, foreign coin had been the only coin of consequence in the colonies and the United States until the US mint began full functioning. Also, Hamilton had recommended gold and silver values of the US dollar derived from market values of the Spanish dollar, and the 1792 Mint Act had declared the value of the US silver dollar to be equal to that of the then current Spanish dollar.

Hamilton suggested a maximum three-year period for circulation of foreign coin. One month after the Mint Act of 1792 was passed, a committee was appointed to consider the role of foreign coin, leading to the Act of February 9,1793, which provided for the full legal tender of (1) gold coins of certain countries at stipulated valuations in proportion to their weights; (2) the Spanish silver dollar, if minimum weight of 415 grains, at 100 cents (that is, equal to the US dollar), and in proportion for parts of the dollar; and (3) the French silver crown, similarly treated. Three years after the mint began coinage, the date to be proclaimed by the President, all foreign coins except the Spanish dollar and its subdivisions would cease to be legal tender. The proclamation was made by President John Adams on July 22, 1797; but the termination date of October 15, 1797 did not stand, and various Acts between 1798 and 1834 continued the legal-tender status of foreign coin.[22]

The legislation addressing the legal-tender position of foreign coin was confusing and unhelpful to US monetary development. Foreign gold coins, no matter how worn, possessed full legal tender; but the dominant foreign coin, the Spanish silver dollar, was required to be at least 415 grains (with parts in proportion) to have this power. "The impossibility of weighing coins in retail trade meant that the entire mass of Spanish coins would be accepted as legal coins" (Carothers 1930, p. 67). The provisions for legal tender of parts of the Spanish, later Mexican, silver dollar were inconsistent and unclear. Irrespective of legislation, the public apparently considered all foreign coin to be full legal tender. In fact, until July 31, 1834, with the coming into effect of the 1834 mint legislation, the Spanish dollar was the dominant coin in the United States (see Sect. 17.8 below and Officer 1996, Sect. 3 of chapter 5 and Sect. 2.2.1 of chapter 9), and only in 1853, when US silver coins below a dollar became subsidiary in nature (see below), did the parts of the Spanish dollar lose substantial circulatory power. Finally, the Act of February 21, 1857 terminated the legal-tender status of all foreign coin.[23]

As mentioned, the legal position of silver coins changed in 1853, when an Act of February 21 provided for fiduciary coinage of silver pieces below a dollar, reducing their weight (but not fineness) by 6.91% and limiting their legal-tender power to $5.[24] It appears obvious that the purpose of the Act was to render a proper subsidiary coinage, and indeed that was its effect. Nevertheless, some observers see the legislation as paving the way to formal gold monometallism, even though the silver dollar coin is not even mentioned in the Act.

Watson (1899, p. 107) writes: "When this bill was being discussed in Congress, it was claimed that it would result in establishing the gold standard, and it clearly appears from the debates as published in the *Congressional Globe* that such was the evident purpose of the bill, and that there was no desire to conceal it." Laughlin (1900, p. 92) declares: "This, then, was the act which really excluded silver dollars from our currency." Myers (1970, p. 34) comments: "The debates in Congress show quite clearly that the intention of the Act of 1853 was abandonment of the bimetallic standard."

Rather, Carothers (1930, pp. 120, 136) is on the mark in stating: "it was not the intention of Congress to demonetize silver, and the law did not effect this result…the subsidiary coinage law of 1853 did not establish the gold standard and was not intended to establish it." But he does concede that "it paved the way to the gold standard." Martin (1973, p. 841) notes: "Although the Act of February 21, 1853 did not repeal completely the de jure bases of bimetallism, it did terminate de facto bimetallism in the United States."

Twenty years later, the Act of February 12, 1873 ended coinage of the silver dollar. A "trade dollar," of 420 grains, was to be coined freely (that is, from any depositor of silver bullion), but it was included with subsidiary coins and given the $5 legal-tender restriction. While the standard silver dollar was no longer to be issued, the full legal-tender power of existing silver dollars remained undisturbed. Legislation of June 22, 1874 revised the statutes so that [all] silver coins of the United States should have limited tender of $5 in any payment.[25] It was this 1874 action that accomplished the true demonetization of silver.

Nevertheless, it was the 1873 exclusion of silver dollars from coinage that is viewed as the formal end of bimetallism in the United States.[26] The Act of February 12, 1873 became known as the "Crime of 1873," and silver coinage became a domestic political issue.[27] Friedman (1990b, pp. 1165–6) shows that there was no crime in the legal sense, but the

standard silver dollar was omitted from the coinage list intentionally, deliberately to demonetize silver. The most incisive comment on the matter is made by Watson (1899, p. 119): "no one seemed to have discovered that the Act of 1873 omitted the silver dollar until some years later when the price of silver bullion began to fall. Then the agitation began in the silver States about the omission of the dollar from the act, and it was charged that a crime had been committed."

It is ironic that the move from formal bimetallism to a legal gold standard, whether in 1873 or 1874, occurred during the greenback, *paper* standard, with a dual legal and effective gold standard not reached until 1879 (see Sects. 17.4 and 17.9). Meanwhile, silver legislation proceeded. The Act of July 22, 1876 ended both the legal-tender power and the free coinage of the trade dollar. In fact, the Secretary of the Treasury terminated coinage of the trade dollar in 1878, except for trivial amounts over the next five years. Less than $36 million had been coined in total.

Free coinage of silver was never restored. The Bland-Allison Act of February 28, 1878 directed the Secretary of the Treasury to purchase $2–4 million of silver bullion monthly, to be coined into standard silver dollars of unlimited legal tender. In fact, the Treasury purchased silver in minimum amounts, and "the coins were very badly received" (Carothers 1930, pp. 282–3). The Sherman Purchase Act of July 14, 1890 changed the monthly amount of silver bought to 4.5 million ounces, with payment to be made by the issuance of Treasury notes (see Sect. 17.4). The Act of November 1, 1893 repealed these provisions, but coinage of silver dollars continued to 1904.[28]

The legal gold standard was established in the Act of February 12, 1873, which stipulated that the gold dollar of standard weight "shall be the unit of value." Consistent with the 1792 Act, US gold coins were to be legal tender in all payments at nominal value when not below standard weight and limit of tolerance, otherwise at valuation in proportion to their actual weight. The Gold Standard Act of March 14, 1900 declared the gold dollar of 25.8 grains 9/10ths fine to be "the standard unit of value." It was not until January 30, 1934, with the passage of the Gold Reserve Act, that the gold standard was legally terminated. All gold coin was to be withdrawn from circulation and no further gold coining was to occur.

17.4 Convertibility of Government/Central-Bank Paper into Coin

The first US-government paper currency convertible into coin on demand was the Treasury demand notes authorized by the Acts of July 17,1861 and February 12, 1862. By the Act of March 17, 1862 these notes were made receivable for all payments due to the United States and for all claims and demand against the United States except for interest on bonds and notes, which were to be paid in coin. Also, they were made legal tender for all payments (except for interest payable by the United States, as aforementioned).

Four Acts (February 25 and July 11,1862; January 17 and March 3, 1863) authorized the Treasury to issue United States notes, the famous "greenbacks". These legislations are called the "legal-tender acts," because, for the first time, they gave legal-tender power to paper currency (US notes and Treasury demand notes). The legal tender of US notes excluded both payment of import tariffs and interest on the public debt. The notes were not redeemable in coin until January 1, 1879, as provided by the Resumption Act of January 14, 1875.[29] The Gold Standard Act of March 14, 1900 repeated this obligation of the Treasury, and stipulated gold coin of the weight and fineness fixed in the Act, which was the standard weight and fineness.

The Act of March 3, 1863 provided a third government paper currency: gold certificates, issued in response to gold coin and bullion deposited with the Treasury and payable in such gold on demand. The amount issued could be up to 20% higher than the value of gold deposited. By the Act of July 12, 1882, (1) only gold coin was so depositable and payable, (2) the certificates were made receivable for customs, taxes, and all public dues, and (3) the certificates were to be pure warehouse receipts, with no excess of issuance over deposits.[30] The Act of March 2, 1911 extended the allowable deposits to foreign gold coin and gold bars produced by US mints or the New York assay office. The certificates were a convenience to those dealing in gold. It was not until the Act of December 24, 1919 that they were made legal tender.[31]

The fourth government paper currency was the Treasury notes of 1890. The Act of July 14, 1890 established that these notes were to be a full legal tender (except where otherwise expressly stipulated by contract) and receivable for customs, taxes, and all public dues. The notes were made redeemable on demand, in gold or silver coin at the discretion of

the Treasury. The Act of March 14, 1900 specified gold coin, of standard weight and fineness (as for US notes).

Federal Reserve notes, authorized by the Federal Reserve Act of December 23, 1913, were a central-bank currency to be redeemed in gold at the Treasury on demand. The notes were made receivable by all Federal Reserve banks, member banks of the Federal Reserve System, and national banks, and also for all taxes, customs, and other public dues. However, they were not given legal-tender status until June 5, 1933.[32]

17.5 Nature of Coinage

Coinage of private bullion has three characteristics: openness (delineation of the depositors for whom coinage would be provided), cost (with charges possible for mint expenses and for seigniorage, the monopoly profit of the mint), and speed (the duration between receipt of bullion and delivery of coin to the depositor).

Regarding openness, the Mint Act of 1792 specified free coinage (open to bullion from any person or persons) and for both gold and silver, while that of 1873 declared free coinage only for gold (with a $100 minimum) and silver trade dollars. The Federal Reserve Act of 1913 permitted Federal Reserve banks to deal in gold coin or bullion and to exchange Federal Reserve notes for gold, gold coin, or gold certificates. This provision meant, in particular, that the owner of gold bars or foreign gold coin could always convert it into American gold coin at the mint or, if a Federal Reserve bank was prepared to transact, could exchange the bullion for gold-convertible Federal Reserve notes. The Federal Reserve Bank of New York did exercise its right to purchase gold bars, and from all comers, at least from 1925 onward. Even throughout World War I, the Treasury continued its open policy of buying gold according to statute.

Turning to the mint charge, Robert Morris suggested that it be almost 3.5%, while the Acts of August 8 and October 16, 1786 set it at almost 2% for silver and slightly above that for gold.[33] The Mint Act of 1792 involved no mint charges except if the depositor and mint were to agree to an immediate exchange of coins for standard bullion, in which case there would be a charge of 0.5%. This provision was pursuant to a recommendation in the Hamilton report. The Act of June 28, 1834 repeated the 0.5% charge, but changed "immediate" exchange to payment within five or forty days, in contradictory sentences within the same section of the Act.[34]

Neither the 1792 nor 1834 Acts assessed the depositor for the cost of mint procedures to bring deposited bullion to standard: melting (required for various other procedures), assaying (determination of the fine-gold and/or fine-silver content of bullion), alloying (addition of alloy to reduce the fineness of overly fine bullion to standard), parting or separating (separation of gold from silver in bullion containing both in significant quantity), toughening (removal of metals unacceptable for coining that are intermixed with bullion), and refining (the specific processes by which parting and/or toughening take place).[35]

The Mint Act of 1837 marked an abrupt shift in the nature of mint charges. The 0.5% charge was dropped, and the only charges permitted were for separating, toughening, refining, and for the metal used for alloy, the rates to be fixed from time to time so as not to exceed the actual expense of the mint. However, the Act of February 21, 1853 added seigniorage of 0.5%, with no reciprocation of quick coinage. The Mint Act of 1873 reduced seigniorage to 0.2% (for converting standard gold bullion into coin), and the Resumption Act of 1875 eliminated seigniorage. From that time on, coinage was gratuitous (meaning no seigniorage charge for standard bullion), but the Act of 1873 specified charges for melting, refining, toughening, and copper alloy, to be fixed from time to time, at actual average cost.

The speed of coinage was dismal until the second half of the nineteenth century. In 1803 the annual report of the mint stated that the certificates for deposits of bullion were sold to the banks at 0.25–0.5% discount for delay of coinage (Bolles 1894, vol. II, p. 165, n. 4), and a 0.5% discount for about this time is noted by Stewart (1924, p. 50). In 1831 the delay in coinage was said to be two months, equivalent to an interest loss of 1% (Sumner 1874, pp. 104–5). As late as 1850, a lag of 52 days between deposit and coinage was experienced, equal to nearly a 1% loss of interest (Committee on Commerce 1850, p. 4). An additional delay and cost emanated from the location of the mint in Philadelphia, whereas the international commercial center of the country had become New York City and there was no branch mint there. In 1850 the transport cost for shipment of bullion from New York to Philadelphia was reported at 0.25%.

It is not surprising, then, that the mint was little used by private parties. For enhanced business, two reforms were needed. First, funds had to be appropriated by Congress for the mint for the purchase of bullion in advance of deposits. Without such a "bullion fund," the provisions of

the 1792 and 1834 Acts for speedy exchange of coin for bullion were inoperative: "the depositor of bullion had to wait weeks and even months for his coins" (Carothers 1930, p. 73). As early as 1797 the Committee of Congress on the mint recommended a bullion fund (Stewart 1924, p. 50), and in 1836 the Secretary of the Treasury requested that Congress authorize him to establish such a fund, even temporarily, in the amount of $100,000 (Secretary of the Treasury, 1836, p. 1). The Mint Act of 1837 directed the Secretary to keep in the mint a bullion fund of up to $1 million (when the state of the Treasury so permitted) for the purpose of paying depositors as soon as practicable after the value of bullion had been ascertained. The Act of May 23, 1850 permitted the President to transfer funds to the mint for the same purpose (Huntington and Mawhinney 1910, p. 509). A bullion fund was in fact established (Bolles 1894, vol. II, p. 514).

The second required reform was the institution of a mint branch or equivalent office in New York. The Act of March 3, 1853 provided for the establishment of an "assay office" in that city (Huntington and Mawhinney 1910, pp. 514–16). To private parties in New York, dealing with the assay office was the same as dealing with the mint, except that the element of distance and associated expense was eliminated.[36] The New York Assay Office opened for business in October 1854, and from that date dealing with the mint (via the Assay Office) was a practicable opportunity for private parties centered in New York.

The Federal Reserve Act gave the Federal Reserve banks the right to deal in gold coin and bullion and, in particular, to exchange Federal Reserve notes for gold bars. At least in the 1925–1931 period, the Federal Reserve Bank of New York purchased bars from private parties at the mint price (see Officer 1996, Sect. 2.2.2 of chapter 9). So owners of gold bars could receive for them either coin at the New York Assay Office or Federal Reserve notes (exchangeable into coin) at the Federal Reserve Bank of New York.

17.6 Provision of Bars

The Act of May 26, 1882 authorized the mints and the Assay Office in New York to provide gold bars in exchange for US gold coin, with a $5000 minimum. The Act of March 3, 1891 specified that this exchange could occur only with the approval of the Secretary of the Treasury, and

allowed the Secretary to impose a charge equal to the cost of manufacturing the bars. Finally, the Act of March 3, 1901 allowed a charge of any amount.[37]

On June 1, 1882, the 1882 Act went into effect (*New York Times*, July 2, 1882, p. 9). The bars provided by the Treasury were much prized, because they were "Assay bars," that is, bars with the fineness (also weight and value) stamp of the New York Assay Office. From March 1928, if not earlier, the bars were obtainable also from the Federal Reserve Bank of New York (see Officer 1996, Sect. 2.2.1 of chapter 9).

17.7 Convertibility of Banknotes and Bank Deposits

Though the monetary system of the American colonies extended into the United States, indeed as far forward as the 1790s (see Sects. 17.1 and 17.2), there was one respect in which the US system differed. Commercial banks did not exist in the colonies. During the Confederation period (1781–1788), three banks were established in the United States. By the end of 1790 four banks were open for business, and by the end of 1791, six. Then the growth of banking accelerated. In 1800 29 banks were operating; in 1816, 246.[38]

Historically, banks were of four types: federal, private, state, and national. Some early banks (Bank of North America, First and Second Bank of the United States) were federal in the senses that enabling legislation was by Act of Congress and the banks performed some functions of a central bank. Private banks were unchartered and unincorporated. State banks were chartered by individual states, and national banks by Congressional Acts of February 25, 1863 and June 3, 1864.[39] In 1913 the Federal Reserve Act created a true central-banking system, the Federal Reserve banks.

Because the notes issued and deposits created by banks were debts of the institution, the banks had the legal obligation of extinguishing these debts in legal tender, at par (meaning at face value, without discount) and, by contractual obligation (for notes and demand deposits), on demand. Until 1862, the only legal tender was gold and silver coin; so banks had to redeem their notes and deposits in that medium. Then there arose the concept of "lawful money," meaning money usable as legal bank reserves against note and deposit liabilities. In addition to legal-tender coin, lawful-money status was extended to US notes (Act of February 25,

1862), Treasury demand notes (Act of March 17, 1862), gold and silver certificates (Act of July 12, 1882), and Treasury notes of 1890 (Act of July 14, 1890).[40].

By the enabling legislations, the legal reserves of national banks could consist only of lawful money, and Federal Reserve notes were redeemable at the Federal Reserve banks in lawful money. While national banknotes were redeemable in lawful money at the issuing bank, the Act of June 20, 1874 provided also for their redemption, in US notes, at the Treasury, based on a 5% redemption fund (in lawful money) maintained there by the issuing banks (Huntington and Mawhinney, 1910, pp. 418–21). For state banks, acceptable legal-reserves media were determined by state legislation. In most states, not only lawful money but also national banknotes were permissible reserves (Friedman and Schwartz, 1963, pp. 21, 781–2). In sum, all banks stood ready to cash their deposits and banknotes at par in coin or in paper currency redeemable in coin.

In addition to Federal Reserve notes, the Federal Reserve Act authorized circulating notes of individual Federal Reserve banks (known as Federal Reserve banknotes). They were similar to national banknotes, but never replaced them and were not a popular currency. Although made legal tender (with Federal Reserve notes) on June 5, 1933, their issuance was terminated by the Act of June 12, 1945.[41]

17.8 Legal Versus Effective Monetary Standards

With no restrictions on the melting or use of gold and silver, all the domestic conditions for a metallic standard in general and for a specie standard in particular were legally fulfilled in the United States from 1786 onward. The one exception was a functioning mint to convert bullion into coin, which did not begin until March 1794. The lack of a mint also meant that the monetary legislation of 1786 was inoperative.

Formally, the United States was on a bimetallic standard from 1786 to 1873. However, although the Congressional legislations of 1786, 1792, 1834, and 1837 all involved a bimetallic standard, it happened that even under these laws the United States was in fact either on a gold or a silver standard but never both. The reason is that a mint gold/silver price ratio different from the market (world) ratio provides incentive for (1) the undervalued metal, whether bullion or coin, to be sold on the world market, and (2) the overvalued metal to be coined and utilized as domestic money. Indeed, if the undervalued metal is exchanged for the

overvalued one, a process of arbitrage occurs that in principle can change the market ratio so that it comes sufficiently close to the mint ratio to eliminate the incentive for the transactions. In practice, there is generally insufficient supply of the undervalued metal available domestically to alter the world ratio significantly.[42]

The "world" market gold/silver price ratio for 1791–1834 is shown in Officer 1996, column 2 of table 5.2, which may be compared to the American ratio listed in the last column of Table 17.1.[43] It was only from March 1794 that the United States possessed a functioning mint to support its legislation. So the Mint Act of 1786 was irrelevant and that of 1792 applicable only from March 1794. Until that last date, a silver standard based on the Spanish dollar reigned in the United States by default (see Sect. 17.2). From March 1794 until July 30, 1834, the American legal mint ratio, at 15—and even the slightly higher unauthorized ratio in 1794–1795—was continuously below the world ratio. This meant that gold was undervalued and silver overvalued in the United States relative to world markets, and an effective silver standard resulted, notwithstanding legal bimetallism supported by a functioning mint. Interestingly, the result was unintentional. Hamilton had recommended a mint ratio that he thought was close to market rates both in the United States and abroad, and in this he was at least temporarily successful.[44]

The situation was reversed in 1834, when Congress deliberately established a mint ratio (at 16.00) above the world ratio (15.73), so that gold would be overvalued and silver undervalued. From 1834 to 1873 the world gold/silver price ratio was consistently below 16. Beginning July 31, 1834, then, it was economically unsound for a private party to provide silver for coinage and economically sound for the party to withdraw from circulation any silver previously coined, melt it down for its metal content, sell it for gold on the open market, and present the gold to the US Mint for coinage. The only metallic standard that could effectively exist and persist in the United States was the gold standard.[45] The fact that the world gold/silver price ratio rose above 16 in 1874 is irrelevant, because in 1873–1874 silver was legally reduced to a subsidiary coinage (see Sect. 17.3) and in any event the United States was then on the paper greenback standard.[46] Five years later the United States was on not only a legal but also an effective monometallic gold standard. In summary, disregarding episodic paper standards (and eventually a lasting one), the United States was on a silver standard until July 30, 1834 and on a gold standard thereafter.

17.9 Paper Standards

Table 17.2 shows the time periods of effective monetary standards of the United States from 1791 to the present. A metallic standard, gold or silver, was subject to interruption by a paper standard. In each case the movement off specie was initiated by commercial banks "suspending specie payments" in the face of an experienced or feared increased demand for specie on the part of the public, a demand that could not be satisfied given the fractional-reserve system under which banks operated. One scenario was for the banks to run out of reserves or virtually so, to close their doors, and to declare bankruptcy. The alternative, and preferred, scenario was for the banks to refuse to pay specie for their outstanding notes and deposits at the par (dollar-for-dollar) value but nevertheless to remain open and sometimes even to expand their note and deposit liabilities. As Temin (1969, p. 115) observes: "Suspension as practiced in the nineteenth century was not bankruptcy; one might say it was an alternative to bankruptcy." For a bank to refuse to convert its note and deposit liabilities into legal tender (or, later, lawful-reserve money for national banks and legislated acceptable money for state banks) was not only in general violation of a contract but also specifically illegal in many states. However, "the laws on this matter were seldom enforced" (Temin 1969, p. 114).

With "suspension of specie payments," markets developed in which the notes of suspending banks traded at a discount in terms of specie. The existence of such markets meant that Gresham's Law was inoperative. Specie and its equivalent (notes and deposits of non-suspending institutions) circulated together with notes and deposits of the suspending institutions, but a fixed exchange rate ("parity") between the two types of money was not imposed.[47]

From 1861, with the issuance and circulation of government currency, followed by national banknotes and, after the Federal Reserve Act, central-bank currency, inconvertibility involved not only commercial-bank but also government behavior. For the government to cease to honor its redemption commitments could make the banks declare suspension. It was also true that the government standing fast could induce the commercial banks to avoid suspension. However, the existence of currency issues directly or indirectly government-guaranteed could foster banking panics by providing alternatives beyond specie for local banknotes and deposits.[48]

Suspension of specie payments did not generally occur in all regions of the country: it was not a national phenomenon. In the affected states, a floating exchange rate between (1) the paper dollar (note or deposit) and (2) specie and foreign exchange resulted. In the states where banks continued to honor the specie-convertibility commitment, the specie standard was disturbed neither within regions nor internationally but only against regions where suspension occurred. The floating exchange rate led to a currency depreciation only in those areas where banks suspended payments.

As Table 17.2 shows, widespread bank suspensions occurred in 1814–1817, 1837–1842 (accurately characterized as a series of suspensions), 1857, and 1861–1878, with localized suspensions in 1860–1861.[49] The experience of December 30, 1861–December 31, 1878 is noteworthy for several reasons. First, it was the first occasion in which not only the banks but also the government suspended; for on December 30, 1861 the Treasury refused to honor the right of holders of its demand notes to redeem the notes in gold. Second, this episode involved government issuance of legal-tender paper currency, US notes or "greenbacks," whence the name "greenback period." As the Treasury demand notes were received by the Treasury for customs duties (a property that US notes lacked), they were replaced by greenbacks in accordance with the greenback legislation. Third, a free market for gold not only developed in terms of the irredeemable dollar (Treasury demand notes and banknotes, and later greenbacks) but also was institutionalized, with a formal gold market in New York City and banks offering both gold deposits (that is, deposits payable in gold) and ordinary (greenback) deposits.[50]

In the postbellum period to World War I, the experienced bank suspensions beyond the greenback period involved the withholding of the obligation to convert deposits into both currency and specie rather than specie alone. In this respect the 1873 experience has been called a "suspension within a suspension" (Martin 1898, p. 40), as specie payments had been suspended since the end of 1861 and now banks refused to cash their deposits into currency as well. Suspension of currency (and specie) payments also occurred in 1893 and 1907. In these three episodes a premium on currency in terms of certified checks developed. The currency-premium experiences involved an appreciation of currency against deposits (certified checks), but not a depreciation of currency against gold and foreign exchange (except as already was occurring during the greenback period).[51]

In April 1917, when the United States entered as a belligerent in World War I, another paper-standard period ensued. The Treasury and the Federal Reserve banks, though always claiming that they obeyed the statutes guaranteeing redemption in gold coin of all US paper money and Federal Reserve notes on demand, in fact imposed effective, though informal, restrictions on redemption from April 6, 1917 to March 17, 1922.[52] Commercial banks cooperated with the Federal Reserve by converting their notes and deposits only into currency and not gold, a perfectly legal restriction (Cross 1923, p. 377).

The final, and still current, US paper standard began on March 6, 1933, when President Roosevelt suspended gold redemption and prohibited banks from paying out gold. Subsequently, an Executive Order of March 10 prohibited gold payments by banks and non-banks unless licensed by the Secretary of the Treasury. The Congressional Joint Resolution of June 5, 1933 declared "gold clauses"—provisions for payment in gold or in US money measured in gold—to be invalid in the sense that such obligations were dischargeable in any legal tender, and it conveyed legal-tender status on all coins and currencies of the United States (including Federal Reserve notes).

From September 8, 1933, the official gold price was fixed daily at the world market price less shipping and insurance cost, but only for the purpose of the Treasury purchasing gold from domestic mining companies. This set the stage for the Gold Reserve Act of January 30, 1934 and the Presidential Proclamation the next day that established a fixed dollar price for gold at $35 per fine ounce. However, the existing paper standard was not disturbed in any real sense. Indeed, the Gold Reserve Act forbade redemption of any US currency in gold.

Rather, from January 31, 1934 the United States was only on a "limited gold-bullion standard" (Yeager 1976, p. 65, n. 12). The Treasury purchased gold bars from all comers at $35 minus 0.25% ($34.9125) and sold them to foreign monetary authorities and licensed industrial users, *but to no one else*, at $35 plus 0.25% ($35.0875) per fine ounce. "Rather than being the basis of the monetary system …[gold became] a commodity whose price is officially supported" (Friedman and Schwartz 1963, p. 472).[53] Treasury sales of gold were suspended by President Nixon from August 15 to December 17, 1971, and were terminated on February 13, 1973. The official gold price became irrelevant.

All paper standards except the last, that beginning in 1933, were generally considered by contemporaries as temporary aberrations from

the previously applicable metallic standard. In fact, in every case (except 1933) the paper standard eventually came to an end, whereupon the existing metallic value of the dollar regained its effectiveness. The paper standards differed in their effect on the foreign-exchange market. Some periods involved noticeable disturbances to the market: 1814–1817, 1837–1842, 1861–1878. Bank suspensions in other periods, especially later in the century, did not significantly affect the local foreign-exchange market, for any of a variety of reasons: the limited number of banks involved, the brief time span of suspension, and especially the development of a more-integrated foreign-exchange market.[54] The 1857, 1873, 1893, and 1907 suspensions were of this nature. In the 1873, 1893, and 1907 periods, only the "deposit dollar"—not the "currency dollar," on which the exchange rate is based—noticeably depreciated against gold and foreign exchange. To the extent that the 1917–1922 and 1933–present paper standards involved fixed or managed exchange rates, exchange-rate variation was restricted.

Besides currency inconvertibility, divergences from the conditions for an international gold standard occurred during and around the paper standard occasioned by World War I, as shown in Table 17.3, and also with adoption of the 1933 paper standard. From August to October 1914, there was an informal embargo on the export of gold on the part of New York banks (Brown 1932, pp. 201–6). On September 7, 1917, by Presidential Proclamation, an embargo effective September 10 was imposed on exports of coin, bullion, and currency. Supported by the Treasury, Federal Reserve Board, and Postmaster General, the embargo lasted until June 9, 1919, when the Federal Reserve Board announced that licenses for the export of gold and currency would be freely granted (with rare geographical exceptions).[55] In 1933, on March 6, President Roosevelt suspended gold exports and on April 20 prohibited them (except by license).[56]

Complete exchange control was imposed under the paper standard of World War I: from January 1918 to June 1919, all foreign-exchange transactions required approval from the Federal Reserve Board (Taus 1943, pp. 154–5). Prohibition of bank dealings in foreign exchange was temporarily imposed under the 1933 paper standard.

Impounding of gold was a third common feature of the two paper standards. Through a combination of moral suasion and creative legislation over 1916–1918, gold and gold certificates were given up by commercial banks and concentrated in the Federal Reserve banks.[57] President

Table 17.3 Deviations from International Gold standard, 1914–1925

Deviation	*Time Period*	
	Britain	*United States*
Currency inconvertibility	August 1914–April 27, 1925[a]	April 6, 1917–March 17, 1922
Payments moratorium	August 2,1914–November 3, 1914	–
Restriction of gold exports	April 1, 1919–September 11, 1919[b]	August 2, 1914–October 1, 1914 September 10, 1917–June 8, 1919
Prohibition of gold imports[c]	December 5, 1916–March 31, 1919	–
Commandeering of gold imports	August 1914–September 11, 1919	–
Prohibition of gold melting	December 5, 1916–March 31, 1919[d]	–
Prohibition of buying or selling gold at a premium	May 18, 1918–December 30, 1925	–
Exchange control	December 24, 1914–January 14, 1924 November 1924–November 3, 1925	January 26, 1918–June 24, 1919
Exchange-rate management	August 1915– January 12, 1916	–
Exchange-rate pegging	January 13, 1916–March 19, 1919	–

[a]Currency convertibility restored on April 28, 1925, only for export of gold, not for domestic circulation
[b]Prohibition of export of gold produced outside British Empire continued to April 27, 1925
[c]Gold sold to Bank of England excluded
[d]Prohibition for non-Empire gold continued to April 27, 1925
Sources Atkin (1970, pp. 325–31), Beckhart (1924, pp. 267–8, 272–3), Brown (1929, pp. 6, 7, 20, 31, 37–41,47–8, 227–9; 1932, pp. 201, 204–6, 241–3, 248; 1940, pp. 31, 35, 37, 60, 180, 184, 378), Bullock, Williams, and Tucker (1919, p. 242), Cross (1923, pp. 377–81), Fraser (1933, pp. 33,40–1,45–6), Jaeger (1922, p. 24), Keynes (1930, vol. I, p. 19). Kirkaldy (1921, pp. 6–9, 33–4,421). Morgan (1952, pp. 12–13, 23, 64, 197–8, 261–5), Sayers (1976, pp. 55–6, 80–2). Spalding (1922, pp. 176–7). Taus (1943, p. 155)

Roosevelt's Proclamation of April 5, 1933 required all bank and non-bank owners of gold coin, gold bullion, or gold certificates to deliver all their present and future holdings, with minor exemptions, to a Federal Reserve bank, either directly or through commercial banks (member banks of the

Federal Reserve system), to be paid for at par.[58] A subsequent proclamation, of August 28, 1933, forbade anyone other than a Federal Reserve Bank from acquiring or holding gold in the United States or exporting gold, except under license. On December 28, 1933, the Secretary of the Treasury ordered that all gold be delivered to it at the official price of $20.671835 per fine ounce, resulting in almost a 70% profit with the $35 price instituted January 31, 1934. Throughout the 1934–1971 "limited gold-bullion standard," the holding of gold was forbidden to US residents, with minor exceptions.

In sum, the final two paper standards of the United States differed from all previous such episodes in that "suspension of specie payments," historically the only deviation from a metallic standard, was supported by a variety of other divergences from the international gold standard.

Notes

1. Later, the Reich (Holy Roman Empire) coined the "Reichsthaler," in English "rix-dollar," which in size and silver content was close to the peso. Therefore it was natural for the latter currency to be called the "Spanish dollar," originally by the London dealers in foreign exchange. See Nussbaum (1957, p. 10) and Carothers (1930, pp. 21–2).
2. The real was termed a "bit" by the colonists, a name they used for any small silver coin. The Spanish dollar was also divided into half-dollars and quarters, the latter known as "two bits." See Carothers (1930, pp. 34–5). Subsequently, the American (and Canadian) quarter-dollars were also colloquially called "two bits," a usage extending into the second half of the twentieth century.
3. The Morris report is in *International Monetary Conference* (1879, pp. 425–32) and is discussed by Carothers (1930, pp. 46–9) and Taxay (1966, pp. 15–16).
4. The Jefferson plan is reprinted in *International Monetary Conference* (1879, pp. 437–43) and discussed by Carothers (1930, pp. 50–1) and Taxay (1966, pp. 20–1).
5. The Congressional report and legislation, including a mint bill that followed in October 1786, are in *International Monetary Conference* (1879, pp. 445–51). For commentary, see Carothers (1930, pp. 51–6), Taxay (1966, pp. 22–5), and Watson (1899, pp. 19–25).
6. Hamilton's report is printed in *International Monetary Conference* (1879, pp. 454–84) and discussed by Carothers (1930, pp. 62–5) and Taxay (1966, pp. 44–51).

7. The Act is in Huntington and Mawhinney (1910, pp. 474–9), with good summaries provided by Carothers (1930, pp. 62–5) and Taxay (1966, pp. 65–7).
8. See Stewart (1924, pp. 18–19) and Carothers (1930, pp. 81–2). The individual states took their time in formally adopting the new federal unit of account—for example, Massachusetts in 1794, New York in 1797, Maryland in 1812, and. incredibly, New Hampshire not until 1948 and by popular referendum changing its constitution that established the shilling as the monetary unit. See Nussbaum (1957, p. 56).
9. On this differential treatment of gold and silver coins, see Alexander Hamilton's Report, in *International Monetary Conference* (1879, p. 456).
10. These comments are not to be interpreted as strictures against the colonial monetary system. Indeed, as Sylla (1982, p. 23) writes: "One would be hard pressed to find a place and time in which there was more monetary innovation than in the British North American colonies in the century and a half before the American Revolution." To the accomplishments mentioned by Sylla one might add, for the Revolutionary Period, the joint Congressional-state refunding plan of 1780 for the redemption of Continental bills. This was historically the first contractionary monetary reform of a paper currency. For the basic literature on the colonial monetary system, see the bibliographical essay prepared by Perkins (1980, pp. 121–2). The paper-money experience of the Revolutionary Period is described by Carothers (1930, pp. 37–41), Dewey (1934, pp. 34–41), Nussbaum (1957, pp. 35–9), Studenski and Krooss (1963, pp. 25–9), Nettles (1962, pp. 24–31), Hepburn (1924, pp. 13–19), Sumner (1874, pp. 43–9), and Del Mar (1899, pp. 93–116). As Sylla points out, it was the reaction to the inflationary paper-money experience of the Revolution (rather than the mixed history of colonial paper money) that led to a specie standard for the federal United States. The Continental bills ("old tenor") depreciated to one-thousandth of face value, becoming worthless by 1780. Sumner (1874, pp. 46–7) writes: "A barber's shop in Philadelphia was papered with it, and a dog, coated with tar, and the bills stuck all over him, was paraded in the streets." Even the reform currency ("new tenor") depreciated to one-sixth of its silver value.
11. Whether under troy weight, used for precious metals, or the common avoirdupois weight, a grain is identical. Under troy weight, there are 24 grains in a pennyweight, 480 in an ounce, and 5760 in a pound. In contrast, there are 437.5 grains in an avoirdupois ounce and 7000 in a pound.
12. The reports are reprinted and discussed in Watson (1899, pp. 21–2, 243–55).
13. Hamilton's report is impressive in its basis on economic argument. One can agree with Watson (1899, p. 33) that: "It is difficult to pay to this

report that tribute which it deserves. It was so exhaustive in its analysis, so profound in its reasoning, so comprehensive and logical in every position taken, that to this day it is regarded as an authority on money and coinage."

14. For the explanation of why the unwieldy fineness was adopted, see Carothers (1930, pp. 62–3), Willem (1959, pp. 4–6), and Kemmerer (1944, p. 66, n. 3). The legislations are in Huntington and Mawhinney (1910, pp. 473–9).
15. The date traditionally ascribed to this emission is October 1792 (see, for example, Watson, 1899, p. 64; Hepburn, 1924, p. 45); but Taxay (1966, pp. 71–2) provides evidence that it was no later than July.
16. The letter, dated December 30,1893, is printed in Lowrie and Clarke (1832, pp. 270–1). The legislation is in Peters (1848, p. 341). For a description of this episode, see Taxay (1966, pp. 120–1). Until 1873 the Mint was attached to the Department of State rather than the Treasury.
17. The first gold deposit occurred on February 12, 1795, with its coinage done July 31. For a list and description of the early deposits at the Mint, see Stewart (1924, pp. 44–50).
18. The Mint officials involved in the over-fineness of the silver dollar were not punished—not even reprimanded—for their behavior. Depositors, of course, received less coined money for their silver bullion than the law specified. One such depositor received reimbursement from Congress. Discussions of the over-fine silver-dollar episode are presented in Bolles (1894, vol. II, pp. 161–3), Taxay (1966, pp. 89–90), Watson (1899, pp. 229–31), and Willem (1959, pp. 1–9). Strangely, Taxay and Willem state that the 1794–1795 dollar consisted of 374.75 grains of fine silver (rather than the true 374.4). The source documents—printed in Lowrie and Clarke (1832, pp. 352–8, 588), Congress of the United States (1851, pp. 3667–71), and Select Committee on Coins (1832, pp. 17–20)—clearly show 374.4 to be the correct number. Hepburn (1924, p. 44, n. 1) explicitly states the correct figure, while Watson quotes a source document containing it.
19. The Acts are in Huntington and Mawhinney (1910, pp. 496–7, 500–8) and discussed in Carothers (1930, pp. 91–5), Taxay (1966, p. 200), and Watson (1899, pp. 85–7, 97–9).
20. The acts mentioned in this paragraph are in Huntington and Mawhinney (1910, pp. 508–9, 511–13, 530–50, 593, 610–14). Time series of gold and silver coinage are in Director of the Mint (1942, pp. 68–71). On the one-dollar piece, see Carothers (1930, p. 135).
21. The Legislation and Proclamation are in Krooss (1969, vol. iv, pp. 2793–805).

22. For the text of some of these Acts, see Huntington and Mawhinney (1910, pp. 481–91, 497–8). A summary and critique are provided by Carothers (1930, pp. 66–7, 78–9, 101–2). See also Hepburn (1924, pp. 46–7, 60).
23. For the act, see Huntington and Mawhinney (1910, pp. 517–18); for the history of withdrawing the foreign coin, Carothers (1930, pp. 138–48).
24. The Act is in Huntington and Mawhinney (1910, pp. 511–13).
25. See Huntington and Mawhinney (1910, p. 568) and Laughlin (1900, p. 305).
26. See, for example, Carothers (1930, p. 233) and Friedman (1990b, p. 1165).
27. "According to bimetallists, the Coinage Act of 1873, which discontinued the silver dollar as a monetary standard, passed Congress through the corrupt influence of a cabal of powerful government bondholders who conspired with treasury officials and influential congressmen. By establishing a single gold unit of account, the cabal presumably hoped to raise the market value of its public securities" (Weinstein, 1967, p. 307). Histories of "silver politics" are provided by Friedman and Schwartz (1963, pp. 113–19), Hepburn (1924, pp. 268–304), Laughlin (1900, pp. 92–105, 211–17, 259–61), and Myers (1970, pp. 197–222).
28. The silver legislations are in Huntington and Mawhinney (1910, pp. 689–90, 579–81, 589–91, 599–600).
29. For all the above legislation, see Huntington and Mawhinney (1910, pp. 634–45) and Sanger (1863, p. 338).
30. There is evidence that certificate issuance had always been of this nature. See Friedman and Schwartz (1963, p. 25, n. 11).
31. These Acts pertaining to gold certificates are in Huntington and Mawhinney (1910, pp. 175–9, 693–6, 704–10) and *Statutes at Large of the United States of America* (1911, p. 965; 1921, p. 370).
32. The Federal Reserve Act and the Act of June 5, 1933 Are in Krooss (1969, vol. iv, pp. 2436–70, 2723–4).
33. Morris' money unit was 0.25 grain of silver; therefore one pound (5760 grains) of silver would coin 23,040 units. The mint price, however, would be 22,237 units per pound. Mint charges, therefore, would be (23,040 − 22,237)/23,040 = 3.49%. Under the 1786 Acts, a silver (gold) dollar would have a zero-charge mint price of 5760/409.7891 (5760/26.8656) dollars per pound Troy, equaling $14.0560 ($214.4006), versus an actual mint price of $13.777 ($209.77), involving mint charges of (14.0560 − 13.777)/14.0560 = 1.98% for silver and (214.4006 − 209.77)/214.4006 = 2.16% for gold.
34. The logical interpretation, given by Bolles (1894, vol. II, pp. 512–13), that payment in coin is to be provided within 40 days of the deposit of bullion and within five days for the 0.5% charge, is not the letter of the statute.

35. However, the Act of March 31, 1795 did assess charges by weight for deposits of bullion below US standard. See Huntington and Mawhinney (1910, pp. 483–5).
36. Coinage itself actually occurred at the Mint, not at the Assay Office. All other Mint functions were performed on the premises of the Assay Office. For discussion of the Assay Office at New York, see Watson (1926, pp. 10–12, 19, 32–3).
37. For these Acts, See Huntington and Mawhinney (1910, pp. 586, 596, 616).
38. For the early history of banking in the United States, see Hammond (1957, pp. 40–88). The statistics are from Hammond (1957, pp. 144–6).
39. See Huntington and Mawhinney (1910, pp. 327–9, 330–62) for these Acts, and Friedman and Schwartz (1963, pp. 16–23) for discussion of the formative years of the national banking system.
40. The Bland-Allison Act of February 28, 1878 authorized issuance of silver certificates by the Treasury in return for deposits of silver dollars.
41. See Nussbaum (1950, pp. 596–7). The Act of June 12, 1945 is in Krooss (1969, vol. iv, pp. 2875–6).
42. There are two cases in which legal bimetallism can be effective. First, if the country happens to select a mint ratio close to the world gold/silver price ratio, bimetallism results as long as the divergence of the ratios is within limits (set by arbitrage costs and market imperfections). Friedman (1990a, p. 90) notes that "these costs define upper and lower 'gold-silver price ratio points' between which the market ratio can vary without producing the complete replacement of one metal by the other [in the domestic country]." Such a situation could likely exist only temporarily. England had effective bimetallism for a few years at the turn of the eighteenth century, in the process of switching from an effective silver to an effective gold standard (see Officer 1996, Sect. 8 of chapter 4).

    Second, a lasting bimetallism can happen if the country possesses a sufficient stock of gold and silver coin and is important enough in the international economy to dominate the world gold/silver price ratio. France, with a mint ratio of 15.5, was in a position of dominance from 1803 to 1850 (Yeager, 1976, p. 296). Friedman (1990a, p. 89) points out that what gave France preponderant influence on the world price ratio (although he exaggerates in describing France's ability to "peg" the ratio) was not only France's economic importance relative to the rest of the world but also the country's high propensity to use specie as money, both directly as coins and indirectly as reserves for paper currency and bank deposits.
43. The market series, compiled by Soetbeer (1879, pp. 130–1), is of much higher quality than alternative data. The Soetbeer series is an annual average of twice-weekly official market quotations in Hamburg to 1832

and uses generally accepted London data thereafter. In contrast, alternative series (based on the London market) exhibit neither their data source nor their method of construction and furthermore suffer from obvious errors, both in the level of some observations and in their year-to-year movement. See S. Dana Horton, various appendices, in *International Monetary Conference* (1879, pp. 649, 701, 708–9) and Laughlin (1896, pp. 288–91). The French mint ratio of 15.5 is not used in place of the Soetbeer data because, while the world price ratio may have been principally determined by the French ratio, deviations did occur and in fact were the norm. Indeed, for a minority view claiming that the reach of French bimetallism has been exaggerated, see Shaw (1896, pp. 178–80).

44. His average computed market ratio in the United States was 14.99, the world ratio in 1791 was 15.05, and the recommended and adopted ratio 15.
45. Again the Soetbeer data are used for the 1834–1873 market rate. The two episodes (1792–1834 and 1834–1873) of the divergence between legal and market rates are described by Carothers (1930, pp. 75, 81–101), Hepburn (1924, pp. 47–61), and Watson (1899, pp. 71–3, 78–96).
46. Actually, termination of coinage of the silver dollar in 1873 and its demonetization in 1874 merely reflected long-standing reality. As Carothers (1930, p. 235) states: "Exported before 1806, not coined from 1806 to 1836, and not in circulation from 1836 to 1873, the [silver] dollar was an unknown coin." (On this history of the silver dollar, see Officer 1996, note 10 to chapter 5.) So the elimination of the silver dollar by the 1873–1874 legislation was in the nature of modifying the coinage law to accord with actuality. However, it is argued by Friedman (1990b) that the economic consequences of abandoning legal bimetallism, which meant alternating effective monometallism, were harmful for the United States. In particular, an effective silver standard would have avoided the 1891–1897 crisis (see Officer 1996, Sect. 2 of chapter 13).
47. For discussion of the meaning and mechanism of suspension of specie payments, see Temin (1969, pp. 114–18) and Triffin (1960, p. 22). This phenomenon was also part of the colonial experience with paper money. The colonies did not set fixed rates between paper currency and coin, and markets existed in which the two types of money traded for each other. Perkins (1980, p. 111) writes of "the market value of the paper relative to specie and foreign exchange" in the colonial period. He notes that in situations in which paper had depreciated, creditors would accept either specie or paper money at its current market value. In contrast, during the Continental-money experience of the Revolutionary Period, Gresham's Law operated in full force and coin disappeared from circulation. The reason is that the states legislated strict parity of the paper with coined money. The penalties for not respecting the face value of

Continental currency were severe. “The notes were made full legal tender and refusal to accept them forfeited the debt and incurred other money penalties, pillory. imprisonment, loss of ears even, and being outlawed as enemies of their country” (Hepburn, 1924, p. 17).

48. “Each of the antebellum financial panics had been marked by a rush on diverse state-chartered banks by holders of banknotes who wanted to convert their holdings into specie…after the Civil War the public did not exhibit doubts about the safety of national banknotes. The postbellum panics were instead marked by rushes of bank depositors to convert their deposits into currency, which included national banknotes and federal government issues as well as specie” (Sylla 1972, p. 233).
49. For histories of these suspensions, see (1) *for 1814–1817*, Bolles (1894, vol. II, pp. 261–83, 317–29), Hammond (1957, pp. 227–50), Secretary of the Treasury (1838, p. 5), Smith (1953, pp. 110–15), Smith and Cole (1935, pp. 25–9), and Sumner (1874, pp. 64–75); (2) *for 1837–1842*, Davis and Hughes (1960, pp. 57, 61), Hammond (1957, pp. 465–501),Hepburn (1924, pp. 132–8), Knox (1900, pp. 76–7, 502–5), Martin (1898, pp. 30–3), Myers (1931, pp. 64–8), Smith (1953, pp. 190–227), Sumner (1874, pp. 132–54), and Temin (1969, pp. 113–71); (3) *for 1857*, Dunbar (1904, pp. 266–93), Hammond (1957, pp. 710–13), Knox (1900, pp. 512–13), and Sumner (1874, pp. 180–7); (4) *for 1860–1861*, Dunbar(1904, pp. 309–10) and Knox (1900, pp. 513–14); (5) for *1861–1878*, Officer (1981) and the references cited there.
50. On June 17, 1864 Congress legislated the prohibition of the gold market (though allowing brokers to transact in gold within their offices), but the bill was repealed on July 2 (Huntington and Mawhinney, 1910, pp. 182–3). The intent was to reduce the premium on gold, but the law was ineffective, with the premium actually increasing.
51. On the 1873, 1893, and 1907 currency premiums, see Andrew (1908, pp. 290–3), Clark (1984, pp. 819–20), Cross (1923, pp. 397–9), Friedman and Schwartz (1963, pp. 110, 161–2), and Sprague (1910, pp. 56–61,186–95, 280–6).
52. See Chandler (1958, pp. 103–4), Secretary of the Treasury (1920, pp. 181–2; 1922, p. 72), Brown (1940, p. 37), and Beckhart (1924, p. 267).
53. Excellent histories of the 1933–1934 events are provided by Friedman and Schwartz (1963, pp. 462–74) and Yeager (1976, pp. 346–50).
54. The last explanation is stated by Davis and Hughes (1960, p. 62) and Perkins (1975, pp. 155–6).
55. See Taus (1943, p. 153), Cross (1923, p. 377), Brown (1929, pp. 18, 26; 1940, pp. 34, 37), and Beckhart (1924, pp. 268–73).

56. The latter was by Proclamation under the Act of October 6, 1917, as amended by the Act of March 9, 1933. The Proclamation is in Krooss (1969, vol. 4, pp. 2717–18).
57. For details, see Beckhart (1924, pp. 252–67),Taus (1943, pp. 157, 178), Chandler (1958, pp. 102–3), Brown (1940, p. 43), and Cross (1923, p. 377).
58. The Proclamation is in Krooss (1969, vol. 4, pp. 2714–16).

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