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Development of the US monetary union

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By forbidding any other legal tender in payment of debts, the constitution of the United States, without absolutely excluding every other circulating medium, has imperatively rendered the precious metals the only standard of value. – Albert Gallatin[1]

I

While much about the colonial, revolutionary, Confederation, early republican, and antebellum monetary systems remains unknown or contested, the basic outlines of the field have long since been clearly delineated.[2] In most times and places, early Americans used a wide variety of exchange media to make payments. The local unit of account served to convert each transaction, regardless of the medium of exchange used, into a well-understood value. Early Americans usually defined the value of their local accounting units in terms of gold and/or silver bullion and/or specific full-bodied coins; rather than reckon prices as so many ounces of silver or gold, early Americans reckoned in their local accounting units. So when early Americans mentioned so many pounds or so many dollars, they usually had an equivalent value of gold or silver in mind, not a specific medium of exchange.

Early American governments issued paper money, known as bills of credit, denominated in their respective local units of account. Ostensibly, the bills were issued to augment the medium of exchange, not to change the local accounting unit's specie value. Colonists could usually exchange the bills for specie at their face

[1] A. Gallatin, *Suggestions on the Banks and Currency of the Several United States in Reference Principally to the Suspension of Specie Payments* (New York, 1841), p. 19.

[2] L. V. Brock, *The Currency of the American Colonies, 1700–1764: a Study in Colonial Finance and Imperial Relations* (New York, 1975); L. V. Brock, 'The colonial currency, prices, and exchange rates', *Essays in History*, 14 (1993); J. J. McCusker, *Money and Exchange in Europe and America, 1600–1775* (Chapel Hill, NC, 1978); R. Michener, 'Backing theories and the currencies of eighteenth-century America: a comment', *Journal of Economic History*, 48 (1988), pp. 682–92; R. Michener, 'Money in the American colonies', *EH.Net Encyclopedia*, R. Whaples (ed.), 9 June 2003, http://www.eh.net/encyclopedia/contents/michener.american.colonies.money.php; L. Officer, *Between the Sterling-Dollar Gold Points: Exchange Rates, Parity, and Market Behavior* (New York, 1996); L. Officer, 'Dollar-sterling mint parity and exchange rates, 1791–1834', *Journal of Economic History*, 43 (1983), p. 582.

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value. At times, however, specie disappeared from circulation, convertibility broke down, the bills depreciated in value, and they supplanted specie as the standard of value. In other words, colonists in those situations began to reckon value in terms of bills of credit, not in terms of specie. Since colonists used the term 'pound' in both situations, however, casual observation is insufficient to determine which situation held at any given time and place.

When paper money did depreciate and the bills were a legal tender at face value for private debts, it redistributed property from creditors to debtors. During the final phase of the Revolution, depreciation and redistribution became severe and widespread enough that many Americans, including a large majority of the business and political elite, came to distrust bills of credit. They used the opportunity presented by the constitutional convention in 1787 to establish a monetary union based on a national, dollar-denominated unit of account and standard of deferred payment explicitly tied to gold and silver.[3]

Despite the adoption of a national unit of account, multiple exchange media circulated in early republican and antebellum America. This was a feature and not a failure of the early American monetary union. Book credit was widely used, as it had been in the colonial period, and hence many accounts continued to be settled with labour, livestock and miscellaneous commodities. In such an institutional setting, creating a uniform medium of exchange would have been a utopian endeavour. Moreover, notes issued by numerous unit banks were the most common means of cash payment. Except for the notes of Bank of the United States,[4] notes circulating at a distance from the bank of issuance were valued at less than their face. Those facts have led some observers to question the efficacy of an American monetary union.[5] We disagree: the American monetary union was designed to deliver a common unit of account and standard of deferred payment, but not the uniform medium of exchange commonly found in modern monetary unions.[6]

Before elaborating on this outline, it is absolutely crucial that the distinction between the unit of account and the medium of exchange be made crystal clear to modern readers.

II

A unit of money is a commonly understood measure of the economic value of things, much as an 'inch' is a commonly understood measure of distance and a

[3] R. Michener and R. E. Wright, 'State "currencies" and the transition to the US dollar: clarifying some confusions', *American Economic Review*, 95 (June 2005).

[4] *National Messenger*, 8 March 1820; *Eastern Argus*, 20 April 1830.

[5] A. Rolnick, B. D. Smith and W. E. Weber, 'Establishing a monetary union in the United States', in D. E. Altig and B. D. Smith (eds.), *Evolution and Procedures in Central Banking* (New York: Cambridge University Press, 2003), pp. 227–55.

[6] T. J. Sargent and F. R. Velde, *The Big Problem of Small Change* (Princeton, NJ, 2002).

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'gram' is a commonly understood measure of weight. Today, we tend to forget its role as a measure of value because we are blessed with central banknotes, coins and insured bank deposits that simultaneously serve as a medium of exchange, a standard of deferred payment and a measure of value – all denominated in the unit of account. Our early forebears lacked that particular convenience, much as they lacked indoor plumbing and electrical motors. They made do with wells, outhouses, windup clocks, fireplaces and what modern scholars often dismiss as 'ghost' or 'nominal' money.[7]

In the eighteenth and early nineteenth centuries, a potpourri of things, ranging from various commodities to foreign coins to government promissory notes, served as transaction media. The unit of account was an economically elegant way to convert the exchange media's sundry denominations to a single well-understood value.[8] Examining a specific transaction provides a concrete illustration. In November 1794 Philadelphia merchant Henry Drinker remitted to John Kinsey two gold coins from Portugal, an English guinea and $80 in banknotes. The coins and dollars, whose value had by then been established by federal statute, were translated into the local unit of account using tables published in almanacs (cf. Figure 8). Accordingly, Kinsey credited Drinker's account £37 15s. Pennsylvania currency because the Portuguese gold coins (half johannes) were rated at £3 each, the guinea was rated at £1 15s., and $80 translated to £30 ($1 = 7s. 6d. or £0.375; 80*0.375 = 30). This neatly illustrates how unit-of-account money functioned with variegated media of exchange.[9]

Use of the unit of account as a means of reducing the value of sundry items to a money price was not limited to banknotes and foreign coins. A shopkeeper might supply a farmer with one barrel of beef for 7 bushels of wheat, but both parties would still reckon in the unit of account. If the beef was valued at 56s. and each bushel of wheat at 8s., the basis of the trade (56s. = 7 bushels @ 8s.) is clear. The delivery of the wheat and the beef need not have occurred simultaneously, and in fact usually would not have. Rather, the shopkeeper would have debited the farmer's book account for 56s., and credited it the same sum upon receipt of the wheat. We have examined scores of early American account books; almost without exception, economic valuations and calculations were done as described here.[10] Moreover, early Americans understood that transacting without money was done

[7] Eric Helleiner, *The Making of National Money: Territorial Currencies in Historical Perspective* (Cornell, NY, 2003), pp. 20–1.

[8] A. A. Piatt, 'The end of the Mexican dollar', *Quarterly Journal of Economics*, 18 (1904), p. 326; J. H. Soltow, *The Economic Role of Williamsburg* (Charlottesville, VA, 1965); W. T. Baxter, *The House of Hancock* (Cambridge, MA, 1945); S. L. Adler, *Money and Money Units in the American Colonies* (Rochester, NY, 1900); D. A. Rosen, *Courts and Commerce: Gender, Law, and the Market Economy in Colonial New York* (Columbus, OH, 1997), ch. 2.

[9] Henry Drinker to John Kinsey, 25 Nov. 1794, Henry Drinker Letter Book, Historical Society of Pennsylvania, Philadelphia, PA.

[10] R. E. Wright, *The First Wall Street: Chestnut Street, Philadelphia, and the Birth of American Finance* (Chicago, 2005), ch. 4.

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most easily by reducing all values to a common unit of account, going so far as to assign monetary values to tobacco and other 'country pay'.[11] (The indivisible and heterogeneous nature of such commodities rendered their use as money problematic, but undoubtedly country pay was preferable to barter.)

The modern American and European mind may experience difficulty wrapping itself around the distinction between the unit of account and the medium of exchange because the two today are usually inseparable, at least in the G-7 nations. (In many developing countries, on the other hand, the US dollar serves as the local unit of account. Some payments are made in Federal Reserve notes, but most are made in various local media of exchange at their current exchange with dollars.) But even today there are instances where the two diverge, and some of those instances are instructive. When bellied up to the poker table in Atlantic City, the crap table in Las Vegas, or the roulette wheel in Monte Carlo, we place bets with chips, not central banknotes. Because the chips are readily convertible into a fixed number of dollars (or euros), we think nothing of this. Similarly, when we take our broods to Disneyland or EuroDisney, we exchange our portraits of sundry windows and arches, or Benjamin Franklin, Andrew Jackson and Alexander Hamilton, for portraits of Mickey Mouse, Minnie Mouse and Goofy (on the park's promissory notes) because we know that we are simply exchanging one physical representation of value for another.[12]

Similarly, some highbrow British auction houses insist on quoting prices in guineas, a full-bodied gold coin traditionally rated at 21s. (105p. after decimalisation). Neither buyers nor sellers expect gold coins to change hands (unless of course guineas were the commodities put up for auction). If the winning bid is 1,000 guineas, the buyer simply forks out a cheque for £1,050. The Brits, or anyone else for that matter, could quote prices in 'loos' if they wanted to, so long as each 'loo' is fixed in terms of sterling or other unit of account at a known value.

Indeed, anything can serve as a medium of exchange if its relationship to the unit of account is known. People in Ithaca, NY,[13] Brooklyn, NY, Great Barrington, MA, Scotland[14] and about 1,000 other communities in Europe and North America[15] hold 'community' promissory notes nominally denominated in strange-sounding units like 'hours' or 'greenbacks'. Because each of these local currencies is defined as a fixed number of euros or dollars, all that those communities have done is to join casinos and entertainment parks in the creation of a limited-use medium of exchange which derives its value from its fixed and known relationship with the prevailing unit of account.

[11] C. P. Nettels, *The Money Supply of the American Colonies before 1720* (Madison, WI, 1934).
[12] http://www.perrific.com/disney/money/money.html
[13] http://www.ithacahours.com/
[14] http://www.yesmagazine.com/9economics/douthwaite.htm
[15] http://www.appropriate-economics.org/asia/thailand/tdsc.html

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III

Each American colony possessed a local unit of account, commonly referred to as New York (Maryland, Virginia, etc.) pounds, New York currency, New York money, or the money or currency of New York. Defined in terms of specie, the local unit of account allowed colonists to compare the value of dissimilar goods. The advantage of using such a unit of account was that it achieved many of the efficiencies associated with money, while requiring a bare minimum of physical cash. For example, unlike a pure barter system, each good had a single unit-of-account price, not tens of thousands of prices. (Actually, goods usually had at least two prices, a cash price and a credit price. The latter was simply the cash price plus a risk-adjusted interest charge. In some colonies, additional prices were necessary at times, but there is no reason to explore the details here, where the point is only that the number of prices was at most a small multiple of the number of traded goods and services and not the much larger number of possible pairs of tradable goods and services, as in a pure barter system.) By extending book credit to each other, colonists could also minimise the problem of double coincidence of wants inherent in barter.

Each American colony at one time or another also issued paper promises, known as bills of credit, designed to circulate as cash. The colonial governments (post-1766 Maryland excepted) denominated their bills in the local unit of account. In most colonies, most of the time, bills of credit commanded actual physical coin or other exchange media at their full face value. A £1 (20s.) bill of credit issued by the province of Pennsylvania, where a full-bodied silver coin known as the Spanish dollar was rated at 7s. 6d. (7.5s) local currency, would obtain 2.667 Spanish dollars. Conversely, 2.667 Spanish dollars would fetch a £1 Pennsylvania bill of credit, or £1 'Pennsylvania currency' worth of 'chewin' tobacky', tea or labour, or would satisfy £1 Pennsylvania money worth of debt.

Understanding the nature of bills of credit, paper fiduciary money issued by the colonies and often given legal tender status, is crucial to avoid confusion about colonial currencies. All the US colonies eventually issued bills of credit. However, the mere issuance of such bills did not necessarily, or even usually, entail the abandonment of gold and silver in favour of a paper standard. In the middle colonies, bills of credit circulated because colonists paid, received and exchanged them at their face value interchangeably with specie, not necessarily because they were a legal tender. We know that legal tender laws were not crucial in maintaining the value of bills because, as the Revolution and the confederation experience of a number of states (particularly Rhode Island) showed, tender clauses were incapable of maintaining the value of bills. Also, before the Revolution, bills of credit often circulated in adjacent colonies where they were not legal tender; indeed, some colonies successfully circulated bills within their own borders that were not a legal tender.[16]

[16] Michener and Wright, 'State "currencies"'.

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Early American essayist 'Eugenio' spelled out in detail the informal conversion mechanism that prevailed in colonies that did not over-issue bills. His perspicuous analysis of the monetary situation in colonial New Jersey is worth quoting at length because it applied with equal force to each of the middle colonies:

> Instant realization or immediate exchange of paper into coin at value was formerly [i.e. before the Revolution] practicable every moment. It is true that government did not raise a sum of coin and deposit the same in the treasury to exchange the bills on demand; but the faith of the government, the opinion of the people, and the security of the fund formerly by a well-timed and steady policy, went so hand in hand and so concurred to support each other, that the people voluntarily and without the least compulsion threw all their gold and silver, not locking up a shilling, into circulation concurrently with the bills; whereby the whole coin of the government became forthwith upon an emission of paper, a bank of deposit at every man's door for the instant realization or immediate exchange of his bill into gold or silver. This had a benign and equitable, a persuasive, a satisfactory, and an extensive influence. If any one doubted the validity or price of his bill, his neighbor immediately removed his doubts by exchanging it without loss into gold or silver. If any one for a particular purpose needed the precious metals, his bill procured them at the next door, without a moment's delay or a penny's diminution. So high was the opinion of the people raised, that often an advance was given for paper on account of the convenience of carriage. In the market as well as in the payment of debts, the paper and the coin possessed a voluntary, equal, and concurrent circulation, and no special contract was made which should be paid or whether they should be received at a difference. By this instant realization and immediate exchange, the government had all the gold and silver in the community as effectually in their hands as if those precious metals had all been locked up in their treasury.[17]

Colonists almost always expressed monetary values in terms of their local unit of account, regardless of the medium of exchange tendered in a particular transaction. It is tempting to assume that contemporary references to pounds, shillings and pence refer to the bills of credit issued by the colony in question. Historians often succumb to the point of casually conflating one with the other, but the error is more insidious when the assumption is positively affirmed, as in Schweitzer's work, or made the foundation of a research agenda, as in Grubb's recent papers.[18] In our view, any such assumption is completely unwarranted, and is based on a misunderstanding of how

[17] *New Jersey Gazette*, 30 January 1786.

[18] F. Grubb 'The constitutional creation of a common currency in the US, 1748–1811: monetary stabilization versus merchant rent seeking', in J. Nautz and L. Jonung (eds.), *Conflict Potentials in Monetary Unions [Beihefte der Vierteljahrshefte für Sozial-und Wirtschaftsgeschichte]* (Stuttgart, 2006); F. Grubb, 'The circulating medium of exchange in colonial Pennsylvania, 1729–1775: new estimates of monetary composition, performance, and economic growth', *Explorations in Economic History*, 41 (October 2004), pp. 329–60; F. Grubb, 'Creating the US dollar currency union, 1748–1811: a quest for monetary stability or a usurpation of state sovereignty for personal gain'? *American Economic Review*, 5 (2003), pp. 1778–98; Michener and Wright, 'State "currencies"'; R. Michener and R. Wright, 'Miscounting money of colonial America', *Econ Journal Watch*, 3 (2006), pp. 4–44; M. Schweitzer, 'State-issued currency and the ratification of the US Constitution', *Journal of Economic History*, 49 (1989), pp. 311–22.

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the local unit of account worked in the eighteenth century. What else explains the fact that references like 'Pennsylvania money' or 'Virginia currency' were ubiquitous before those colonies first issued bills of credit? And well after more than 99 per cent of all their bills had been destroyed? What else explains a 12 May 1763 advertisement in the *Pennsylvania Gazette* where the subscriber, after lamenting that £460 'New York currency' had been stolen from him, noted that 'the greatest part of said Money was in *Jersey* Bills'? Or a 30 August 1790 advertisement in the same paper where the subscriber complained of being robbed of 'twenty-one shillings and three pence in *quarter dollars and other small silver*'? Or the fact that George Washington explicitly noted that he paid 100 *guineas* next to an account book entry of 466.67 *dollars*?[19] (See the entry for guineas in Figure 8.)[20] Or that the prices of early dollar-denominated US securities were quoted in some newspapers in pounds, shillings and pence?

In colonies like Pennsylvania, bills of credit were analogous to poker chips, or Ithaca hours, or Scottish Organisational Currency System (SOCs) credits; they circulated from hand to hand locally because everyone knew that they were worth so many of the accounting units. Ready convertibility into specie proved the connection. As noted above, the situation was much the same in the other middle colonies. Buffered against the French in the north, and the Spanish in the south, the colonies from Maryland to New York never issued too many bills of credit. In other words, paper money in those colonies maintained its convertibility into specie at par. The evidence on this point is voluminous. In 1736, a Massachusetts writer argued that 'the Bills of our Neighbours at New York are on no better foundation than our's that are already extant, only as they have but very few, and not enough to carry on their Trade, Gold and Silver passing current with them, and at rates fix'd by the Government, in a great measure supports their Credit'. Two years later, Dr William Douglass made much the same argument. 'A Paper Credit well founded and under good Regulations, and not larger than what the Silver Specie Currency will bear; has been found to be a very good Expedient in Business. As to the Quantity of Paper Currency which the Silver Currency will bear, without depreciating its Denominations,' he noted, 'it is only to be learnt by Experience.' In 1749, another writer noted:

> At New-York and Philadelphia Silver is their Medium, and mill'd Dollars pass current at a known determinate Rate, and other foreign Coins in proportion: Paper Bills are sometimes the Instrument in Payments, but the Proportion is small compar'd with the Silver; and I have no Doubt that if either of those Governments should ever issue a sufficient Sum in Bills to serve for a Currency, their Silver and Gold would leave them, and their Bills depreciate as those of New-England have done.[21]

[19] 'Washington's household account book, 1793–1797', *Pennsylvania Magazine of History and Biography* 22 (1905), p. 389.

[20] For additional examples, see Michener and Wright, 'State "currencies"'.

[21] R. Michener, 'Fixed exchange rates and the quantity theory in colonial America', *Carnegie-Rochester Conference Series on Public Policy*, 27 (1987), pp. 233–308.

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Pennsylvania, New York and the other middle colonies never issued too many bills because the exigencies of war never forced them to. At either end of the continent, however, the military and hence monetary situation was much different. New Englanders and Deep Southerners had to fight both the Indians on their frontiers and European powers on their borders. Without access to capital markets, colonial governments in both New England and the Carolinas found it necessary to issue increasingly prodigious quantities of bills of credit. In both regions, government promissory notes temporarily supplanted specie. Subsequent increases in the quantity of bills of credit in circulation, unless offset by increased demand for transaction media, led to local price inflation, depreciation of the local unit of account vis-à-vis specie, depreciation vis-à-vis monies, like sterling, that remained convertible into specie, and increases in nominal interest rates. Thomas Hutchinson detailed the situation in Massachusetts:

> So many bills had been issued for the charges of the [Queen Anne's] war . . . that they were become the sole instrument and measure of commerce, and silver and gold were entirely banished. Of two instruments, one in use in a particular state only, the other with the whole commercial world, it is easy to determine which must leave that particular state and which remain. The currency of silver and gold intirely ceasing, the price of every thing bought or sold was no longer compared therewith, but with the paper bills.[22]

Analysis of colonial exchange rates and price series bolsters Hutchinson's story. In Massachusetts from 1720 to 1749, the volume of paper money in circulation and prices were strongly and directly related, with R-squareds over 85 per cent. That is consistent with our belief that paper money had pushed specie out of circulation in that colony. In the other colonies tested, New York, Pennsylvania and South Carolina, R-squareds were much lower, 15 per cent or less, which fits our contention that those colonies did not issue enough bills to displace all specie. (The episode of depreciation in South Carolina ended before the data series begins.)[23]

Figures 1, 2, 3 and 4 plot the average annual exchange rates of Massachusetts, South Carolina (North and South were a single colony until 1712), New York and Pennsylvania currencies, respectively, from 1700 to 1775. The exchange rates tell us how many units of the local unit of account were required to purchase £100 sterling on the spot market for bills of exchange. Though the charts are superficially similar, perusal of the y scale will show that any perceived similarity is an optical illusion. Basically, the South Carolina and Massachusetts units of account depreciated severely against sterling, while the Pennsylvania and New York units did not. Figure 5 captures the fundamentally different monetary histories of the extremity and middle colonies.

In colonies where specie remained in circulation at its rated value, the different average levels of exchange rates observed simply reflect the different nominal ratings

[22] Michener, 'Fixed exchange rates'.

[23] R. C. West, 'Money in the colonial American economy', *Economic Inquiry*, 16 (1978), pp. 1–15.

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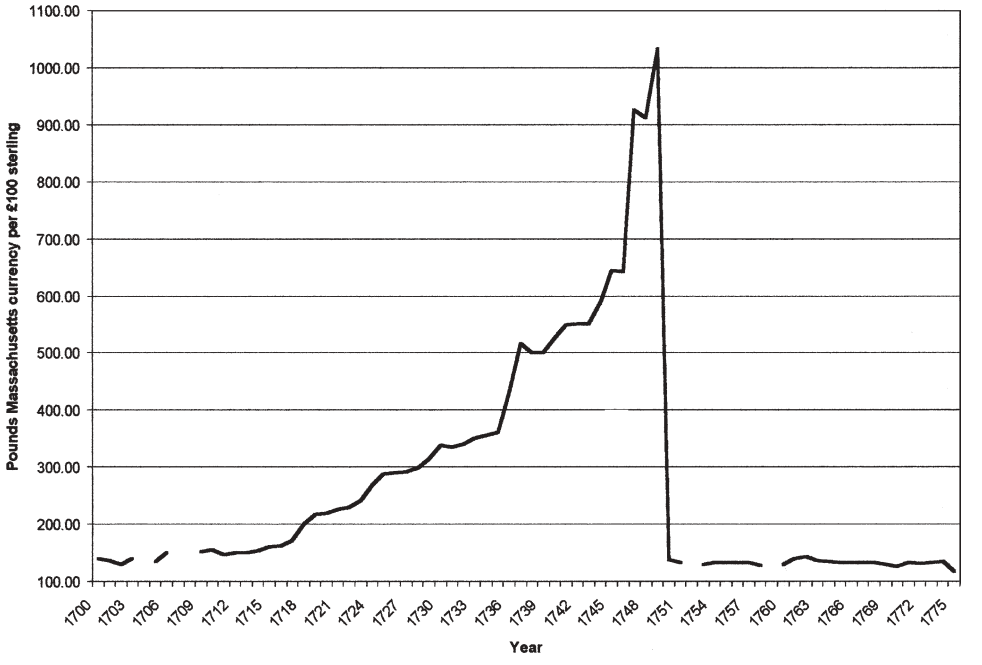


Figure 1. *Massachusetts on London*
Source: McCusker, *Money and Exchange*, pp. 138–42, 162–5, 183–6, 222–4.

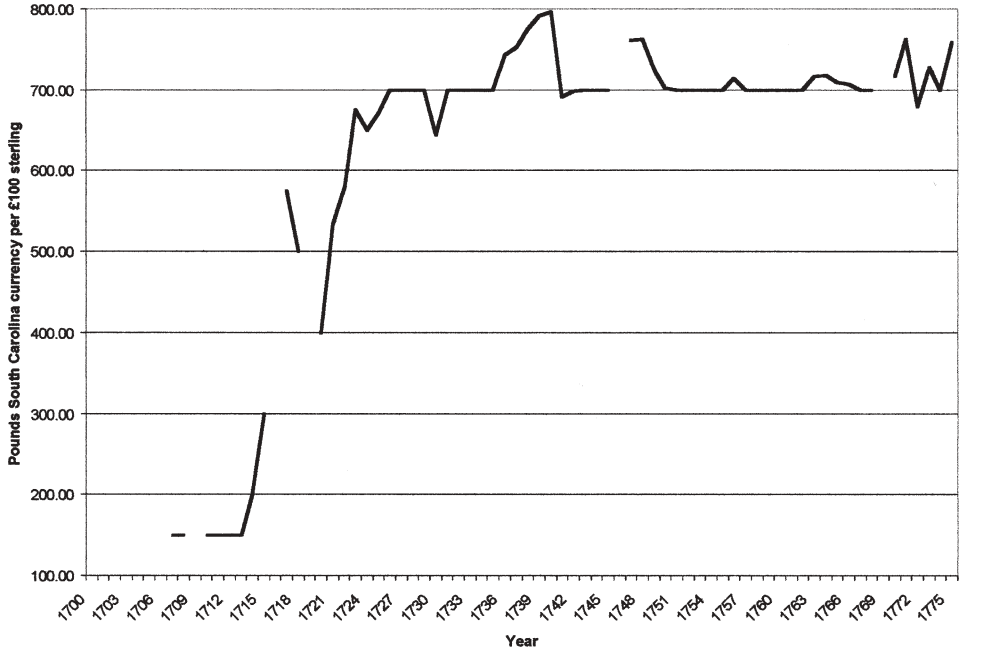


Figure 2. *South Carolina on London*
Source: as for Figure 1.

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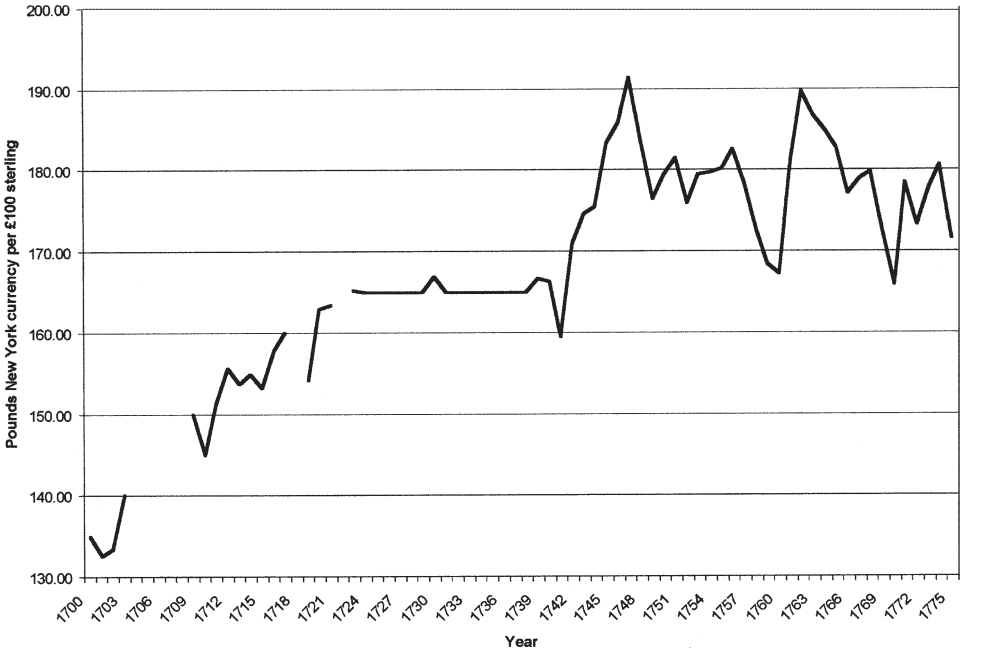


Figure 3. *New York on London*
Source: as for Figure 1.

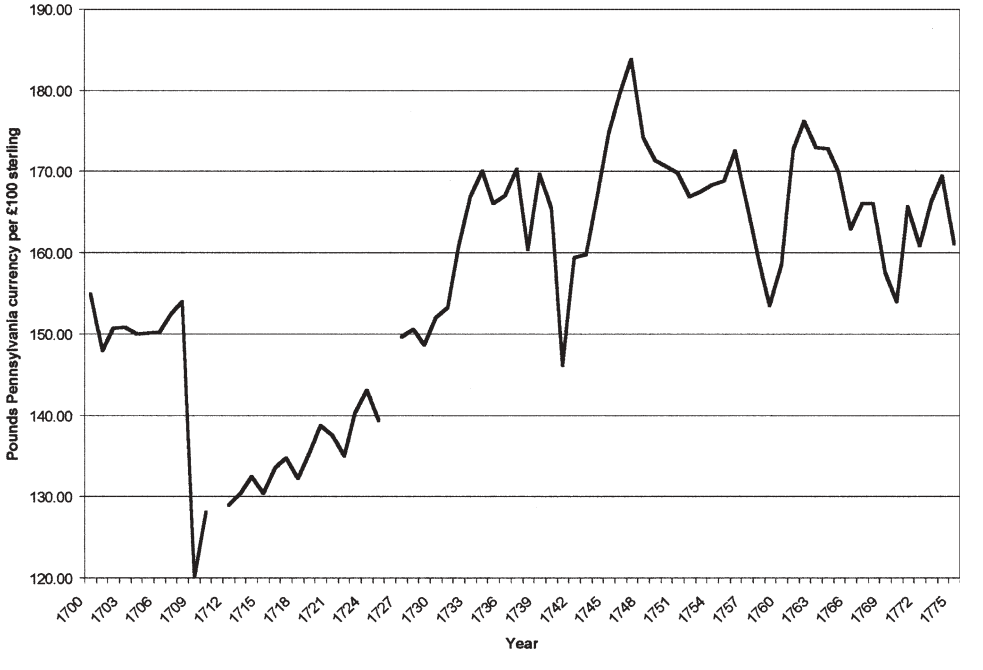


Figure 4. *Pennsylvania on London*
Source: as for Figure 1.

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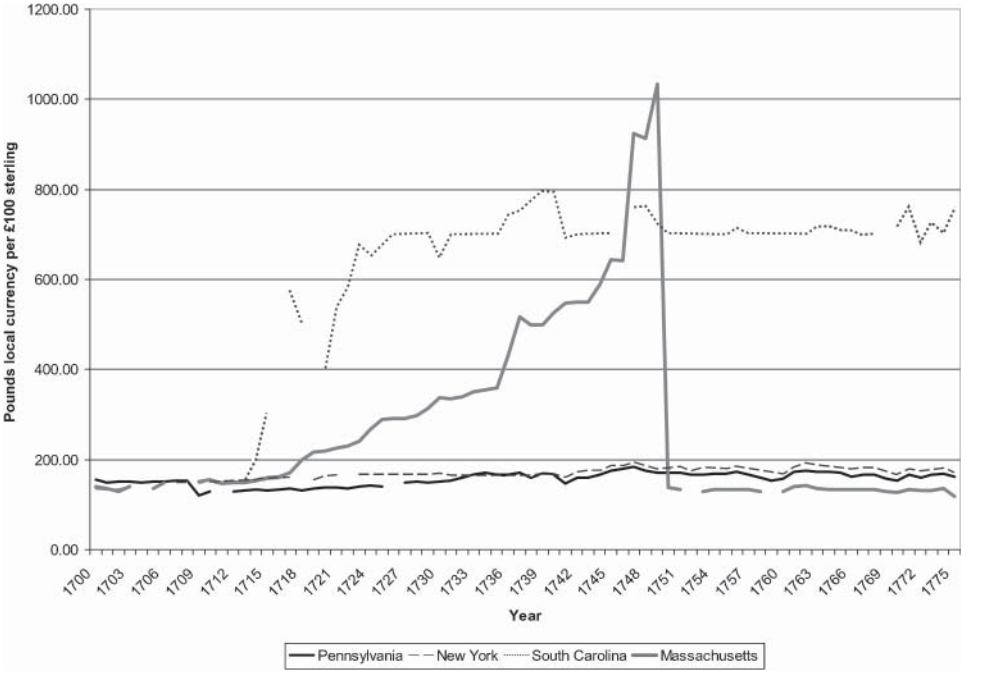


Figure 5. *Divergent colonial monetary experiences*
Source: as for Figure 1.

conventionally attached to the coins circulating there. In the words of David Ricardo: 'While the currency of different countries consists of the precious metals, or of a paper money which is at all times exchangeable for them; . . . a comparison of the weight, and degree of fineness of their coins, will enable us to ascertain their par of exchange.'[24] In the late colonial period, New Yorkers rated the silver dollar at 8s. (96d.) of local currency, Pennsylvanians at 7s. 6d. (90d.), and New Englanders at 6s. (72d.). It is no wonder, then, that Pennsylvania's nominal exchange rate was about 6.25 per cent lower than that of New York, or that Massachusetts' nominal exchange rate was consistently about 25 per cent lower than that of New York and 20 per cent lower than that of Pennsylvania.

Specie was sometimes driven from circulation. South Carolina's unit of account depreciated between 1711 and 1725, during a period when it was engaged in ferocious Indian wars that threatened the colony's very existence. Once the Indians were defeated, South Carolina issued fewer new bills of credit, and the citizenry, no longer fearing the imminent evacuation of the colony, became more willing to hold them. With the demand for money increasing faster than the supply, specie again entered domestic circulation. Eventually, South Carolina's bills regained convertibility into specie, but at their postwar parity rather than their original value.

[24] D. Ricardo, *The High Price of Bullion, a Proof of the Depreciation of Bank Notes* (London, 1810).

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The Massachusetts experience, though superficially similar, was actually quite different from that of South Carolina. Instead of rapidly depreciating and then stabilising, the Massachusetts pound slowly and continually depreciated against sterling until the late 1740s, when it rapidly lost value due to large issues made to fund the colony's wartime exertions. The exchange rate jumped from an average of £642.50 in 1746 to £925.00 in 1747. Exchange eventually topped £1,000 Massachusetts currency per £100 sterling. A grant of specie from the Crown and a redemption scheme proffered by House Speaker Thomas Hutchinson allowed Massachusetts to return to specie. Hutchinson engineered passage of a law that authorised use of the grant to redeem the colony's outstanding bills of credit at the rate of 1 Spanish dollar for 45s. of Old Tenor paper money. Hutchinson's reforms stuck; the new Massachusetts pound, the colony's unit of account, was defined according to the rule that 6s. Massachusetts money was equal to a silver Spanish dollar of full weight. (A subsequent law rated additional coins.)[25] The massive drop in the nominal exchange rate in 1750 was the direct result of the redefinition of the Massachusetts pound.[26] As evident in Figure 6, the exchange rate remained stable

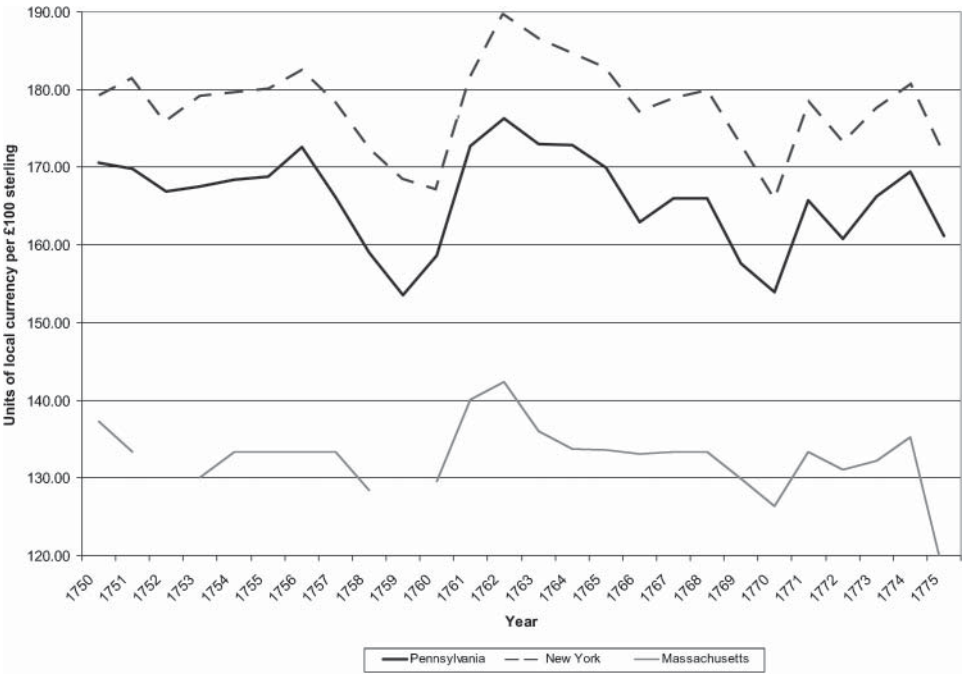


Figure 6. *Late colonial exchange rates*
Source: as for Figure 1.

[25] Leslie V. Brock, *Currency of the American Colonies*, pp. 244–334, esp. 249–52.
[26] R. E. Wright (ed.), *The US National Debt, 1785–1900* (London, 2006), particularly the documents reproduced in volumes 1 and 2.

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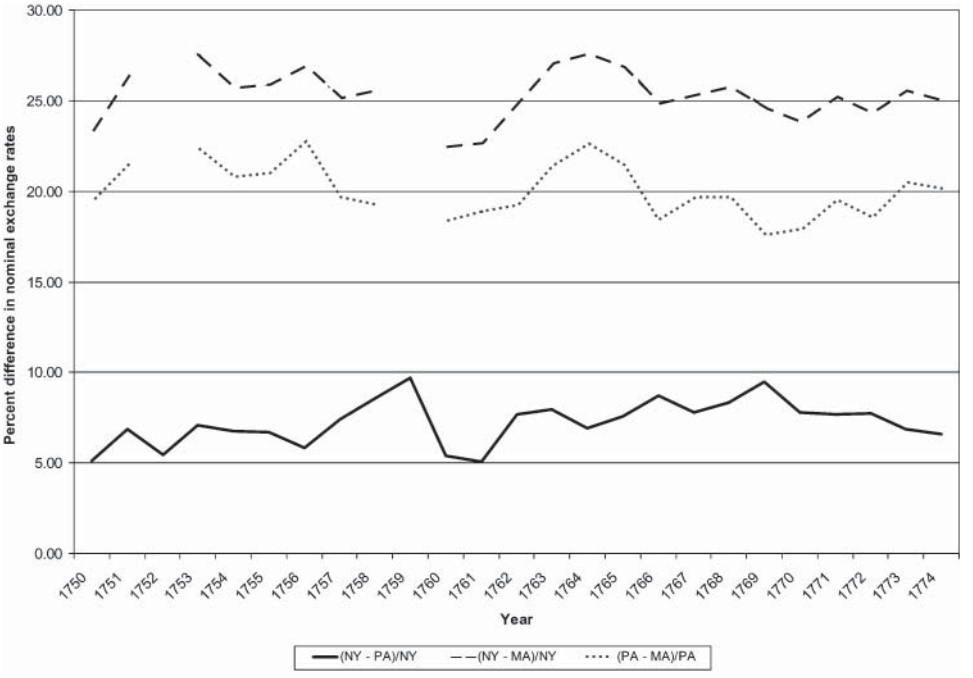


Figure 7. *Differential exchange rates*
Source: as for Figure 1.

after 1750 because Massachusetts maintained the system established in 1750 in which specie circulated at this rate, remained the unit of account, and paper money no longer circulated.

A glance at Figure 6 also suggests that late colonial exchange rates were fairly well synchronised. Figure 7, which plots percentage differences in nominal exchange rates from 1750 to 1774, reinforces that view. The underlying causes of the synchronicity are not difficult to find. For a start, the northern colonies faced roughly the same set of macroeconomic shocks, so the supply of and demand for bills of exchange usually fluctuated in tandem. Moreover, insofar as many colonies were on a *de facto* silver standard, while England was on a *de facto* gold standard, movements in the world gold/silver price ratio moved the par of exchange in all such colonies in tandem.

Careful observers will note that synchronisation was imperfect. The discrepancies arise for three reasons. First, due to high transaction costs the specie points were quite far apart. Second, colonies sometimes altered their coin ratings, frequently in an attempt to draw specie from one another. Third, the best available data set is quite thin: prices come from quotations spread over entire calendar months; bills with dissimilar risk characteristics and maturities mix promiscuously in the series.[27] In

[27] Michener, 'Fixed exchange rates'.

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colonial as well as modern times sceptics have pointed to the modest fluctuations in the price of bills of exchange as evidence that the bills of credit of the middle colonies depreciated and did not hold a steady, fixed value. But as Ben Franklin remarked at the time, this notion is 'by no means just'. 'It is a certain Fact', Franklin wrote, 'that whenever [in the middle colonies] Bills of Exchange have been dearer, the Purchaser has constantly been obliged to give more in Silver as well as in Paper, for them, the Silver having gone hand in hand with the Paper at [the conventional ratings assigned silver coins]: And therefore it might as well have been said that the Silver was depreciated.'[28]

In summary, the colonies that would later become the United States did not have the same unit of account and they used extremely variegated media of exchange, many of which were not denominated in the unit of account of the colony. Most colonies' units of account were tied to specie, but at different nominal rates; in instances where convertibility had broken down, colonial units of account were based on the value of the local fiat paper money. Simple eyeball tests show that the prime determinant of the average level of a colony's nominal exchange rate was its rating of full-bodied coins, like the Spanish silver dollar, in terms of the local unit of account. Except in a few instances, such as early South Carolina and New England before its currency reforms, colonial bills of credit served only as one of many media of exchange linked to a specie-based unit of account.[29]

IV

The American Revolution was, at its heart, a prolonged civil war that at first pitted about one-third of the population of the American colonies against another third of the local population, Canada and Great Britain. Before the alliance with France and Spain, the only practical way for the rebels to finance the war effort was to print bills of credit. Each of the new states and the new Continental government printed prodigious quantities of the stuff. (Rogues, Loyalists and the British government also printed counterfeit Continentals, which the British happily gave to anyone who wanted to try to infuse them into circulation.)[30] Specie was shipped abroad or hoarded; once it completely disappeared, the Continental dollar became the dominant medium of exchange and the unit of account. Legitimate and counterfeit[31] Continentals entered circulation far faster than demand for transaction media increased and faster than their influx was offset by the disappearance of specie and

[28] L. W. Labaree (ed.), *The Papers of Benjamin Franklin* (New Haven, CT, 1967), vol. 14, p. 85.
[29] Michener documents this point minutely in his forthcoming book about colonial New York's monetary experience.
[30] 'Descriptions of Counterfeit Bills' (Philadelphia, 1779).
[31] A. S. Bolles, *Financial History of the United States From 1774 to 1789* (New York, 1892), pp. 150–7.

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Table 1. *Depreciation of Continental dollars*

Date	*Increase in prices (in %, not annualised)*
July 1776–January 1777	80
January 1777–July 1777	83
July 1777–January 1778	35
January 1778–July 1778	26
July 1778–January 1779	79
January 1779–July 1779	110
July 1779–January 1780	193
January 1780–July 1780	65
July 1780–January 1781	19

Source: Michener, 'Backing theories', p. 686.

the old colonial bills of credit, so Continental dollars lost value vis-à-vis goods and services as the quantity in circulation increased.[32]

Due to the disruption of trade during the war, we cannot use exchange rate data to track the demise of the Continental. Luckily, the rebels kept fairly complete records of the Continental's depreciation, which, given the Continental's role as unit of account, also meant price inflation. Table 1 shows the rapid increase of prices.

Early Americans learned that when combined with legal tender laws, inconvertible paper money unfairly redistributed property from creditors to debtors *ex post*. For example, Thomas McKean calculated that debtors who repaid their obligations in depreciated bills cost him £4,723 (specie) all told ($12,610.41 or $168,187.71 of 'purchasing power' in 2003) and he suffered a cumulative loss of £2,759 ($7,366.53 or $98,248.97 of 'purchasing power' in 2003)[33] because his nominal salary did not keep pace with inflation.[34] Small creditors suffered extreme hardships. In 1786, one newspaper essayist poignantly reminded readers of the 'cries of widows and orphans, execrating the authors of their destruction – those piercing cries which reach higher than the clouds – . . . the weeping widow, in her lonely cell, dividing her mouldy bread among her famishing children – reduced to this extreme woe by debts and legacies paid off in paper!!'[35] Other gut-wrenching stories about ruined widows and

[32] Michener, 'Backing theories'.

[33] J. J. McCusker, 'Comparing the purchasing power of money in the United States (or colonies) from 1665 to any other year including the present', Economic History Services (2004): http://www.eh.net/hmit/ppowerusd/

[34] Thomas McKean, 'An account of money lost by the depreciation', 1 Jan. 1780, Historical Society of Pennsylvania, Philadelphia, PA.

[35] *The Providence Gazette and Country Journal*, 5 Aug. 1786.

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orphans abound.[36] They were so common, in fact, that newspapers felt it necessary to publish op-eds like this:

> A citizen of Philadelphia paid a debt to a widow of £500 specie during the war, with paper money, the real value of which was only £200. Upon the reduction of the paper money, by means of a scale of depreciation, he called upon this widow – apologized for his misconduct . . . and gave her a bond for £400 the interest of which he has paid every year. Whoever thou art – merchant – mechanick – or farmer – priest . . . or layman – who hath defrauded a widow – an orphan – an aged citizen – or a publick institution of any kind, go and acknowledge the omniscience of God, and a future state of rewards and punishments, by imitating this honest citizen of Philadelphia.[37]

After the Revolution's harsh lessons were repeated in Rhode Island in the mid-1780s, public sentiment regarding bills of credit declined further.[38] Its 1786 issue of bills of credit had so depreciated by October 1789 that 90s. in bills purchased just 6s. in specie. The tender provisions of the bills repeated the injustices experienced during the Revolution. 'Almost in the instant of its birth,' Edward Carrington told James Mercer of Rhode Island's bills of credit, 'it ceased to circulate, except in the payment of debts, for which it was made a Tender, and has convulsed the State nearly to a civil War.'[39] Even states such as Pennsylvania, New York and South Carolina, states that limited their Confederation-era emissions to very modest quantities and made strenuous efforts to support their value, encountered difficulties. Pennsylvania's paper money, for example, depreciated over 30 per cent even though it was issued in much smaller quantities per capita and was more strongly backed by taxes than Pennsylvania's colonial emissions had been. The public distrusted the bills and was unwilling to freely convert them into specie at par as it had in the colonial period, and the government hadn't a sufficient stock of specie to do so itself. With specie and convertible bank liabilities readily available, especially in the cities, demand for the inconvertible bills was slack and the slightest intimation that they might be made a tender was enough to cause a rapid decrease in their value.[40]

It was a foregone conclusion, therefore, that the delegates who met at the constitutional convention in Philadelphia in mid-1787 would do something to prevent

[36] W. Barton, *Observations on the Nature and Uses of Paper-Credit; and the Peculiar Advantages to be Derived from it, in North America: From Which are Inferred the Means of Establishing it, Including Proposals for Founding a National Bank* (Philadelphia, 1781), pp. 18–9, 22; 'A citizen', *To the Honourable the Legislature of the State of New-York* (New York, 1786), p. 2; Thomas Paine, *Dissertations on Government, the Affairs of the Bank, and Paper-money* (Philadelphia, 1786), pp. 45–6; Hugh Williamson, *Letters from Sylvius to the Freemen of the United States. Containing Some Remarks on the Scarcity of Money; Paper Currency; National Dress; Foreign Luxuries; the Foederal Debt; and Public Taxes* (New York, 1787), pp. 2–3.

[37] *Salem Mercury*, 2 Dec. 1788.

[38] *The Providence Gazette and Country Journal*, 14 April 1787.

[39] J. P. Kaminski, *Paper Politics: the Northern State Loan-offices during the Confederation, 1783–1790* (New York, 1989), p. 197; P. H. Smith et al. (eds.), *Letters of Delegates to Congress, 1774–1789*, 25 vols. (Washington, DC, Library of Congress, 1976–2000), vol. 23, p. 538.

[40] Michener and Wright, 'State "currencies"'.

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state governments from allowing anything but gold and silver to serve as the unit of account. They did so in article I, section 10, which stated that 'No State shall ... coin Money; emit Bills of Credit; make any Thing but gold and silver Coin a Tender in Payment of Debts; pass any ... ex post facto Law, or Law impairing the Obligation of Contracts'. They decided not to make explicit the federal government's right to issue paper money but affirmed in article I, section 8 that it ought 'To coin Money, regulate the Value thereof, and of foreign Coin, and fix the Standard of Weights and Measures; To provide for the Punishment of counterfeiting the Securities and current Coin of the United States'.

Those provisions might seem a little random to the modern reader but in fact they formed a coherent and comprehensive whole. It was necessary to fix the standard of weights to ensure that non-monetary values in contracts had a uniform meaning. It of course would have made little sense to create a national unit of account if the ounce, gallon, or yard could vary over space. As James Madison stated in Federalist number 42, 'the regulation of weights and measures ... is founded on like considerations with the preceding power of regulating coin', namely that the 'uniformity in the *value* of the current coin, might be destroyed by subjecting that of foreign coin to the different regulations [i.e. different coin ratings] of the different states'.[41] Rampant counterfeiting could undermine the system too, so it was also addressed. The states were also effectively constrained. True, they could still charter banks, but they could not make the liabilities of those institutions a legal tender directly or, thanks to the *ex post facto* and contract impairment clauses, even indirectly do so. Thanks to those provisions, without congressional approval bank notes could be a medium of exchange, but not a legal tender. Nor could they be used to change the definition of the unit of account.

The provisions, which ensured a uniform unit of account and standard of deferred payment, were among the most popular in the new Constitution and, according to at least one account, ensured its ratification.[42] As long-time governor of Connecticut Oliver Wolcott put it: 'It was chiefly for the purpose of enabling Congress to regulate money and commerce, and to encourage domestic industry, that the federal government was established.'[43] In this it was highly successful. Before adoption of the uniform unit of account, 'merchants, tradesman, &c. from one part of the union, [found] themselves greatly embarrassed in calculating the currency of another, to which business may direct them'. The boundary lines between the different unit-of-account zones were not coterminous with state borders. 'A removal of a few miles north or south', particularly in hinterland states like New Jersey, required 'a new

[41] A. Hamilton, J. Jay and J. Madison, *The Federalist* (Indianapolis, IN, 2001), p. 220.

[42] J. T. Main, *The Anti-federalists: Critics of the Constitution, 1781–1788* (New York, 1961), pp. 268–9; H. Storing, *What the Anti-federalists Were for: the Political Thought of the Opponents of the Constitution* (Chicago, 1981), p. 42; E. J. Ferguson, 'Political economy, public liberty, and the formation of the constitution', *William and Mary Quarterly*, 40 (1983), pp. 405, 407; W. Norton, 'Paper currency in Massachusetts during the Revolution', *New England Quarterly*, 7 (1934), p. 44.

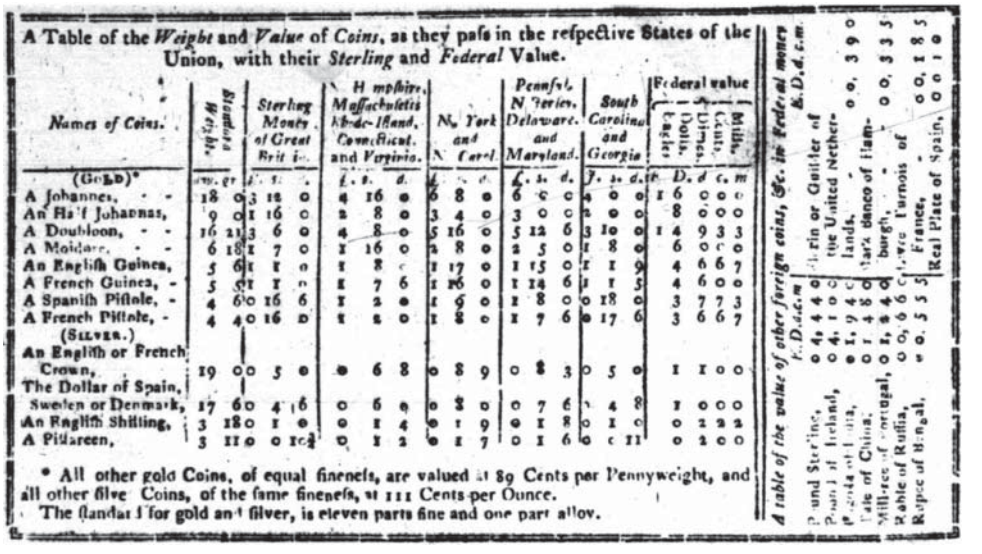
[43] O. Wolcott, *Remarks on the Present State of Currency, Credit, Commerce, and National Industry* (New York, 1820), p. 38.

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mode of calculation'. By the late 1790s, it was generally acknowledged that the national unit of account remedied 'this evil', making valuations uniform and calculations easy for a numerate child.[44] Furthermore, by creating a stable standard of deferred payment, the Constitution protected widows, orphans and other creditors from the insidious redistributional effects of inflation.

V

With the passage of the Mint Act in April 1792, the federal government exercised its prerogative to create a national unit of account. (The act overvalued silver, so the US was on a *de facto* silver standard until the Jacksonian period, when legislative changes made gold the *de facto* standard.) The Mint Act implicitly rated foreign coins in terms of the new US dollar unit of account; a subsequent act for 'regulating foreign coins', passed in February 1793, explicitly did so and simultaneously made foreign coins a legal tender in public and private payments. (It supplanted a Customs Act, passed in 1790, that had made foreign currencies and coins payable for tariff duties at fixed rates.) The Mint Act made the specie dollar the federal government's official unit of account. By determining the relationship between the federal dollar and the state units of account, the mint and coin-rating acts also effectively established the dollar as the nation's common unit of account, though (as we will see) old habits die hard and some still clung to the old state units. (See Figure 8.) George



A Table of the *Weight* and *Value* of *Coins*, as they pass in the respective States of the Union, with their *Sterling* and *Federal* Value.

Names of Coins.	Standard Weight	Sterling Money of Great Brit.	New Hampshire, Massachusetts, Rhode-Island, Connecticut, and Virginia.	New York and North Carol.	Pennsyl. New Jersey, Delaware, and Maryland.	South Carolina and Georgia	Federal value Dollars	Cents	Mills
(Gold)*	dw. gr.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	D.	d.	c. m
A Johannes,	18 0	3 12 0	4 16 0	6 8 0	6 0 0	4 0 0	16	0	0 0
An Half Johannes,	9 0	1 16 0	2 8 0	3 4 0	3 0 0	2 0 0	8	0	0 0
A Doubloon,	16 21	3 6 0	4 8 0	5 16 0	5 12 6	3 10 0	14	9	3 3
A Moidore,	6 18	1 7 0	1 16 0	2 8 0	2 5 0	1 8 0	6	0	0 0
An English Guinea,	5 6	1 1 0	1 8 0	1 17 0	1 15 0	1 1 0	4	6	6 7
A French Guinea,	5 5	1 1 0	1 7 6	1 16 0	1 14 6	1 1 5	4	6	0 0
A Spanish Pistole,	4 6	0 16 6	1 2 0	1 6 0	1 3 0	0 18 0	3	7	7 3
A French Pistole,	4 4	0 16 0	1 2 0	1 5 0	1 7 6	0 17 6	3	6	6 7
(Silver.)									
An English or French Crown,	19 0	0 5 0	0 6 8	0 8 9	0 8 3	0 5 0	1	1	0 0
The Dollar of Spain, Sweden or Denmark,	17 6	0 4 6	0 5 0	0 7 0	0 7 6	0 4 8	1	0	0 0
An English Shilling,	3 18	0 1 0	0 1 4	0 1 9	0 1 8	0 1 0	0	2	2 2
A Pistareen,	3 11	0 0 10½	0 1 2	0 1 7	0 1 6	0 0 11	0	2	0 0

* All other gold Coins, of equal fineness, are valued at 89 Cents per Pennyweight, and all other silver Coins, of the same fineness, at 111 Cents per Ounce.
The standard for gold and silver, is eleven parts fine and one part allov.

A table of the value of other foreign coins, &c. in Federal money.

	D.	d.	c. m
Pound Sterling,	4	44	0
Pound of Ireland,	4	1	0 0
Ducat of Holland,	1	94	0 0
Tale of China,	1	48	0 0
Millrees of Portugal,	1	8	40 0 0
Ruble of Russia,	0	66	0 0
Rupee of Bengal,	= 0	55	5

	D.	d.	c. m
Rix or Guilder of the United Netherlands,	0	39	0
Mark Banco of Hamburgh,	0	33	3
Livre Tournois of France,	0	18	5
Real Plate of Spain,	0	10	0

Figure 8. *A table of the weight and value of coins*
Source: *The Pennsylvania, New-Jersey, Maryland, and Virginia Almanac, for the year of our Lord 1792* (Philadelphia, 1796).

[44] *Letter, Addressed to the Legislators of the Several States, Composing the Federal Union* (New York, 1797).

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Table 2. *Foreign coin ratings in the United States, 1857*

Nation	*Gold coin*	*US dollars*	*Nation*	*Silver coin*	*US dollars*
Austria	ducat	2.28	Austria	rix dollar	1.025
Austria	souverain	6.77	Austria	florin	0.51
Bolivia	doubloon	15.58	Bolivia	dollar	1.067
Belgium	20 franc	3.83	Belgium	5 franc	0.98
Britain	sovereign	4.848	Britain	shilling	0.23
Denmark	10 thaler	7.90	Denmark	specie dollar	1.107
France	20 franc	3.845	France	5 franc	0.98
Mexico	doubloon	15.534	Mexico	dollar	1.062
Netherlands	10 guilder	3.99	Netherlands	guilder	0.414
Prussia	10 thaler	8.00	Prussia	thaler	0.72
Portugal	crown	5.813	Portugal	crown	1.18
Russia	5 rouble	3.976	Russia	rouble	0.794
Spain	100 reals	4.963	Spain	dollar (20 pistareens)	1.015

Source: US Mint, 1857, Society Collection, Historical Society of Pennsylvania, Philadelphia, PA.

Washington told John Sinclair, an Englishman interested in purchasing American lands, as much in 1796: 'I fix on [i.e. I quote land prices in] dollars,' he wrote, 'because they apply equally to *all* the States, and because their relative value to sterling is well understood.'[45]

The federal government continued to rate foreign coins, on and off, until the eve of the Civil War. Unlike in the colonial and confederation periods, the ratings were national. For example, everywhere in the country, the Prussian 10 Thaler gold coin was legal tender for $8 in 1857, as Table 2 shows. Rating foreign coins remained necessary because, for a variety of reasons, until the 1850s most of the coins in domestic circulation were of foreign manufacture.[46] Though media of exchange were as variegated as during the colonial period, the entire early US enjoyed a single unit of account and standard of deferred payment, the dollar. Nonetheless, some people preferred to reckon values in their colonial/state unit of account well into the nineteenth century. In 1822, for example, P. T. Barnum, then a young man from Connecticut making his first visit to New York, paid too much for a brace of oranges because of confusion over the unit of account. 'I was told', he later related, 'that they [the oranges] were four pence apiece [as Barnum failed to realise, in New York there were 96 pence to the dollar], and as four pence in Connecticut was six cents, I offered ten cents for two oranges, which was of course readily taken; and

[45] J. C. Fitzpatrick (ed.), *The Writings of George Washington from the Original Manuscript Sources* (Washington, DC, 1931–44), George Washington to John Sinclair, 11 Dec.1796,

[46] E. Stevens, 'Composition of the money stock prior to the Civil War', *Journal of Money, Credit and Banking* 3 (1971), pp. 84–101.

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thus, instead of saving two cents, as I thought, I actually paid two cents more than the price demanded.'[47] Similarly, historian Robert Shalhope documents a Vermont farmer who continued to reckon, at least some of the time, in New York currency (i.e. 8 shillings = $1) well into the 1820s.[48] Americans could continue to quote prices and keep books in the old units because they were immutably tied to the federal dollar. State units were not *exchanged* for federal units but rather were *converted* to federal units, and vice versa, the same way that lira, marks and francs were converted to and from the euro (unit of account) in the years leading up to the issuance of physical euros (medium of exchange).[49] After all, an inch is an inch whether you call it an inch or 2.54 centimetres.

As early as 1792 the greatest part of the nation's stock of cash was composed of bank liabilities, to wit notes and deposits, not specie coin. Though superficially similar to bills of credit, banknotes were, in fact, a very different instrument. For a start, they were issued by privately owned banks, not governments. More importantly, they were convertible into specie at the bank of issue. Moreover, banknotes were not a legal tender for private debts.[50]

Even when fully convertible into specie, banknotes did not always pass at their face or par value for two reasons. First, they were essentially 'zeroes' or discount bonds. As noted above, they were redeemable on demand but only at the bank of issue. When banknotes circulated far from the bank of issue, they naturally lost value because their redemption entailed an economic cost, that of physically remitting the note and the foregone interest. So it was common for, say, the notes of Philadelphia banks to trade at 99 cents on the dollar in New York.[51] Second, sometimes, in exceptional cases, a bank's notes traded at a steep discount, even when close to home. That indicated that market participants feared that the bank would default, that it would not be able to redeem all of its demand liabilities in specie. Such risk premiums could become quite large, so it was not unusual to see the notes of shaky banks trading at 30, 40 or 50 cents on the dollar. As that phrase suggests, banknotes were usually simply a medium of exchange, not a measure of value. In other words, the dollar-as-so-much-specie usually remained the unit of account, the numeraire in which banknote prices were stated.

The banking system, or large parts of it, suspended payments (stopped converting notes into specie) five times before the Civil War: 1814–17, 1819–21, 1837–8, 1839–43 and 1857. But because a return to specie payments was expected, the specie dollar

[47] http://www.electricscotland.com/history/barnum/chap1.htm

[48] R. Shalhope, *A Tale of New England: the Diaries of Hiram Harwood, Vermont Farmer, 1810–1837* (Baltimore, 2003), pp. 140, 142, 147, 290.

[49] http://www.nysscpa.org/cpajournal/1999/0899/departments/D52899.HTM

[50] *Gazette of the United States* (18 Dec. 1797); J. Madison to C. J. Ingersoll, 2 February 1831, *Letters and Other Writings of James Madison* (New York, 1884), vol. 4, p. 160.

[51] Gary Gorton, 'Reputation formation in early bank note markets', *Journal of Political Economy*, 104 (1996), pp. 346–97.

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remained a standard of deferred payment even if its standing as a unit of account was sometimes ambiguous. After all, banknotes did not become so numerous as to banish specie from the country. Americans knew that their banks still possessed specie reserves; in fact, the banks suspended payments *in order to protect their remaining reserves*.[52] So during suspensions market participants anticipated a return to specie payments, banknotes remained the predominate medium of exchange, and they did not turn into mere speculative securities as bills of credit had in Pennsylvania in the 1780s.[53]

The fact that banknotes were not, and could not become, a legal tender may have helped to check their issuance even in the absence of convertibility. Sellers and creditors did not have to accept them at face value, but the bank of issue did, if only on account.[54] So holders, including borrowers, brokers, clearinghouses and other banks, redeemed banknotes for credit at the issuing bank, even during suspensions. Holders could not physically remove specie from the bank, but even during suspensions they could reduce their indebtedness to the bank or arrange for the transfer of credits to other customers of the bank. During suspensions people feared deflation, not inflation, and in fact prices generally fell during suspensions and the money supply shrank.[55] Banks slashed loans to shore up their balance sheets, prompting bitter complaints from debtors.[56]

So with these caveats, as erstwhile treasury secretary Albert Gallatin made clear (see the head quote to this article), between the establishment of the Constitution and the Civil War, Americans shared a common unit of account and standard of deferred payment but not a medium of exchange. The import of this is that many studies that analyse the antebellum US monetary system in fact only examine the market for banknotes or other transaction media.[57] They tend to judge the merits of the early American monetary union by a standard – the uniformity of the transactions media – that was not its real goal. The real goal was to establish a uniform unit of account and standard of deferred payment firmly linked to specie. That was an important accomplishment that simplified domestic and international transactions and strengthened credit markets. When someone said that the price of X was $100, everyone from Maine to California and from New York to London and Amsterdam knew precisely what that meant. Payment for X could then be made in 100 full weight US silver dollar coins, $101 of New York banknotes, $105 of Boston banknotes, Frank's $120 promissory note with three months to run, a bond due in five years, or 200 live chickens.

[52] Wolcott, *Remarks*, pp. 11–12.

[53] Wolcott, *Remarks*, p.13.

[54] Gallatin, *Suggestions on the Banks*, p. 23.

[55] J. J. McCusker, 'What was the inflation rate then?' Economic History Services, 2003, http://www.eh.net/hmit/inflation/.

[56] R. Blackson, 'Pennsylvania banks and the panic of 1819: a reinterpretation', *Journal of the Early Republic*, 9 (1989), pp. 335–58; M. N. Rothbard, *The Panic of 1819: Reactions and Policies* (New York, 1962).

[57] Rolnick, Smith and Weber, 'Establishing a monetary union'.

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During the Civil War, however, the monetary union splintered. The South created its own unit of account and exchange media, California maintained the antebellum system, and by issuing a large volume of fiat bills of credit the North established a new medium of exchange and unit of account.[58] By the time of specie resumption, the federal government had re-established a monetary union characterised by a common unit of account and standard of deferred payment. But there was a clear movement toward a more uniform system of transaction media as the economy became more monetised, dollar-denominated US coins became more ubiquitous, and the variegated state banknotes were suppressed and supplanted by the uniform dollar-denominated notes of national banks. The trend continued in the twentieth century, ultimately leading to the system familiar today whereby the Federal Reserve and Treasury maintain a uniform medium of exchange denominated in dollars and composed of Federal Reserve notes, insured bank deposits, and small Treasury coins. The trade-off was that the anchor to the price level provided by the specie definition of the dollar was sacrificed.

VI

In most times and places, colonists reckoned value in terms of local units of account that were defined in terms of silver and gold. Bills of credit were one of numerous media of exchange but not usually a unit of account. Early in the eighteenth century, some colonies, notably those of New England and the Deep South, issued enough bills of credit to cause the exportation or hoarding of all their specie. Convertibility of their local monies ceased and bills of credit replaced specie as the local unit of account. Where fiscal pressures continued, prices of commodities and of sterling-denominated exchange trended upward until economic changes or institutional reforms attracted enough specie into local circulation to allow the unit of account to again be defined in terms of gold or silver. Economic calculations across regions were complicated by the fact that people had to reckon with different units of account, without the aid of electronic calculators or a decimal currency.

During the Revolution, wartime exigencies necessitated the emission of unprecedented amounts of inconvertible paper money. As had happened in colonial South Carolina and Massachusetts, the paper money depreciated in value as the supply in circulation displaced specie and outstripped the demand for transaction media at prevailing prices.

After the Revolution, several states again experimented with legal tender paper money and again found it wanting. Disillusioned with paper money, tender provisions, and multiple units of account, Americans asked for, and with adoption of

[58] R. Timberlake, *Gold, Greenbacks, and the Constitution* (Berryville, VA, 1991); K. Willard, T. Guinnane and H. Rosen, 'Turning points in the Civil War: views from the greenback market', *American Economic Review*, 86 (1996), pp. 1001–18; M. Weidenmier, 'Money and finance in the confederate states of America', *EH.Net Encyclopedia*, R. Whaples (ed.), 23 Sept. 2002. http://www.eh.net/encyclopedia/contents/weidenmier.finance.confederacy.us.php

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the Constitution received, a monetary union characterised by a common unit of account and standard of deferred payment, the dollar defined in specie, and numerous exchange media.

During the Civil War, the US monetary union disintegrated. When reconstituted after the conflict, it was again characterised by a common unit of account, the specie-defined dollar, but with fewer exchange media. In the twentieth century, the Federal Reserve and Treasury would finally adopt a uniform medium of exchange, the fiat notes and coins familiar to Americans today.

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