

Establishing a Monetary Union in the United States

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Before 1789, the individual colonies that were ultimately to make up the United States were free to issue their own currencies, and all of them did.¹ The U.S. constitution, adopted in 1789, took this power away from the states. Thus, it might appear that the Constitution left the federal government, which minted gold and silver coins, as the sole potential creator of currency in the new country.

However, this did not, in fact, turn out to be the case. Although the Constitution took away the power of states to issue money, it left them with the power to charter and regulate note-issuing banks. All of the states ultimately utilized this power, and some went as far as wholly or partially owning banks. Virtually all of these banks issued notes, and these notes circulated as currency. In addition, the federal government chartered the (First) Bank of the United States from 1791-1811 and the (Second) Bank of the United States from 1816-1836. These banks also issued notes intended to circulate as currency. Thus, by the early 1800s there were far more entities issuing currency in the United States than there had ever been prior to 1789. The regulation of these currency issuers varied from state-to-state and from time-to-time.

We have argued elsewhere (Rolnick, Smith, and Weber, 1994) that the intention of the framers of the Constitution was to make the United States a monetary union or a common currency area. If this is correct, then their goal was not achieved prior to the passage of the National Banking Act in 1863. Prior to this Act, the notes issued by most of these banks circulated against each other and against specie at discounts or premia that varied across time and space. The United States did not have a uniform currency.

Why did the initial attempt to provide the United States with a uniform currency fail? Our answer is that the regulation of these banks was flawed, at least in regard to the regulation of note issue. In our view, the achievement of a uniform currency with private currency issuers requires that *holders* of currency can costlessly redeem it at par on demand in terms of outside money. The basic idea is that when a currency can be costlessly redeemed for outside money at par on demand, it becomes a perfect substitute for outside money and will, therefore, trade at a fixed exchange rate with that currency.

¹See Rolnick, Smith, and Weber (1994) for a summary of the monetary arrangements prevailing among the states/colonies prior to 1789.

When all private currencies are subject to the same requirement, they will all trade at a fixed rate with outside money and, as a result, at par with each other.

At no time in the early U.S. experience did bank regulation provide adequately for par redemption on demand that was costless to the holders of bank notes (bank currency). Par redemption was not guaranteed. Banks could go out of business without sufficient assets to payoff note liabilities. Further, general suspensions of specie payments were, at various times, sanctioned by state governments. And even during periods in which banks generally were redeeming notes in specie, noteholders had to bear costs in terms of time and effort in order to redeem their notes. As a result, bank notes could and did circulate at something other than their face value.

The remainder of this paper illustrates how important costless redemption of currencies at par on demand is for a uniform currency with private issuers to exist. Although such a situation never existed in the United States prior to the passage of the National Bank Act in 1863, we show that the size and regional variability of bank note discounts were smaller the closer this criterion was to being met. We also examine how other problems in achieving a common currency—like incentives to overissue notes—were affected by how close bank note redemption was to being costless.

Specifically, the paper examines two different mechanisms used during the antebellum period that affected the redemption costs borne by the holders of banknotes. The first was the Suffolk Banking System. This was a system for net clearing of bank notes that was in existence in New England from the mid-1820s to the 1850s. This System eliminated much of the cost to a bank of redeeming the notes of other banks. If our view is correct, the notes of the banks participating in this system should have behaved more like a common currency than did bank notes in other parts of the country at the same time. We show that this was in fact the case. Thus, although achieving a uniform currency was not a goal of the Suffolk Banking System, it had the effect of achieving a monetary union among New England banks.

The second mechanism was the strategy for dealing with the notes of state banks used by the Second Bank of the United States from 1823 to 1836. This strategy was to immediately present to the issuing bank for redemption in specie all state bank notes it received. Despite the fact that the stated objective of this policy was to achieve a uniform

currency, we argue that it did not provide much cost reduction for the holders of bank notes and, therefore, did not establish a uniform currency.

The paper proceeds as follows. In section 1 we discuss in more detail our hypothesis that costless par redemption is required to achieve a uniform currency. In section 2 we discuss the Suffolk Banking System. The Second Bank of the United States is discussed in section 3. Interestingly, the experience of the Second Bank itself illustrates how a failure of a par redemption requirement for the issuer of a note provides incentives for note overissue. These incentives are discussed in section 4 of the paper. The final section concludes.

1. Achieving a uniform currency with private issuers

In this section, we consider conditions required for the existence of a uniform currency when private entities are permitted to issue liabilities intended to circulate as currency. What we mean by a uniform currency is that currencies of different issuers bearing the same denomination trade at par with each other and with whatever outside money is in circulation.

We start with three maintained hypotheses. The first is that the private currencies in such a system will have to be representative monies. That is, there will be a positive probability that they are redeemable in some form of outside money. The second is that redemption will inevitably involve some expenditure of time or resources either on the part of the holder of the note, the issuer of the note, or both. Note holders might have to ship notes and specie as a part of the redemption process, and banks would have to install vaults to hold specie reserves and employ tellers to facilitate note redemption.

Our third maintained hypothesis is that, during this period, monetary arrangements required the use of both specie and banknotes. In addition, it was necessary on certain occasions for some agents to convert specie into banknotes and conversely. It is, of course, very plausible that banknotes would be used to supplement the use of specie: specie was relatively scarce, costly to use in transactions, and the use of commodity monies involved a well-understood opportunity cost. At the same time, other transactions—particularly payments for imports or payments of certain kinds of taxes—might well have required specie. In addition, at various times banks would have faced

the need to redeem any notes that they received that were issued by other banks in order to augment their specie reserves. Thus, in summary, some agents were confronted with the necessity of regularly converting bank notes into specie and specie into bank notes.

Under these maintained hypotheses, our assertion in this paper is that a necessary and sufficient condition for a uniform currency with private issuers is that note issuers redeem their notes at par on demand, with no cost to the holders of their notes. In other words, a uniform currency will be observed if and only if the holders of that currency can instantaneously get the par value of the currency without expending any resources. In particular, private currencies must be redeemable on demand with certainty, and holders of currency must experience no (or a minimal) time delay exchanging the private currency for the outside money at par. And, no expenditure of time or goods on the part of the holder could be required. Stated slightly differently, our hypothesis is that a uniform currency with private issuers will exist if redemption is certain and the incidence of redemption costs lie entirely with note issuers (as was the case under the National Banking System) or with some other entity, such as the government.

When the redemption costs are borne by the agents holding a currency and agents have a positive probability of having to make redemptions, then a currency can and will circulate at a discount against specie. Discounts on bank notes, which reflect these expected redemption costs for noteholders, are required in order for bank notes and specie to have the same expected rates of return. Further, if redemption costs or probabilities vary by the location of the issuer, discounts can be different for different currencies.

In addition, it is possible that the rates of exchange between bank notes of various issuers and between bank notes and specie can fluctuate for reasons unrelated to fundamentals, as long as these rates of exchange do not imply an arbitrage opportunity associated with purchasing and redeeming notes. This is essentially the “gold points” argument for why exchange rates between sovereign currencies can fluctuate under a commodity standard. Since such discounts or premia can occur for reasons that are unrelated to fundamentals, but can affect allocations and use resources,² they are inimical to a uniform currency system.

²See King, Wallace, and Weber (1992) or Manuelli and Peck (1990).

It is also the case that, when redemption at par is not required of the issuers of banknotes, then the uniformity of the currency can be threatened in another way. Suppose that the currencies of various private issuers (e.g., banks, states, or countries) are treated as a uniform currency *in the absence of a redemption requirement*. Since the various currencies trade at par with each other, money holders will treat the various currencies as perfect substitutes. In this situation, any issuer of currency can collect seigniorage revenue from the holders not only of its own liabilities, but from the holders of other liabilities as well.³

Further, the entity whose note circulation grows the most rapidly will, asymptotically, collect the bulk of the seigniorage revenue generated within the monetary union. This fact gives each issuer of a uniform currency a strong incentive to capture seigniorage by printing its notes at a rapid rate. We term this the *seigniorage incentive problem*. Moreover, a failure to control this problem poses a sharp threat to the viability of a monetary union, as it threatens high rates of inflation that may dilute or overturn the benefits of monetary unification. Additionally, when seigniorage incentive problems arise, there are incentives for currency issuers to take strategic actions to strengthen the demand for their own liabilities. Such actions are highly detrimental to the existence of a common currency area as they undermine its intention, which is to make all currencies perfectly substitutable.

Requiring redemption at par on demand offers a solution to the seigniorage incentive problem. When note issuers must redeem their liabilities on demand, they have no control over the quantity of their liabilities outstanding. While they can still raise seigniorage revenue, they can take no strategic actions to enhance their seigniorage income. As a result, the seigniorage incentive problem disappears. However, if some currency issuers are not required to redeem on demand, perhaps because they operate under different regulations, then the seigniorage incentive problem remains.

Costless redemption at par on demand was far from being the norm in early U.S. bank regulation. The enforcement of the regulations against nonredemption and the penalties imposed for nonredemption varied from state-to-state and from time-to-time.

³See Kareken and Wallace (1981) and Cooper and Kempf (2000) for a discussion of this point where different countries issue a non-redeemable currency.

For example, many states either did not require banks to redeem notes promptly, or they imposed only nominal penalties for a failure to redeem notes on demand. According to Dewey (1910a, p. 73),⁴ “in the earliest charters there was no express provision made for the redemption of notes, nor was there any penalty for nonredemption.” And even when state laws or charters expressly required that bank notes be convertible into specie on demand, many states imposed no penalties for nonredemption. Relying once again on Dewey (1910a, p. 76), “with few exceptions previous to 1830 there were no penalties in southern charters for not redeeming notes. Banks were under no legal obligation to pay demands *except by suit* (our emphasis), and noteholders were in the same position as other creditors.”

Given the importance of note redemption, why did the states not insist on and enforce the prompt and certain redemption of bank notes on demand? While this question doubtless has many answers, an important consideration was certainly revenue. The Constitution not only took away states’ ability to print money, but it also eliminated several traditional sources of revenue (derived, for example, through the taxation of interstate commerce). Thus, we think it was natural to expect that the states would attempt to raise revenue from their power to create note-issuing banks. And, indeed, this source of revenue was rapidly exploited. In several instances states took an ownership position in the banks they chartered; in several other instances taxation of bank profits was a major source of state revenue. According to Sylla, Legler, and Wallis (1987), from 1796–1800 Pennsylvania collected 43 percent of its total revenue from its banks. Furthermore, in a study of 15 states, the same authors report that from 1821–25 (the first years for which data is available for all states) 7 states collected more than 20 percent of their total revenue from their banking systems. From 1831 to 1835, 10 states collected more than 20 percent and 6 states collected more than one-third of their revenue from their banking systems

Thus states could and did perceive strong incentives to allow banks to earn profits. If this revenue could be enhanced by taking a casual attitude toward note redemption—an attitude certainly taken by many states—the state would profit as a result. Additionally, if states took a more casual attitude toward note redemption in

⁴See also Huntington (1915, p. 33).

cyclical downturns than at other times—as they certainly did in practice—this would permit them to allow an expansion of the money stock, at least relative to what would have occurred with note redemption in place. Thus a desire to run “countercyclical monetary policies” would also give states incentives to take a relaxed attitude toward note redemption, at least at certain times.

Having said this, it is also important to observe that great importance was attached to the achievement of a uniform currency throughout the early history of the United States. Thus, to the extent that uniformity of the currency has value, the states in the early United States confronted a trade-off. They could raise revenue by taking a casual attitude towards the redemption of bank notes. But, this damaged the uniformity of the currency. Thus, not surprisingly, not all states adopted an equally lax attitude toward note redemption. And, the enforcement of par redemption on demand—if not necessarily par redemption that was costless to the holder of the note—became more common as time passed throughout most of the United States.

2. The Suffolk Banking System⁵

We now turn to an examination of the Suffolk Banking System. We discuss how this mechanism effectively reduced to zero the redemption costs that were borne by the holders of banknotes. Under our hypothesis, such a mechanism should have caused the notes of the banks participating in this system to behave like a common currency. We show that this was in fact the case, and that by the mid-1830s, a monetary union existed in New England.⁶

A. Its beginnings

On February 10, 1818, the Suffolk Bank became the seventh bank to be chartered in Boston. Within a year, it entered the note-brokering business—the buying and selling of country (non-Boston) banknotes, also known as *foreign money*. While the Suffolk

⁵See Rolnick, Smith, and Weber (1998) for a more detailed discussion of the operation of the Suffolk Banking System, and some issues related to its organization.

⁶The Suffolk System probably also reduced the general costs of note redemption, but this is not essential to our argument.

Bank's note-brokering business was never profitable, it provided the testing ground for the development of a very profitable, region-wide note-clearing system.

By 1824, the Suffolk Bank had given up the note-brokering business and devised a new strategy for dealing with foreign money. The Suffolk Bank formed a coalition with the six other Boston banks. The coalition pooled their resources at Suffolk in order to purchase and export country banknotes for redemption with the hope of ultimately eliminating these notes from circulation in the city of Boston. To that end, Suffolk would actively purchase, at the market discount, large quantities of foreign notes and send them back to the issuing country banks for redemption. These activities were nothing more than an attempt to increase the share of the Boston banks in the total note circulation in Boston. However, the new note-purchasing strategy was unsuccessful in achieving this objective and was ultimately abandoned.

B. How the Suffolk System operated

In May of 1825, the coalition of Boston Banks suggested that the Suffolk Bank begin a new note-clearing business. The Suffolk Bank would allow banks in the region to deposit their foreign money with the Suffolk Bank. Under this new arrangement, the Suffolk Bank would accept and clear, at par, all country banknotes deposited by banks that chose to participate in the system. The Suffolk Bank would then net-clear the banknotes it received (Redlich 1947, p. 74). By 1826, the Boston banks had withdrawn from the original note-brokering coalition and become members of the new Suffolk Banking System (Mullineaux 1987, p. 890; Directors' Records of the Suffolk Bank, 1826).

One way for a New England bank to participate in the Suffolk Bank's note-clearing business (known as the *Suffolk Banking System*) was to maintain a noninterest-bearing, permanent deposit with the Suffolk Bank: for each \$100,000 of capital, a country bank had to hold \$2,000 on deposit. A country bank also had to maintain an additional noninterest-bearing deposit that was, on average, sufficient to redeem its notes received by the Suffolk Banking System. Boston banks had to maintain only a noninterest-bearing, permanent deposit. This deposit was initially set at \$30,000, but was gradually reduced to \$5,000. The original deposit with the Suffolk Bank had to be in specie.

Another way that a country bank could join the System was to ensure that their notes were redeemable at some convenient place in Boston. The Suffolk Bank did not require a country bank to keep a deposit with it as a condition of receiving their notes at par. The country bank was only required to have its notes redeemable at a Boston bank that was a member of the System. (Dewey, 1910, p.87)

This new arrangement produced an important innovation. Banknotes were cleared, at par, by netting the accounts of member banks. Before this time, no net-clearing system for banknotes had been established in the United States. The netting of banknotes worked as follows: Each day, the notes deposited by participating banks at the Suffolk Bank were sorted. If a bank deposited more notes of other banks than the amount of its notes presented by other banks, then the bank received a credit to its account with the Suffolk Bank for the difference. In the opposite situation, the bank's account with Suffolk was debited for the difference. In computing these differences, the notes of all banks that were members of the Suffolk Banking System were valued identically at par. The actual debiting and crediting of accounts occurred on the day following that on which the notes were sorted. Once the posting to accounts was accomplished, the notes were returned to the issuing bank.

Notes of banks outside New England and notes of the few New England banks that did not participate in the Suffolk System were also accepted by the Suffolk Bank.⁷ However, they were not accepted at par and were returned to the issuing bank for redemption as quickly as possible.

In its early stages, the note clearing operations of the Suffolk System were relatively small. In the summer of 1824, the Suffolk Bank was receiving about \$300,000 a month in country banknotes. This amount grew to \$2,000,000 a month by the end of 1825, and by 1837, it was well over \$6,000,000 a month (Trivoli 1979, pp. 15, 21). To put these numbers in perspective, monthly clearing in 1825 amounted to approximately one-half of the stock of notes in circulation in Massachusetts; by 1837, monthly clearing was close to the entire stock. And by 1837, virtually all the banks in New England were members of the Suffolk Banking System.

⁷ After 1837, the New England banks outside of Rhode Island that did not participate in the Suffolk System were almost exclusively located in remote parts of Maine that had their major trading links with Canada rather than with Boston.

C. Evidence on currency uniformity

The existence of the Suffolk Banking System reduced the cost of redemption to the holders of country banknotes. Now a New England bank did not have to take notes of other banks that it received in the normal course of business back to issuing bank and then bear the cost of shipping back home the specie received. Instead, the Suffolk System gave a bank the option of depositing these notes at par in the Suffolk Bank (or another Boston bank). It could then forego the shipping of specie since the deposit could be used to redeem its notes. Thus, the cost of note redemption for a noteholding bank was reduced essentially to zero. Under our hypothesis, the prediction is that the notes of New England banks that were members of the Suffolk System would go at par against each other.

There are three pieces of evidence that support the conclusion of par circulation. The first is contemporary accounts, as in this passage from Dewey (1910, p.91):

“It [the Suffolk Banking System] was also an advantage to a merchant in the interior who wished to purchase merchandise in Boston, for he could carry with him county bank bills without resorting to specie or the purchase of a draft on Boston, for he knew that his bank bills were at par there. (Merchants’ Magazine.1851, 24:79).”

The second is the report of exchange rates for notes circulating in Hartford Connecticut, May 16th, 1838 (House Doc. 457). The notes of all New England banks that were members of the Suffolk Banking System exchanged at par. By contrast, the notes of banks that were *not* members of Suffolk (at that time these were almost all of the Rhode Island banks, 13 Maine banks, and roughly 17 other New England banks) circulated at a discount, with discounts ranging from 1 to 55 percent.

The third is the discounts on bank notes reported in the *Van Courts’ Counterfeit Detector and Bank Note List*. This publication contained the discounts on the notes of banks from all states in the country in terms of notes of Philadelphia banks. Data are available for February 1839 through December 1858, a period of 239 months.⁸ In all

⁸These discounts were originally collected in electronic form by Gary Gorton. They have been corrected and amended by Weber and are available at <http://minneapolisfed.org/research/economists/wewproj.html>.

except 16 months, the modal discounts on the notes of banks in New England, with the exception of Rhode Island, were identical.⁹ Since the notes were treated as having the same value in terms of Philadelphia notes, we infer that they were going at par against each other in New England. No other region of the country had such uniformity of modal discounts over this period. In fact, in states such as New York, New Jersey, and Pennsylvania, discounts varied by the part of the state in which banks were located.

According to our arguments, it was also important that the Suffolk System evolve mechanisms for controlling the seigniorage incentive problem. This was done in two ways. First, obviously, the Suffolk System required that member banks redeem notes at par on demand. But, second, Suffolk System members were required to maintain a non-interest bearing deposit with the Suffolk Bank (or another Boston bank) adequate, on average, to redeem their notes received by Suffolk. If, at the margin, an additional dollar of note issue led to an additional dollar of note redemption, then every additional dollar of notes issued required that an additional dollar be held in a non-interest bearing Suffolk account. In this case, at the margin, the issue of additional notes did not generate additional seigniorage revenue for the issuing bank. Smith and Weber (1999) argue that this was also important in ensuring that the notes of Suffolk System members would circulate at par.

3. The Second Bank of the United States

We now turn to an examination of the Second Bank of the United States. One of the purposes of this institution was to provide the country with a uniform currency. We discuss the mechanism that the Second Bank used to attempt to achieve this objective and argue that it did not produce much, if any, reduction in the cost of redemption to note holders. We then present evidence that a uniform currency was not achieved by the actions of the Second Bank.

A. Bank note discounts prior to the Second Bank

The Bank of North America in Philadelphia was the first bank chartered by a state after the U.S. achieved independence from England. This occurred in 1782. Shortly

⁹ The exceptions were October and November 1839, January through May 1851, May through November 1854, and March and April 1855.

thereafter other states also chartered banks, and by the early 1800s banks existed in all of the states of the new country. Virtually every one of these banks issued bank notes which were, at least nominally, convertible into specie on demand. Although we do not have explicit data, we believe that bank notes circulated outside the local area at discounts and premia against the notes of local banks and circulated at a discount against specie everywhere.

This situation with regard to the convertibility of bank notes lasted until the latter part of April 1814, when the banks in New Orleans suspended payments. The banks in Philadelphia followed on August 30, 1814. Banks in the middle Atlantic and Southern states followed shortly thereafter. By the beginning of 1815, the suspension of convertibility was general throughout the United States with the exception of New England. (Since the charter of the First Bank of the United States had lapsed in 1811, there were no federally chartered banks at this time.) Substantial discounts on the notes of state banks relative to specie became commonplace, with these discounts varying significantly across the notes of different banks.

Some evidence on this is presented in Figure 1, where we plot the discounts on notes of banks in various states in terms of notes of Philadelphia banks. The figure clearly shows that the United States was not a monetary union in any meaningful sense. From 1815 through 1817 the notes of Baltimore banks were at between a 2 and 6 percent discount. During 1816 and 1817, the discounts on the notes of North Carolina and District of Columbia banks were between 2 and 8 percent. There is also evidence that the notes of banks in Ohio were running at a 6 to 8 percent discount during this period.

The figure also shows that the notes of Boston banks were at a substantial premium, sometimes as high as 17 percent against Philadelphia bank notes in Philadelphia during this time. The reason is that Boston banks had not suspended specie payments, whereas Philadelphia banks had. The premia on Boston bank notes was roughly the same as the premium on specie in Philadelphia as would be expected.

In 1816 the federal government chartered the Second Bank of the United States, in large part in the hope that the existence of such a bank would promote the resumption of specie convertibility by the state banks. This bank had a capital of \$35 million, more than ten times larger than the capital of any other bank in existence at the time. Of this

\$35 million, the federal government subscribed \$7 million; individuals purchased the rest. The Bank had its headquarters in Philadelphia. Initially, it had 19 branches; ultimately it had 27 branches and 2 “agencies.” These were located in all parts of the country.

As a practical matter, the Second Bank did induce the state banks to resume on February 20, 1817. The effect is shown dramatically in Figure 1. After February 1817 the discounts on Baltimore, DC, and North Carolina bank notes fell to 1-1/2 percent or less. Note that the premium on Boston notes also decreased. Thus, the resumption of convertibility moved the country much closer to a uniform currency.

The resumption of convertibility did not last long, however. In 1819, a suspension of convertibility of state bank notes became general in the United States (outside of New England), as the country experienced its first bank panic.

From 1819 through much of 1821, except for New England, the state banks were not even nominally redeeming their notes for specie. As a result, as is apparent from Figures 2 through 5, discounts increased on the notes of most state banks in Philadelphia. These discounts also varied widely by location. Notes of Maryland banks outside of Baltimore went from discounts that were from 1 to 3 percent higher than banks in that city. The notes of North Carolina banks went at discounts as high as 16 percent, whereas discounts on the notes of South Carolina banks never exceeded 8 percent, and discounts on the notes of Virginia banks never exceeded 5 percent. Further, the discount on the notes of a particular state’s banks could vary widely over time (witness the three Southern states in Figures 3 and 4). Thus, this period illustrates how the total relaxation of the enforcement of par redemption leads to currencies being much less uniform.

In view of the removal of any checks associated with the necessity of redeeming notes, it is not surprising that the issues of some state banks expanded dramatically. Indeed, the desires of several states for seigniorage revenue manifested themselves in the establishment of wholly state owned, nonspecie paying, note issuing banks in Alabama, Kentucky, Illinois, Missouri, and Tennessee. In addition, states like Michigan issued scrip. In several of these states laws were passed to force people to hold state bank notes—and to take them at rates in excess of their market value. This is a manifestation

of a seigniorage incentive problem: states were taking strategic actions in order to enhance their own seigniorage revenues.

The most dramatic example of this occurred in Kentucky. Kentucky had, before 1819, had relatively lax bank regulation. In 1817–18, state banks were authorized to redeem their notes with Bank of Kentucky notes, rather than specie, and for the Bank of Kentucky and its 13 branches, none was required to take the notes of another.¹⁰ In November 1820, the state chartered the wholly state owned Bank of the Commonwealth of Kentucky. This bank did not redeem its notes in specie. Moreover, the notes of this bank were given several advantages in transactions. For example, the state had passed a law imposing on creditors a mandatory stay of one year if the creditor accepted Bank of Kentucky notes at par, and a two year stay otherwise. When the Bank of the Commonwealth was created, creditors accepting its notes at par faced only a three-month stay.¹¹ The notes of this bank soon were depreciated 50 percent relative to specie (and even more in Philadelphia), and this situation persisted for some time.

In Illinois another wholly state owned bank was created, and authorized to issue \$300,000. “The bank notes were backed by a stay law, delaying all executions for three years unless the creditor agreed to receive the state bank notes. Thus, the state did its best to place the notes on as close to a legal tender basis as constitutionally seemed possible” (Rothbard 1962, p. 83). The bank’s notes depreciated rapidly, and Rothbard (1962) reports that they ceased to circulate by the end of 1823.

In Alabama, “the legislature refused to abide by the existing law which forbade accepting notes of nonspecie paying banks in taxes The Alabama legislature went further and issued Treasury notes payable in the depreciating currency of the Huntsville Bank. Under the government umbrella, the Huntsville Bank issued large quantities of notes, which sank to a 25–50 percent discount” (Rothbard 1962, p. 58). In 1823, Alabama chartered a state-owned, note issuing bank as well.

In Tennessee a state owned bank was created in 1819, and a stay law was passed providing “that when a bank was the creditor and refused to accept at par . . . either its

¹⁰Duke (1895, pp. 16–17). In 1820, the charters of several state banks were revoked because they did not redeem their notes even in this form.

¹¹Rothbard (1962, p. 53).

own notes or the notes of the two leading banks in Tennessee, the execution would be stayed for two years” (Rothbard 1962, p. 48). In Missouri the state established a loan office and “a supplementary stay law, which gave the creditor the choice of accepting two-thirds of the appraised value of the property in loan-office certificates at par or suffer a two-and-one-half-year stay” (Rothbard 1962, p. 45).

The situation of several states issuing their own notes (here indirectly through state owned banks) and using legislative interference with contracts to enforce their circulation and enhance their value replicated, in certain respects, the experience of the United States under the Articles of Confederation. It was this exact set of circumstances which had resulted in the Constitutional prohibition of currency issues by the states in the first place.

B. Biddle’s bank note redemption policy

In January 1823 Nicholas Biddle succeeded Langdon Cheves as president of the Second Bank. By this time the banks of many, but by no means all of the states had resumed the redemption of their notes in specie.¹² Even so, substantial discounts remained on the notes of the banks of many states (see Figures 2–5) since, as we have argued, requiring noteholders to bear the costs of redemption allows discounts to be observed.

Biddle sought to reduce discounts on the notes of state banks in order to achieve the desired objective of having a uniform currency. To attempt to accomplish this, he changed the policy of his predecessor with regard to the notes of state banks. During Cheves’ presidency, the Second Bank paid out state bank notes whenever possible in its own lending operations and to its own depositors. Biddle reversed this policy; the bank paid out its own notes whenever possible. Indeed, even deposits made in state bank notes were repaid using Second Bank notes.¹³ The state bank notes the Second Bank received in the normal course of business were presented to their issuers for redemption as soon as possible.

¹²South Carolina banks did not resume specie convertibility until 1823. In several western states resumption also failed to occur until well after 1821.

¹³According to Catteral (1903, pp. 437–38), “it was customary to receive from individuals the notes of state banks on deposit and pay the deposit in branch notes.”

It seems plausible that Biddle's policy was a method for reducing the effective costs of note redemption perceived by most holders of state bank notes. Instead of having to return a state bank note to the issuing bank, a holder could deposit it with a Second Bank branch and obtain a Second Bank note that was more widely and easily redeemable at par.¹⁴ However, a critical issue question is whether the Second Bank was accepting state bank notes at par or at a discount. In other words, the question is whether the Second Bank was acting like the Suffolk Bank or was acting like a note broker. If the former, then under our hypothesis its policy should have provided the country with a uniform currency. If the latter, state bank notes would have gone at discounts.

We have no direct evidence on how the Second Bank behaved with regard to the state bank notes presented to it. We know that the Second Bank was required to accept the notes of specie-paying banks at par from the government and for purchases of federal lands. However, we doubt whether most branches did this for state bank notes presented for deposit or loan repayment. That is, we think it more reasonable to believe that the Second Bank acted like a note broker rather than like the Suffolk Bank.

There are two reasons. First, it is well known that many branches of the Second Bank did not even accept the notes of other Second Bank branches at par (see below). Thus it seems unlikely that they were indiscriminately taking state bank notes at par. Second, suppose that the Second Bank took state bank notes at par and then presented them for redemption. Then it, rather than the issuing bank, would have been bearing the major portion of the cost of redemption of state bank notes. Given that the Second Bank was in business to maximize the profits of its shareholders, not the profits of the owners of state banks, it seems unlikely that it would have enacted such a policy.

C. Evidence

Given that the Second Bank acted like a note broker, under our hypothesis Biddle's policy should not have reduced the discounts on state banks notes below what they were *when this policy was not in effect*. At first glance, the evidence appears to contradict this view. The discounts plotted in Figures 2-6 show a general tendency to be lower after 1823 than in the period before it. However, a closer examination of the

¹⁴For example, after 1824, these notes were taken at par in Philadelphia.

evidence indicates that the reduction in discounts was (almost) entirely due to the resumption of specie payments. Biddle's policy of acting like a nationwide notebroker had no effect as our hypothesis would suggest.

Specifically, a closer inspection of the evidence indicates that in many cases, the level of discounts after 1823 was not below their levels during 1817 and 1818 when banks were also paying specie for their bank notes. For example, during 1817 and 1818 South Carolina bank notes were at about a 2 to 4 percent discount (see Figure 3). After 1824, they were at discounts in about the same range. North Carolina notes were also at about a 2 to 4 percent discount in 1817 and 1818; after 1824 these discounts were more in the 3 to 5 percent range. The discounts on the notes of Baltimore banks are also higher after 1823 than during the 1817-1818 period (see Figure 2).

Further, although the discounts on the notes of Maryland banks outside Baltimore are lower after 1823 than during the 1817-1818 period (again, see Figure 2), the timing of the reduction is off. The decline occurs in 1821, two years before Biddle's policy was put into place.

That leaves the evidence from Virginia (Figure 4) and Kentucky (Figure 5) as possibly refuting our hypothesis. Yet, Virginia is problematic because we have no discounts from 1817 and 1818 to use for comparison. And it can be argued that the reduction in the discounts on Kentucky bank notes was more do to changes in Kentucky banking than to Biddle's policy.

There is even more evidence that can be brought to bear against the view that Biddle's policy effected a more uniform currency and that supports the case that the reductions in note discounts were due almost entirely to the resumption of specie payments. This evidence is the discount on bank notes in the 1840s and 1850s after the Second Bank had lost its charter and ceased to exist. A comparison of these discounts with those from 1823 to 1832 when Biddle's policy was in effect reveals that the discounts on bank notes were lower during the 1840s and 1850s. Note also that discounts on bank notes appear to also have been less variable during the later period.¹⁵ (Charts supporting this position to be included later.)

¹⁵ Of course, both of these observations might also be explained by improvements in transportation and communication that reduced the costs of note redemption.

The question arises of why, given that one of its objectives was to provide a uniform currency, the Second Bank did not set up a system of redemption accounts for state banks along the lines of that established by the Suffolk Bank? One reason may have been that it would not have been technically feasible given the large number of banks and the widespread counterfeiting of bank notes during this period. However, we think a second reason was that Biddle wanted the Second Bank to be a creditor to other banks rather than a debtor. A Suffolk-type system requires the bank running it to be a debtor to other banks. Finally, we think that the lack of fully centralized control over the Second Bank branches should not be discounted. We expand on this lack of control in the next section of the paper.

4. A Seigniorage Incentive Problem within the Second Bank

We have already seen the seigniorage incentive problem—the problem of overissuing notes and taking strategic actions to enhance their circulation—manifest itself during a period of general suspension of note convertibility. However, this problem can be even more extreme in a context where many entities are issuing notes that are fully intended to be perfect substitutes. Indeed, the seigniorage incentive problem arose in a particularly significant way within the early history of the Second Bank, and addressing it became a central issue within the Bank itself. We now examine this problem, and look at the two solutions that were implemented to control it.

The Second Bank was created with 19 branches. Each of these branches issued notes of the Second Bank, so that the bank itself was an example of a multiple-issuer system, with all issuers printing the same currency. Until August 1818, all notes—issued by any branch—were nominally redeemable at par at any other branch of the bank. However, patterns of funds flows implied that notes issued by southern and western branches were primarily redeemed in the north and east. Thus, without an adequate scheme for controlling note issue by an individual branch, the Second Bank should have been subject to an *internal* seigniorage incentive problem in the sense that one branch bank was able to extract revenue from other branches through note issue.¹⁶ In fact, this problem proved to be severe.

¹⁶ Or, more specifically, the directors of some branches were able to extract resources from the directors of other branches.

Why did the Second Bank have branches? There were at least two reasons. First, as fiscal agent for the federal government, the bank needed to be able to collect and disburse funds in disparate regions, and to be able to engage in inter-regional funds transfers. Second, the entire design of the bank as a mechanism for creating a monetary union required that the bank be able to collect, and return for redemption in a timely and low cost fashion, the notes of a wide variety of state banks. This would certainly have been facilitated by the existence of a branch system.

In its early incarnation, there was relatively little control over the individual branches. The first president of the bank, William Jones, was opposed to assigning a specific amount of capital to each (or any) branch.¹⁷ Nor were there any mechanisms put in place for settling accounts between different branches of the Second Bank.¹⁸ In addition, branch practices might not be known by the president. For example, in 1817, the Lexington branch of the bank sold its own notes at a premium of 1 ½ percent, and paid out the notes of local banks in its other transactions. Schur (1960, p. 123) suggests that this practice was unknown to Jones until October of that year. This state of affairs led the bank's second president, Langdon Cheves, to write that "I am perfectly satisfied that with the present organization of the bank it can never be managed well. We have too many branches, and the directors are frequently governed by individual and local interests"¹⁹ Moreover, while both Cheves and Biddle regarded the lending operations of western branches as unprofitable, under Jones several branches explicitly ignored directions from Philadelphia to curtail their lending.²⁰ This is perhaps not surprising in view of the fact that branch directors were often significant borrowers.²¹

In a system of this type, the branch(es) with the fastest growing note issues could collect resources from the rest of the bank. Those branches were primarily located in the south and west, as well as in Baltimore, where the branch directors were engaged in active fraud. In June 1818, the Cincinnati branch made over \$1,800,000 in loans, while

¹⁷Catteral (1903, p. 380).

¹⁸ Catteral (1903, p.30).

¹⁹Quoted by Catteral (1903, p. 381, footnote 4).

²⁰ Catteral (1903, pp. 52-4).

²¹ Catteral (1903, p. 101).

the branch at Lexington loaned \$1,619,000.²² The result was that “the entire capital of the institution was rapidly being shifted to the south and west. Out of the total capital stock of \$35,000,000 the office at Baltimore held \$5,646,000 in May 1819; Richmond \$1,760,000; Savannah, \$1,420,000, and Charleston, \$1,935,000. . . . Lexington had \$1,502,000, Louisville, \$1,129,000, and Cincinnati \$2,400,000, while New York had a capital of \$245,000, and Boston had none whatever” (Catteral 1903, pp. 55–56).

In response to this state of affairs, Jones ordered discounts reduced by \$5,000,000 throughout the Second Bank. This was actually accomplished, but in a way that illustrates the lack of centralized control over the western branches. Those “offices, instead of diminishing, increased their loans to the extent of \$500,000” (Catteral 1903, p. 54). As a result Philadelphia, New York, and Boston were forced to curtail loan activity; New York and Boston had not been assigned any loan reductions.²³

In principal there should have been a mechanism in place to check these activities of the offending branches; their notes could have been presented for redemption (at the branch of issue) by other branches of the bank (or by individuals). In practice, however, “the southern and western branches could not and did not furnish means for their redemption” (Catteral 1903, p. 412). To the extent these notes were redeemed anywhere, they were redeemed in the northeast.

The consequence of this lack of uniform “regulation” over the branches was that the southern and western branches faced no effective check on their ability to raise seigniorage revenue. As they collected seigniorage from the rest of the Second Bank, they could use the resources acquired either for the benefit of the individual branch directors, as in Baltimore,²⁴ or for the benefit of their own regional economy at the expense of other regions.

Without any other means of controlling the seigniorage incentive problem, Jones acted to make the notes issued by the various branches imperfect substitutes; on August 28, 1818, each branch was forbidden to redeem any notes but its own.²⁵ Notes of Second

²²Catteral (1903, p. 34). According to Catteral, these loan volumes approximated those made by the much larger branches in Boston and New York.

²³Catteral (1903, p. XX).

²⁴See the discussion in Catteral (1903, pp. 42–48).

²⁵Except in payment of debts owed to the federal government.

Bank branches were quoted at a discount of 1 percent in Philadelphia from that date until March 1819, and the notes of most branches went at discounts of ½ percent from then until July 1824. However, in Philadelphia the notes of the Portsmouth (New Hampshire) branch were discounted by 4 percent in September and October 1820 and by 2 percent until June 1822, the notes of the Boston branch by 2 percent from September 1820 through 1821, and the notes of the Middletown (Connecticut) branch by 4 percent in September 1820.²⁶

Clearly from August 1818 on, the Second Bank did not even issue an internally uniform currency. “Once more there was no common medium of exchange, and thus the first attempt to give the country a better currency through the agency of the Bank of the United States ended in failure” (Catteral 1903, p. 405). The operation of the seigniorage incentive problem had acted to prevent even the Second Bank itself from acting as a true monetary union.

In 1819, Langdon Cheves replaced Jones as the president of the bank, and in that year began to implement a new set of policies designed to control the internal seigniorage incentive problem within the Second Bank. However, this was done by nearly eliminating the note issues of the southern and western branches altogether. Indeed, while the bank resumed the redemption of its small denomination (\$5) notes at branches other than the branch of issue,²⁷ and while Cheves took actions to restore central control of the bank’s branches, eliminating one branch (Cincinnati), and preventing western branches from issuing any notes at all, “by January 1823, the active western offices issued only \$45,820, and in December of the same year only \$16,785—insignificant sums which hardly permit one to speak of western issues” (Catteral 1903, p. 411). This certainly was another means of controlling the seigniorage incentive problem that existed within the bank, but it had the consequence that large parts of the country were left only with the notes of state banks as currency. Outside of New England state banks were not redeeming their notes at this time, often their notes were heavily discounted, and a

²⁶According to Catteral (1903, p. 416), “why the paper of these branches should have suffered greater depreciation than that of the others is not possible to say.”

²⁷Notes in this denomination constituted about one-sixth of the bank’s outstanding note issue.

seigniorage incentive problem of a different sort was disrupting the monetary system. Again the United States did not constitute an effective monetary union.

Parenthetically, in July 1824 Philadelphia resumed the policy of redeeming all branch notes at par. Thereafter, no branch notes of the Second Bank went at a discount in that city. However, in other cities Second Bank branches continued to refuse to take the notes of other branches at par, so that discounts were observed. Indeed, “it is certain that some branches sometimes refused to receive the notes of other branches even at a discount . . .” (Catteral 1903, p. 417). Thus, outside Philadelphia, the Second Bank never issued a completely uniform currency after August 1818.

When Nicholas Biddle became the president of the Second Bank, he was determined to expand the note issues of the southern and western branches. This policy stood in marked contrast to Cheves’. Biddle’s solution to the seigniorage incentive problem within the bank was similar in spirit to the mechanism of having notes be redeemable in specie on demand. The branches were to be allowed to issue notes, but they were to give up a large amount of discretion regarding the volume of their own notes outstanding. The specific mechanism employed was that the branches were allowed to use their own notes to purchase so-called “inland bills of exchange.” According to Catteral (1903, p. 406), “by the buying of bills when notes were issued, a fund was provided out of which the notes were paid when they were presented at the Atlantic offices. In this way the danger of having the bank’s capital shifted to the west and south was avoided.” Thus, in particular, the branches were permitted to issue notes, but only in a way that created a fund allowing for their redemption.²⁸ By maintaining this redemption, the Second Bank branches lost the power to take strategic actions to enhance their own seigniorage income. Biddle also took several actions to increase the degree of centralized control over the operations of the individual branches.²⁹

Evidently, these policies allowed the southern and western branches to substantially expand their note issues without threatening the rest of the bank. Table 1

²⁸The bills of exchange purchased by the branches “were to be drawn on New Orleans or the Atlantic cities, . . . so that they might come to maturity and be paid at these places simultaneously with the notes” (Catteral 1903, p. 115). Thus redemption was not only possible, but fairly automatic “provided the bills of exchange were promptly paid” (Catteral 1903, p. 115).

²⁹ See Catteral (1903, p. 102-4).

shows the distribution of note issues by the various branches. Clearly, while note issues by the bank expanded dramatically in all regions, the south and west were over represented in the expansion.

5. Conclusions

A comparison of the operation of the Suffolk Banking System with the activities of the Second Bank of the U.S. suggests several conclusions. First, the attainment of a genuine monetary union with multiple issuers of currency can be guaranteed only if notes are costlessly redeemable at par on demand. In the Suffolk System the costs of note redemption were effectively transferred to the issuers of notes, who paid the costs of operation of the Suffolk System. Under the Second Bank, the costs of note redemption were never fully transferred away from noteholders on a national basis.

Second, the attainment of a successful monetary union with multiple issuers requires that these issuers not perceive incentives to overissue notes, or to take strategic actions to expand their note circulation. Appropriate incentives in this regard were not present in the early history of the Second Bank. And, they were provided under Cheves' presidency only by virtually eliminating the note issues of southern and western branches—hardly a state of affairs conducive to the existence of a uniform currency. By way of contrast, the Suffolk System provided at least two separate mechanisms—par redemption of notes on demand, and the holding of non-interest-bearing centralized clearing balances—as a means of checking seigniorage incentive problems. The means devised by the Suffolk System for addressing the seigniorage incentive problem appear to have been highly successful.

With the lapse of its Federal charter in 1836, the Second Bank ceased to operate on anything other than a local basis.³⁰ The Suffolk System continued in operation until 1858. The uniformity of the currency in New England was preserved until that date. The rest of the United States never achieved a uniform currency until the passage of the National Banking Act in 1863. That act forced note-issuers to bear redemption costs, as under the Suffolk System, and it solved the seigniorage incentive problem by making notes redeemable at par on demand.

³⁰ The Second Bank operated under a state of Pennsylvania charter until 1841, see Holdworth (1928).

We believe that these lessons from U.S. monetary history have broad current applicability in areas that are now in the process of establishing monetary unions. Part of the problem in attaining a uniform currency in the U.S. prior to the Civil War was the lack of uniform bank regulation. As we have noted, individual states regulated the activities of banks, and these regulations were far from uniform in terms of requiring par redemption of notes on demand. Even within the Second Bank, branches did not operate in a uniform way, or under uniform “regulation.”

In the current constitution of the European Monetary Union, for instance, bank regulation is being left to the individual member nations. This allows for the possibility that national governments will manipulate regulations in a way that allow seigniorage incentive problems to arise. Alternatively, as more entities—non-banks as well as banks—issue currency-like liabilities (possibly in the form of e-cash) in the U.S. under the aegis of different regulatory institutions, the same possibility arises here. In our view this suggests the importance of keeping in mind the lessons learned in the early U.S. with respect to the formation of a monetary union.

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Figure 1: Discounts on Bank Notes, 1815 - 1818

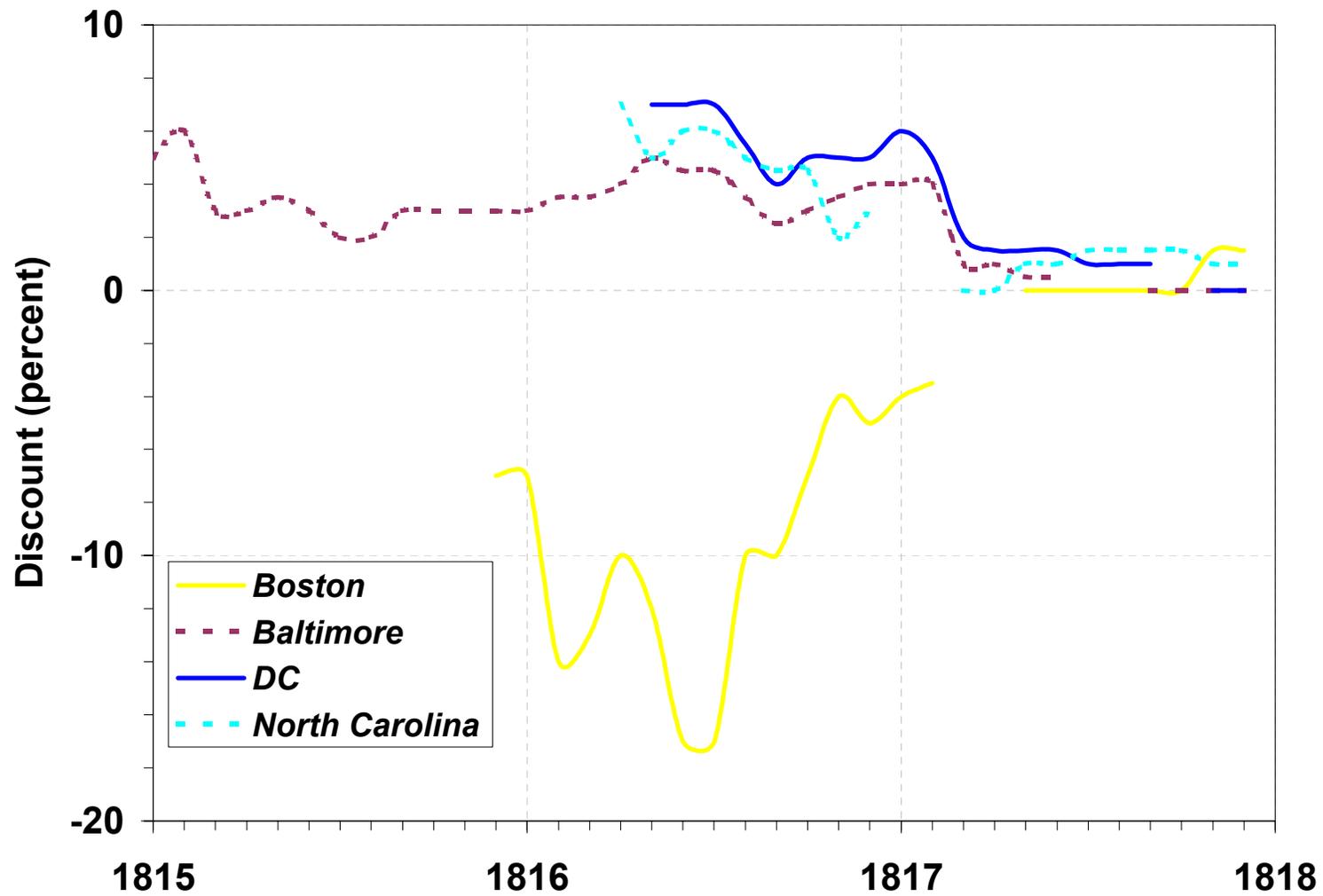


Figure 2: Discounts on Maryland Bank Notes, 1815 - 1830

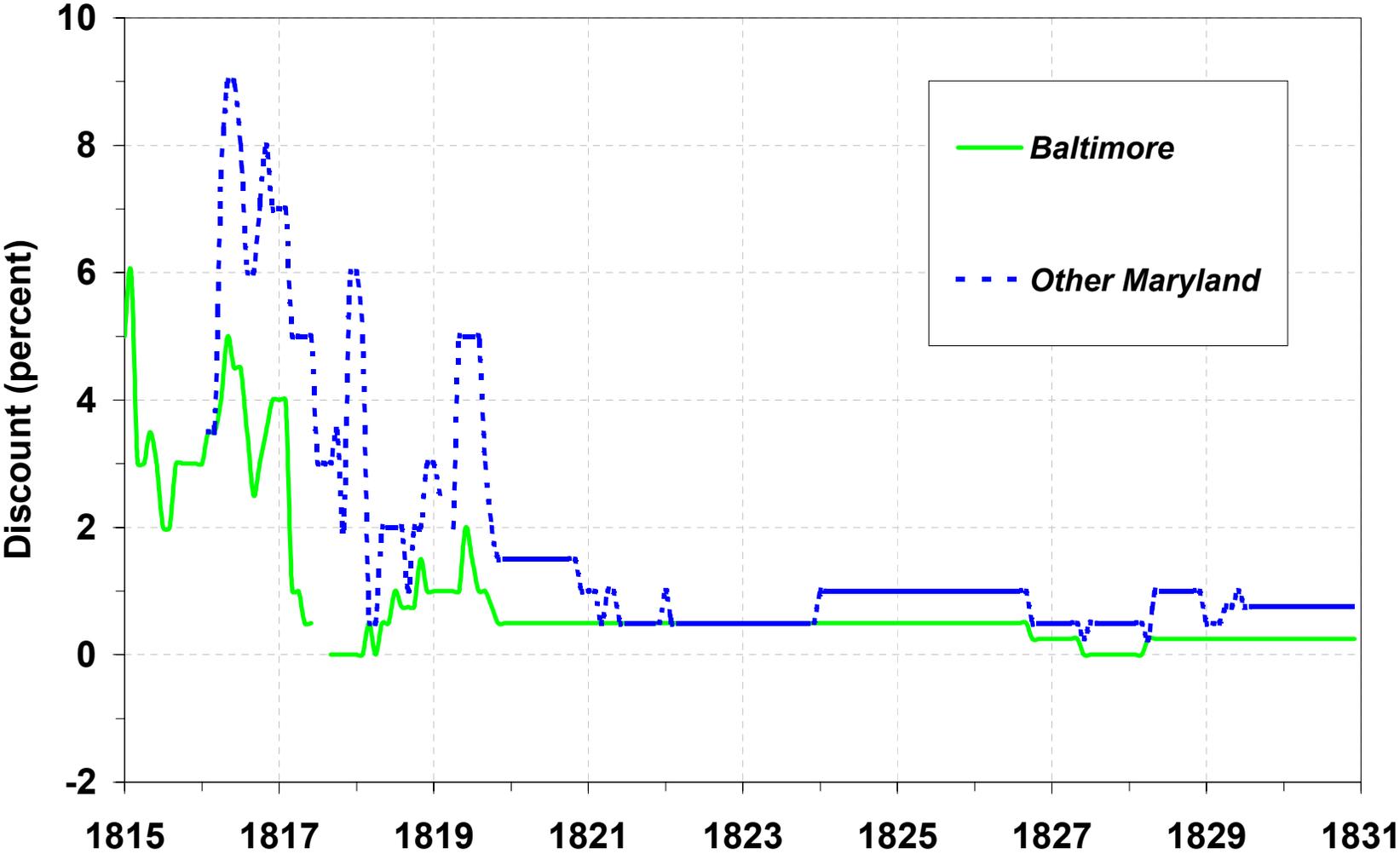


Figure 3: Discounts on Carolina Bank Notes, 1818 - 1830

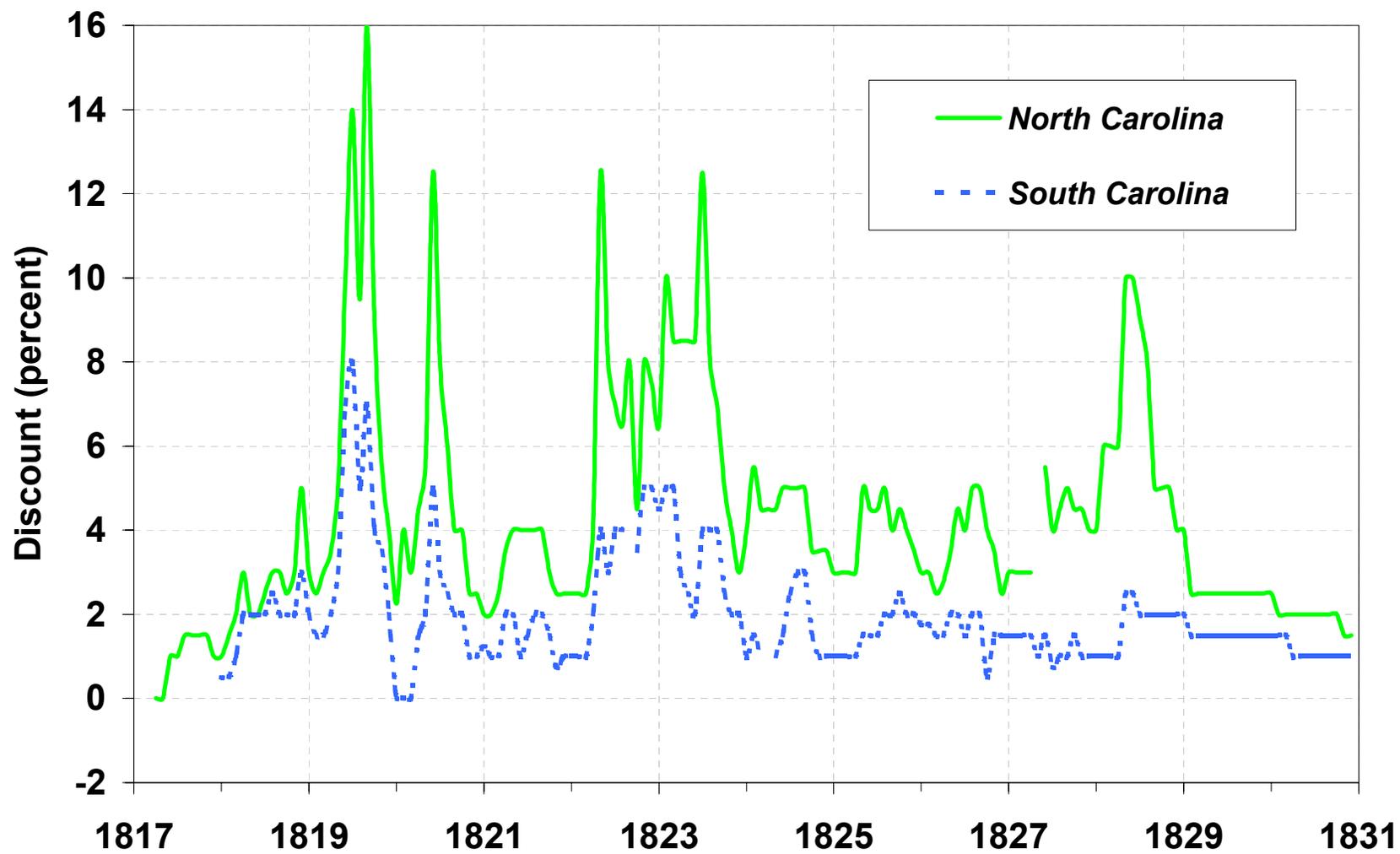


Figure 4: Discounts on Virginia Bank Notes, 1819 - 1830

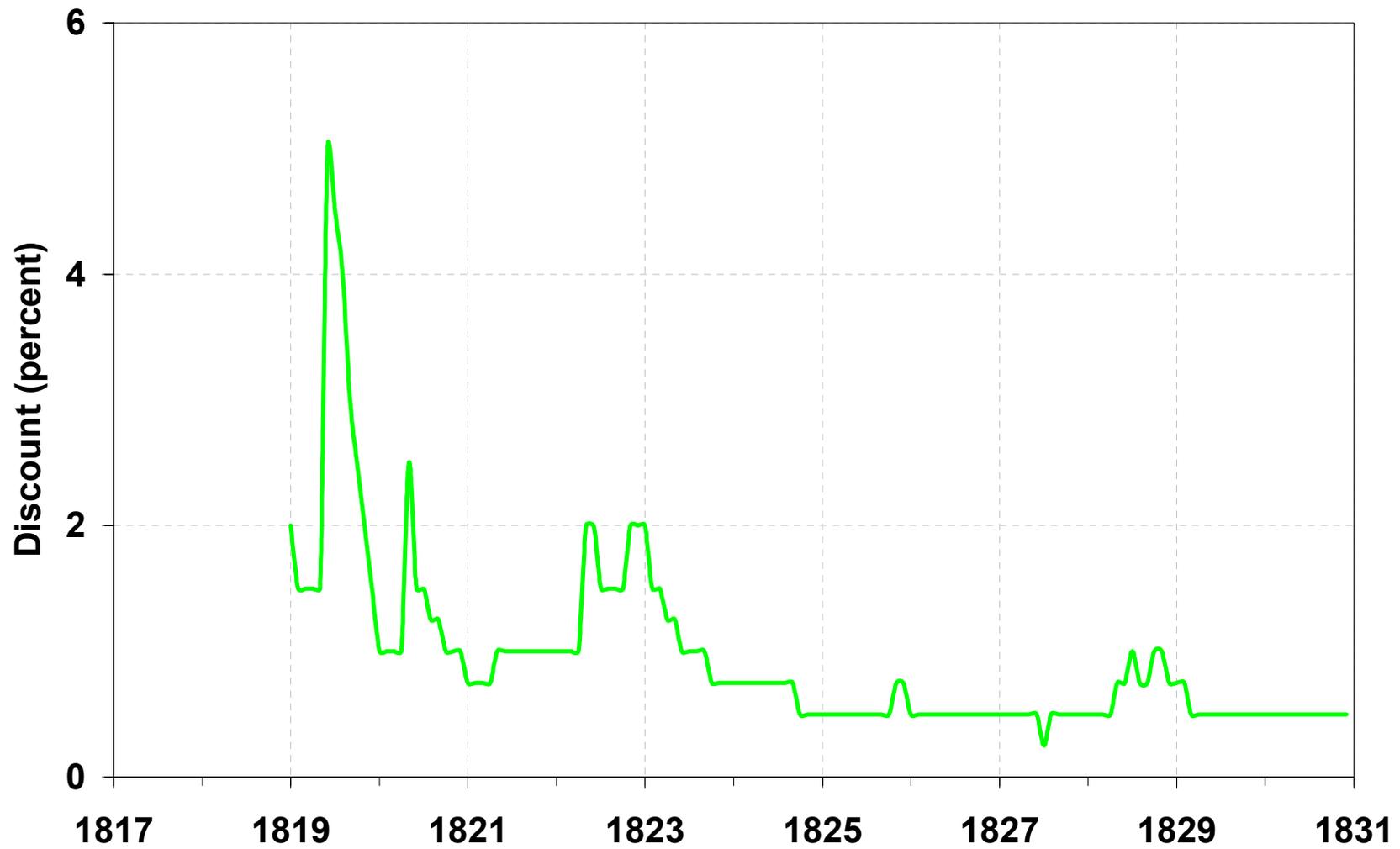


Figure 5: Discounts on Kentucky Bank Notes, 1814 - 1830

