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Banknote Exchange Rates in the Antebellum United States*

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Note: The figures in this paper are
designed to be printed in color

*The views expressed herein are those of the author and not necessarily those of the Federal Reserve Bank of Minneapolis or the Federal Reserve System.

When the United States won independence from Great Britain in 1786, the new country had only one bank. This did not remain the situation for long, however. By 1800, 28 banks were in existence. Over 250 more banks came into existence by 1820. The rapid growth continued over the next two decades, and by 1840 the country had approximately 600 banks. Although the number of banks fell during the 1840s, there was a huge expansion in the number of banks in the 1850s. As a result in 1860, just before the start of the Civil War, the country had almost 1400 banks.

During the antebellum period, all banks had to be chartered by a state.¹ Under these state charters, banks were permitted to issue banknotes, which were dollar denominated promises to pay specie to the bearer on demand. Banknotes circulated hand-to-hand and were the largest component of the currency in circulation during the period.

Some examples of banknotes are displayed in Figure 1. As the figure shows, banknotes were distinguishable by the issuing bank, this meant that throughout the antebellum period, there were large numbers of different currencies in existence in the country.

In general, the notes of different banks did not circulate at par against each other. Further, the exchange rates between notes of different banks were not constant over time. These facts are known through contemporary publications. Several newspapers contained “Bank Note Tables” that listed the rates of discount or premium on the notes of banks throughout the country in terms of notes of banks of that city. In addition, there were publications that specialized in reporting on banknote prices and counterfeits, which were known generally as “Bank Note Reporters and Counterfeit Detectors.” Bank note reporters

¹There were two exceptions: The (First) Bank of the United States, 1801-1811 and the (Second) Bank of the United States, 1816 - 1836, which were chartered by the federal government.

were usually published by or in collaboration with a broker in a particular city.

The existence of a large number of currencies circulating at floating exchange rates has led many to view the banking arrangements during this period as an impediment to trade and economic growth. This was true of some contemporary observers. For example, Senator John Sherman of Ohio used the following quote from the *London Times* in a speech on February 10, 1863, advocating passage of the National Currency Act:

By the want of a paper currency that would be taken in every State of the Union at its nominal value the Americans have suffered severely. The different States were, as to their bank notes, so many foreign countries, each refusing the paper of the others, except at continually varying rates of discount.... Only adepts and regular money-changers could tell whether a note was current or not, the paper of broken or suspended banks remaining in circulation long after their value had departed. Through [a national currency] the people will ... gain that deliverance from the previous confusion of their currency which to Europeans appeared a barbarism.

The same view is shared by some more recent writers. For example, Phillip Cagan (1963) asserts:

The nation could not so easily have achieved its rapid industrial and commercial expansion during the second half of the 19th century with the fragmented currency system it had during the first half....

This view led many to advocate that the solution was a uniform currency for the country, and such a solution was imposed on the country with the passage of the National

Currency Act (later called the National Banking Act) in 1863 and the passage of the 10 percent tax on state banknotes levied beginning in 1866. These two pieces of legislation effectively drove state bank notes out of circulation. They were replaced by the notes of national banks, all of which had the same general appearance and circulated at par with each other.

However, theory does not necessarily suggest that the existence of discounts or premiums – even fluctuating discounts or premiums – on notes with the same face value are undesirable from a welfare perspective (Smith and Weber, 1999; Wallace, 2001). Thus, a question that one would eventually like to answer is whether the national banking system was a welfare improvement over to system of state chartered banks.

Unfortunately this paper cannot answer that question. Instead, it presents two findings about the structure of the markets for banknotes and about the determination of banknote exchange rates that should be confronted by any model that purports to answer it.

One finding of this paper is that the currency system was not as fragmented as would be suggested by the huge number of banks in existence. Instead, there were many fewer “currencies” than there were distinct bank notes, because there were several groups of banks whose notes always had the same exchange rate quotation. In some cases, there existed interbank arrangements regarding banknotes that led to this outcome. These arrangements arose both endogenously and through government legislation. In other cases, apparently just the fact that banks were in the same geographic location, usually a city or a state, led to this outcome.

The second finding of this paper is that the levels of exchange rates and fluctuations in exchange rates appear to have been driven by fundamentals. Once account is taken of

the interbank arrangements regarding bank note redemption, exchange rates appear to be roughly determined by the net redemption value of a note – the expected rate at which the note would be redeemed for specie less the cost of redeeming the note at the issuing bank.² Thus, banknote exchange rates do not appear to have exhibited the type of exchange rate indeterminacy that exists in the fiat money models of Kareken and Wallace (19xx) or the commodity money model of Velde and Weber (2000). Further, fluctuations in banknote exchange rates do not appear to be due to intrinsic uncertainty as is suggested by the findings of Meese and Rogoff (19xx) and modelled by King, Wallace, and Weber (19xx) for today's fiat moneys.

However, I also find an important exception to the finding that net redemption values determined banknote exchange rates. This exception is that net trade flows between various regions of the country also were important determinants of bank note exchange rates.³

The paper proceeds as follows. The next section contains a description of the data on bank note exchange rates underlying this study. The next section presents evidence on how fractured the currency system actually was by describing groups of banks whose notes always had the same exchange rate quotation. The fourth section presents evidence supporting the fundamentals explanation of the determination of banknote exchange rates. The fifth section shows that net trade flows between various regions also help explain exchange rates. The final section concludes.

²Gorton (20xx) expresses this same view and presents some empirical evidence supporting it. However, the evidence he presents is far less extensive than that presented here.

³Note that the relative quantities of notes of individual banks are not among these fundamental determinants of exchange rate as would be the case in the so-called monetary theories of exchange rates. This implication follows directly from the fact that exchanges rates of many banks banks are identical to each other even though their relative circulations vary over time.

1. Data

The data for this study are exchange rates on individual banknotes as quoted in four locations – Philadelphia, New York, Cincinnati, and Cleveland. The data for Philadelphia is monthly for the period August 1830 through January 1831 and August 1832 through 1858. The data up to xxx 183x is from Bicknell’s. The later data are all from Van Courts.

The data for New York is generally bimonthly. It is for the period July 1839 through December 1848. There are also some selected observations for the 1850s. The data for the 1830s and 40s are from *Shipping & commercial list (and New-York price current)*; the later data are from Thompsons.

The four observations for Cincinnati are February 1841 and June 1846 from Goodman’s *Western Counterfeit Detector and Bank Note Table*, February 1850 from Lord’s *Bradley & Co.’s Cincinnati Counterfeit Detector and Bank Note Reporter*, and July 1854 from *Lord’s Detector and Bank Note Reporter*. The single observation for Cleveland is January 1856 from the *Cleveland Bank Note Reporter* published by Pierce & Co., bankers.

The quoted discounts and premiums are the exchange rates for notes of banks throughout the country in terms of notes of banks in the particular city where the bank note reporter is published. They are not exchange rates of bank notes for specie. When banks are redeeming their notes for specie, this difference is not important. However, as I show below, it makes a difference when banks have suspended specie payment on their notes.

The focus in the paper is only on exchange rates for notes of banks that are actually in business. Quotes for the notes of banks that are “closed,” “winding up,” or “broken” are not taken into account. After these the quotes for such banks are eliminated, I have over 200,000 individual exchange rate observations covering over 2000 banks.

2. How fragmented was the currency system?

In this section, I document that there were many fewer “currencies” than there were distinct bank notes. To do this, I identify for Philadelphia and New York City groups of banks that always had the same exchange rate against the notes of banks in those cities. For both cities I am able to identify several such groups, each of which included a large number of individual banks. I also discuss whether these grouping appear to have been due to the existence of some explicit interbank arrangements regarding banknotes or whether they appear to have been simply due to the fact that the banks were in the same geographic location, usually a city or a state.

A. Philadelphia

Contemporary sources give the impression that bank notes circulated at par in the local area. This is confirmed in the data. With only a single exception the notes of the between 13 and 20 Philadelphia banks that existed during the period covered by my data went at par against each other in Philadelphia.

Further, the data show that the area in which there was par circulation of banknotes was larger than just the financial center itself. Many county banks had arrangements with banks in financial centers to redeem their notes at par. Banks whose notes were redeemed at par in Philadelphia were listed in *Van Court's* beginning in the 1850s. Figure 2 shows the location of 47 banks that I identify from these tables as having had banknote redemption arrangements with a Philadelphia bank. As expected, Pennsylvania banks in towns near Philadelphia arranged to have their notes redeemed in that city, as did New Jersey banks located near Philadelphia. Every bank in Delaware also had an arrangement with a

Philadelphia bank to redeem its notes at par.

The bank note price data also indicate that most of these par redemption arrangements existed prior to the 1850s. The notes of the banks identified above as being redeemed at par in Philadelphia were listed as being at par against Philadelphia banknotes for every observation in my sample, with only a very few exceptions.

The banks described above are the only ones whose notes consistently traded at par with each other in Philadelphia. There are no blocks of banks whose notes traded at the same constant discount or premium over time. However, there several large blocks of banks whose notes always had the same exchange rate against the notes of Philadelphia banks, even though this exchange rate varied over time.

One of these blocks consists of virtually all banks in Connecticut, Maine, Massachusetts, New Hampshire, and Vermont. There were about 170 banks in this block in the 1830s; the number expanded to about 400 banks in 1858. I attribute this uniformity of the quoted exchange rates on the notes of these banks to the fact that all were members of the Suffolk Banking System in New England. [add a brief description] I also interpret this uniformity of exchange rates as confirming the impression from contemporary sources that the notes of banks that were members of the Suffolk Banking System went at par against each other in New England.

The above bank redemption arrangements were endogenous developments. During this period, there was also a governmentally imposed banknote redemption arrangement that affected the exchange rates between banknotes. On February 25, 1845, the Ohio legislature passed “The Act to Incorporate the State Bank of Ohio and other banking companies.” This established the State Bank of Ohio and also a class of banks called Independent Banks. Inde-

pendent Banks were required to redeem the notes of the State Bank and other Independent Banks at par (Huntington, 1915, p. 497). Later, “Free Banks” were permitted under an act passed on March 21, 1851. Free banks were required to redeem the notes of each other at par. (Huntington, 1915, p. 500) These banks first appear in the data in April 1846, and, excepting banks that are closed, the notes of these banks always quoted at the same discount in Philadelphia.

The major cities in the county during this period generally had several banks, and the notes of these banks generally had a uniform, but time-varying quoted discount against notes of Philadelphia banks.⁴ Specifically, New York City had between 15 and 60 banks, and the discounts on their notes were always the same. Baltimore had between 9 to 15 banks, and their notes had the same discount in Philadelphia after 1842. Prior to that, one or two banks have slightly different discounts in almost every month. In New Orleans, all banks had the same discount with only a few of exceptions.⁵

I have also found some states for which the notes of the various banks had uniform but time-varying discounts or premiums. One of these was North Carolina, which had between 3 and 14 banks during the period covered by the data. Another state was Kentucky, which had a maximum of 9 banks during this period.

⁴Using the criterion that a major city is one with a population in excess of 100,000 in 1850, the major cities in the county during this period, other than Philadelphia, were New York City, Baltimore, New Orleans, Boston, and Cincinnati. Boston and Cincinnati are omitted from the discussion in this paragraph because they were covered in the discussion of New England and Ohio, respectively.

⁵The exceptions are that in 1842, New Orleans banks had varied discounts. From January 1843 through July 1849, there were two classes of banks. Roughly twelve with the same small discounts and three with large discounts. These three disappear from the sample after July 1849 and it is unclear whether all three were in business after January 1843. The Bank of Orleans closed about that time. The affairs of the Consolidated Association of the Planters of Louisiana’s affairs had been in the process of being wound up by the state since 1842. According to Haxby, however, the other one of these three banks, the Citizens Bank of Louisiana, was in business during this period.

Unlike the case of the Suffolk Banking System or Ohio, to this point I have been unable to find any explicit bank note redemption arrangements to account for the similarity of bank note discounts for these geographical areas. One could argue that for the major cities the identical discounts are explained by the fact that the cost of redeeming notes was essentially the same, that good information on the financial viability of banks was available on a timely basis, and that if bank suspensions were to occur, all banks in the city would suspend, not just an isolated bank. However, such an argument seems far less applicable to North Carolina and Kentucky, where the banks were scattered throughout the state.

Other than the blocks of banks noted above, there do not appear to be other regions with large numbers of banks that had uniform, time-varying discounts against the notes of Philadelphia banks. (At this point, I have not checked New York carefully enough to know if this statement holds for it.) In particular, other than the banks that had par redemption arrangements with a Philadelphia bank, the exchange rates for notes of other banks in New Jersey and Pennsylvania varied from bank-to-bank. The same is true for the exchange rates of notes of banks in Maryland located outside Baltimore.

Another point to note is that the uniformity of discounts for geographical areas does not seem to cross state lines with the exception of New England.

B. New York City

The same similarity of bank discounts for the notes of groups of banks that appears in the data for Philadelphia also appears in the data for New York City. The notes of all of the banks in New York City always were quoted at par against each other, confirming the conventional wisdom that notes circulated at par in the local area.

Also, as was the case for Philadelphia, the bank note reporters for New York City carried lists of banks whose notes were redeemed at par there. From these lists, I identify 101 banks as having had redemption arrangements with a New York City bank. The locations of these banks are shown also in Figure 2. The New York banks with these arrangements are located in towns near New York City. The same is true for New Jersey banks. Banks in three cities – Allentown and Easton in Pennsylvania and Trenton, New Jersey – arranged to have their notes redeemed at par in both cities. Note that New Jersey banks are split between those having their notes redeemed in Philadelphia and those having their notes redeemed in New York City. While this seems to be generally dictated by which financial was closer, I also hypothesize that transportation routes, especially railroad lines, played a major role in this determination. Support for this hypothesis is the three banks that had redemption arrangements in both city. Each of these lay on major railroad lines to both Philadelphia and New York City.

Also, as was the case for Philadelphia, the exchange rates for all of the banks in New England are always the same in New York City, although these notes are not at par. Further, the exchange rates for all Ohio banks, Philadelphia banks, Baltimore banks, North Carolina banks, and Kentucky banks are the same, although these rates vary by group and over time. For New Orleans banks, their notes are all at the same rate of discount. However, from August 1844 through August 1846 there is a category of banks listed as “Other banks in state (not sound)” that carries a substantially higher discount. This seems consistent with the data from Philadelphia.

3. Exchange rates determined by fundamentals

In this section, I present three pieces of evidence that banknote exchange rates were determined by fundamentals in the sense that the exchange rate on banknotes of a particular bank equaled the net redemption value of the notes – the expected rate at which notes could be redeemed for specie less the cost of redeeming notes.

The first piece of evidence is the level of discounts on banknotes. During periods in which banks are not suspended, if exchange rates are determined by fundamentals, banknote discounts should increase with the cost of returning a note to the issuing bank. The evidence shows that this is roughly the case.

The locations of banks in New England, New York, and the middle Atlantic states by the average discount on their notes in terms of Philadelphia bank notes over the period 1844 to 1858 are plotted in Figure 3.⁶ I choose the period 1844 to 1858 over which to take the average, because it is one during which banks are always redeeming their notes, except for a brief time in late 1857. The average discounts for the banks covered in this figure are 1 percent or less, except for a few locations in western Pennsylvania.

Once account is taken of banknote redemption arrangements, the figure shows that banknote discounts generally increase with redemption costs. Consider first the major cities. During this period, New York City was likely the cheapest one to get to from Philadelphia, and discounts on the notes of banks located there averaged slightly less than $\frac{1}{10}$ percent. Baltimore was likely to next cheapest, and discounts on banks located there averaged $\frac{1}{4}$ percent. Boston was likely the next cheapest, and discounts on notes there, and in all of New England because

⁶The plot of locations for New York and Rhode Island is incomplete at this time. Those plotted for New York are only those locations which had par redemption arrangements with New York City banks as identified in Figure 2. Only Providence is plotted for Rhode Island.

of the Suffolk Banking System, averaged $\frac{3}{8}$ percent. With regard to other banks, under the assumption that redemption costs increase with distance, the further a bank is from Philadelphia, the greater should be the discount on its notes. This is generally the case for individual banks in Pennsylvania and New Jersey. The exceptions, like the location with an average $\frac{7}{8}$ percent discount in northeastern Pennsylvania (Honesdale), very likely can be explained by examining the railroad or canal access to those locations compared to that for locations further from Philadelphia but with lower discounts.

I have also plotted the location of a bank with a 10 percent discount to show the effect of the Suffolk Banking System on exchange rates. The bank is the Calais Bank, located in eastern Maine. It was not a member of the Suffolk Banking System. A nearby bank, which was a member, had a discount that averaged only $\frac{3}{8}$ percent.

The locations of banks in the South and West by the average discount on their notes in terms of Philadelphia bank notes over the same period are plotted in Figure 4.⁷ Here the average discounts are almost uniformly higher, all but one above 1 percent. Since these banks are generally located further from Philadelphia than are the banks in Figure 3, this is consistent with exchange rates being determined by fundamentals.

However, there is also some evidence in Figure 4 that is not consistent with the fundamentals explanation. For one, banks in New Orleans and St. Louis have lower average discount than banks in Indiana and Ohio despite being much further down the Ohio-Mississippi waterway. For another, banks in North Carolina have a higher average discount than banks in South Carolina. And banks in Mobile have a lower average discount than banks in Nashville.

⁷The plot of locations for Tennessee is incomplete; only Nashville is plotted. Also, only Indianapolis, the main office of the State Bank of Indiana, is plotted.

[The plots of bank location by average discounts as quoted in New York City will be presented in Figures 5 and 6. But these figures are not yet available.]

The evidence above was on levels of discounts on banknotes. The comovements of banknote exchange rates also support the proposition that banknote exchange rates were determined by fundamentals. I computed the correlations between the exchange rates of the notes of banks in various regions as quoted in Philadelphia over the entire sample period. I was able to identify four regions in which the movements of banknotes exchange rates were highly correlated (greater than 0.8). The four regions were Pennsylvania, excluding Philadelphia and locations with banks with redemption arrangements with Philadelphia banks; New England, excluding Rhode Island, New York, and New Jersey, again excluding locations with banks with redemption arrangements with Philadelphia banks; states located along the Ohio and Mississippi rivers; and the Middle Atlantic states, excluding the city of Baltimore.

I take the fact that there were several regions in which banknote exchange rate changes were highly correlated to be evidence that these exchange rates were determined by fundamentals for two reasons. The first has to do with the cost of getting a note back to the issuing bank. Changes in the cost of transportation should have wide geographic effects. For example, a lowering of the cost of going down the Ohio River should lower the cost of redeeming the notes of banks all along that route, not just banks in a single city or state. The same should be true for the opening of a new canal or rail line. Thus, changes in transportation costs should affect the cost of returning notes to banks over a wide geographic area, and the discounts on the notes of all banks in that geographical area should be affected at roughly the same time and to the same extent.

The second reason has to do with the expected redemption value of a banknote. Dur-

ing this period, bank suspensions usually started in started in one city. However, they spread quickly to other cities. Further, when the banks in the financial center of some region suspended, country banks in that region suspended as well. Thus, bank suspensions were not isolated by cities or even states. For example, the bank suspensions in the Panic of 1837 began in Natchez on May 4, 1837. On May 10, the banks in New York City suspended. The next day, the banks in Albany, Philadelphia, Baltimore, Hartford, and New Haven suspended. Banks in Boston, Newport, and Mobile suspended on May 11. Thus, redemption rates on banknotes should tend to move together over wide geographic regions during those times when banks suspended specie payments on their notes.

The third piece of evidence supporting the proposition that bank note exchange rates were determined by fundamentals is the behavior of these exchange rates during a period in which banks in one part of the country were suspended and banks in another part were not. There is one such the episode during the period covered by the data. It occurred between May 1837 and the end of 1842.

As mentioned above, banks throughout the country suspended specie payments in May 1837. Banks in New York City resumed specie payments on May 10, 1838; Philadelphia banks did not resume until August 13 of that year. On October 9, 1839, Philadelphia banks suspended again. They resumed specie payments in January 1841, but this lasted only briefly. They suspended again and did not resume until March 17, 1842. New York City banks, in contrast, continued to redeem their notes in specie through the time that Philadelphia banks were suspended for the second time.

The pattern of Philadelphia suspensions is reflected in the discounts on the notes of Philadelphia banks as quoted in New York City. This is shown in Figure 7, where the

discounts on Philadelphia bank notes as quoted in New York City as shown for the period July 1839 through December 1842. When Philadelphia banks suspend in October 1839, the discount on their notes in New York City goes from $\frac{1}{2}$ percent to 14 percent. This discount stays above $1-\frac{1}{2}$ percent until the brief resumption in January 1841 when it again is $\frac{1}{2}$ percent. The discount jumps to 4 percent in the next month, reflecting the fact that Philadelphia banks are again suspended. When Philadelphia banks resume specie payments in March 1842, the discounts on their notes return to $\frac{1}{2}$ percent, the level prior to October 1839.

During this same period, Virginia banks followed the same pattern of suspensions and as Philadelphia banks, except that they did not finally resume specie payments until September 1842. The modal discount on the notes of Virginia banks as quoted in Philadelphia for the period 1835 through 1842 is shown in Figure 8. What the figure shows is that these discounts, which had been 7 percent or less, jumped to 12 percent when Philadelphia banks resumed specie payments, but the Virginia banks did not.

Although the discount on Virginia banknotes jumped when banks there were suspended and banks in Philadelphia were not, Figure 8 also shows that the discount on these notes was roughly similar in those periods when banks in both locations were redeeming or suspended. That is, with the exception of the spikes in May 1837 and October 1839, the discounts prior to May 1837 and from August 1838 to October 1839 when banks in both locations are redeeming their notes are similar to the discounts from May 1837 to August 1838 and from October 1839 to March 1842 when banks in both locations are suspended.

This result seems reasonable, because the exchange rates were banknote/banknote, not banknote/specie. The redemption process involved taking the banknote back to the location of the issuing bank where it was exchanged for gold. If banks there are redeeming,

the exchange was at par. If they were suspended, it was discounted against gold. The gold was then taken back to the location of the exchange rate quote. If banks there were not suspended, the gold exchanged at par for local banknotes. If banks were not redeeming, it exchanged at a premium for local banknotes. This premium roughly cancelled out the discount in the “foreign” location, so that the exchange rate would be the same also long as banks in both locations were either suspended or redeeming.

The spikes in May 1837 and October 1839 are seeming exceptions to this story. However, because they occur at the beginning of periods when banks in both locations are suspended, they may simply reflect increased uncertainty about the banking situation in the “foreign” location that occurs at the beginning of any banking crisis. If this explanation is correct, the fact that discount rates return to pre-suspension levels in a few months shows that this uncertainty is quickly resolved.

4. Trade flows

Thus far, I have not made use of the exchange rate quotations from Cincinnati and Cleveland. The reason is that the paucity of data makes it difficult to discern patterns as was possible with the quotations from Philadelphia and New York City.

Nonetheless, there is one regularity in the data from these two cities. The discounts on the notes of Cincinnati and Cleveland banks in Philadelphia and New York City were always larger than discounts in Cincinnati and Cleveland on the notes of banks in Philadelphia and New York City. In fact, when banks in all four cities were redeeming, the notes of Philadelphia and New York City went at par in Cincinnati and Cleveland. This is shown in Table 1. The discounts on the notes of Cincinnati and Cleveland banks in Philadelphia and

New York City were always at least 4 percent. However, the notes of Philadelphia and New York City banks were at par in Cincinnati and Cleveland, except in February 1841, when they were at a $3\frac{1}{2}$ percent premium in Cincinnati. The difference between February 1841 and the dates of the other observations is that this is a time when the banks in Cincinnati were suspended whereas the banks in Philadelphia and New York City were redeeming. All banks were redeeming at the times of the other observations.

Philadelphia and New York were more important financial centers than Cincinnati or Cleveland, and I hypothesize that the balance of trade during this period favored those cities, and as a result made the notes of banks in those cities more valuable. As an example, consider an agent in Cincinnati being offered a note of a Philadelphia bank. Under my assumption about trade flows, this agent would want to buy goods in Philadelphia. As a result, he would be willing to take that note at par to use to buy goods in Philadelphia. The note would not go through the redemption process. In contrast, an agent in Philadelphia being offered the note of a Cincinnati bank would not have a demand for goods in Cincinnati. Thus, he would discount the note by the cost of redeeming the note for gold there.

Some further evidence in support of this hypothesis is given in Figure 9, where I plot the exchange rates of Philadelphia banknotes in New York City against the exchange rates of New York City banknotes in Philadelphia. The discounts on Philadelphia banknotes in New York City are almost always higher, consistent with New York City being a more major financial center than Philadelphia.

5. Conclusion

This paper is based on an extensive data set on banknote exchange rates in the antebellum United States as quoted in Philadelphia, New York City, Cincinnati, and Cleveland. It uses this data set to examine the question of how fragmented this currency system actually was. The paper shows that the currency system was not as fragmented as would be suggested by taking a naive view that the notes of each bank were a separate currency and that exchange rates on banknotes were subject to intrinsic uncertainty as seems to be the case with modern fiat currencies. The paper finds that in many cases there would groups of currencies that were always identical. It also finds that banknote exchange rates were determined by fundamentals.

Nonetheless, one should not minimize the complexity of currency exchange during this period. Even taking account that there were groups of currencies that were identical, there were still a large number of currencies around. And there was exchange rate uncertainty. Further, given the large number of currencies, it was relatively easy to make a counterfeit currency either by inventing a nonexistent bank with a name similar to an existing bank or by altering the notes of a real one. The long lists of counterfeits in the Bank Note Reporters and Counterfeit Detectors attests to the pervasiveness of counterfeit banknotes.

Figure 2 -- Location of banks with Par Redemption in Philadelphia or New York City

- \$ Par Redemption at Philadelphia and New York City
- # Par Redemption at New York City
- # Par Redemption at Philadelphia

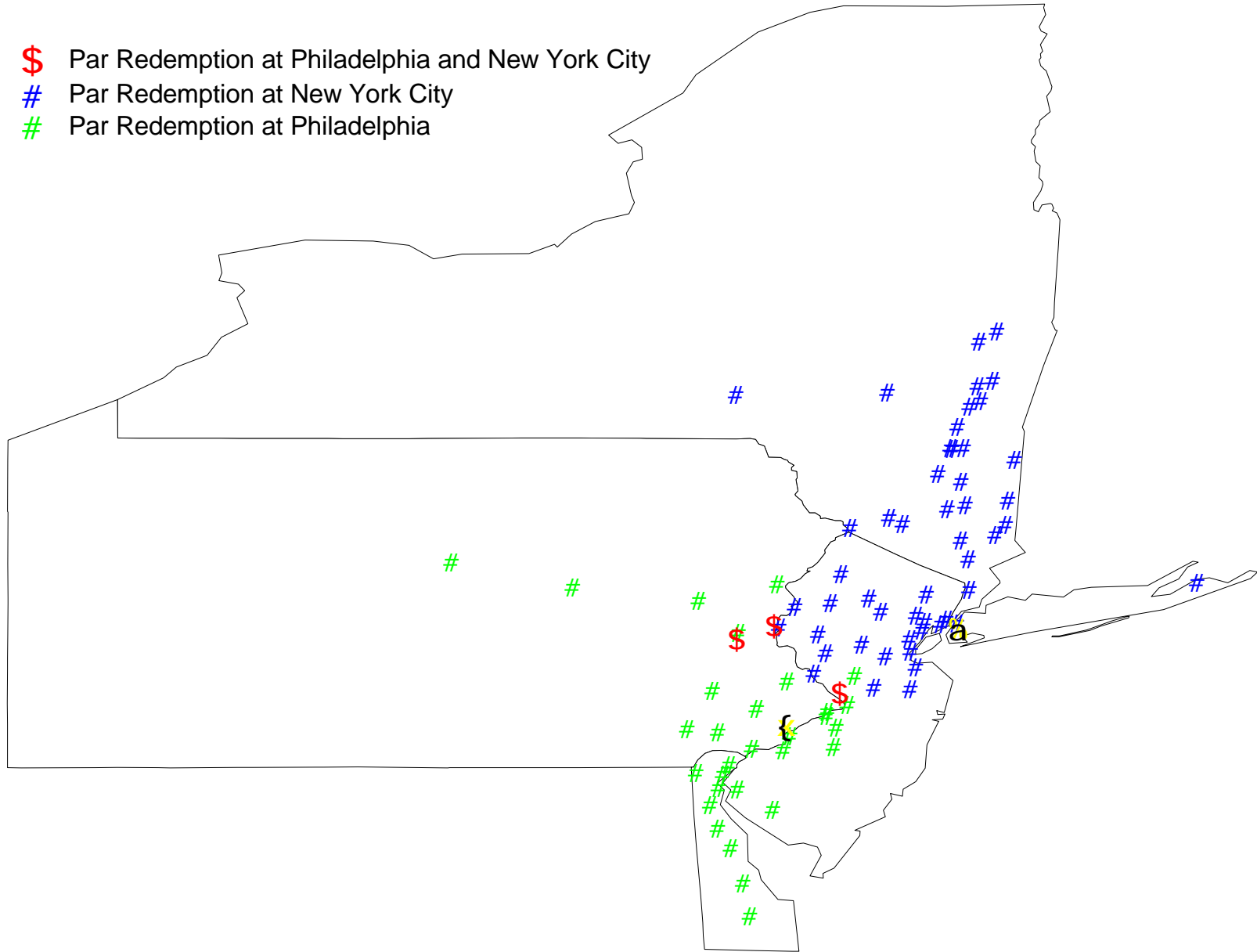


Figure 3 -- Location of Eastern banks by average discount in Philadelphia

#	Par	%	7/8
#	1/4	#	1
%	3/8	%	1-1/4
#	1/2	#	1-1/2
%	5/8	u	1-3/4
#	3/4	u	10

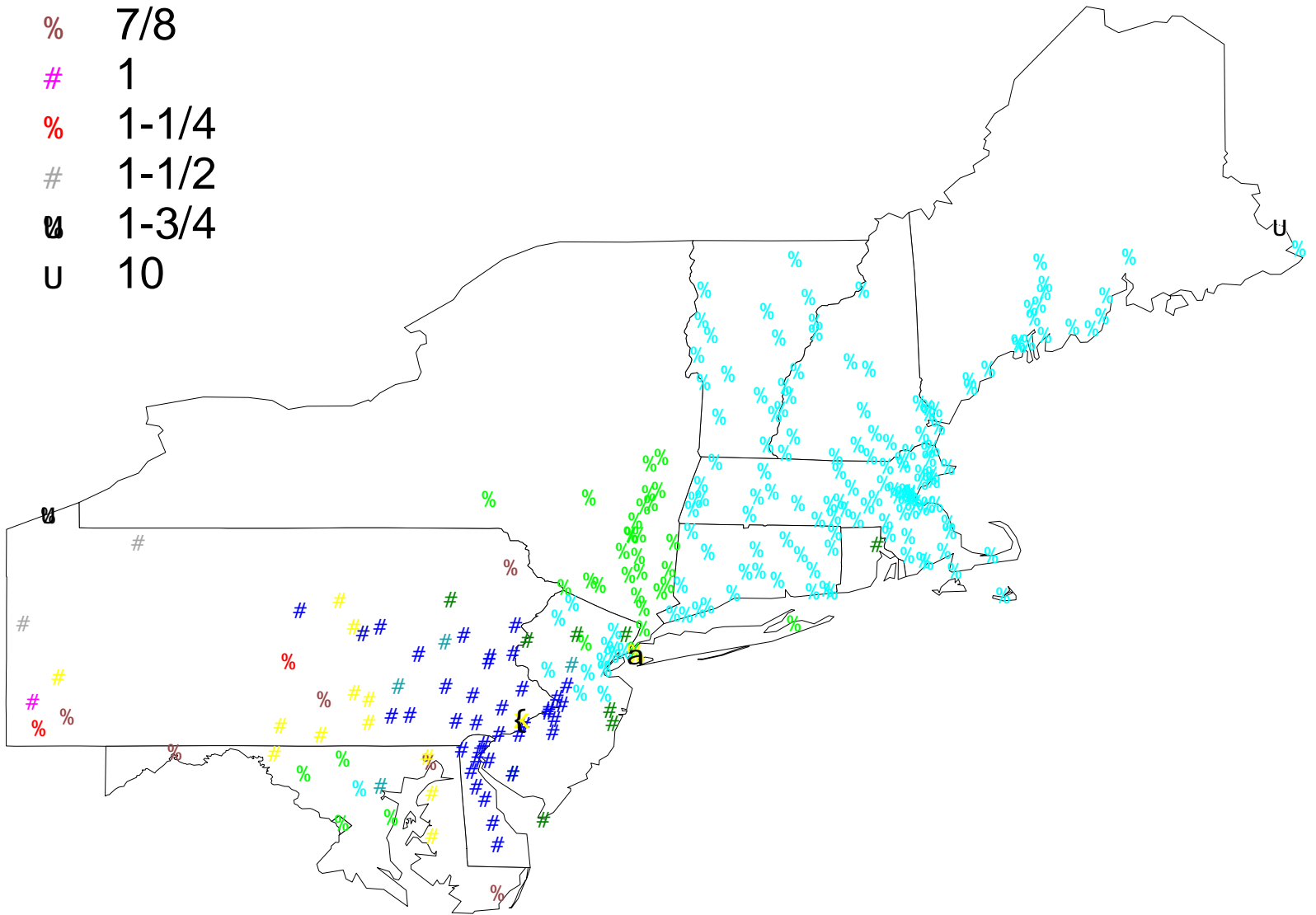


Figure 4 -- Location of Southern and Western banks by average discount in Philadelphia

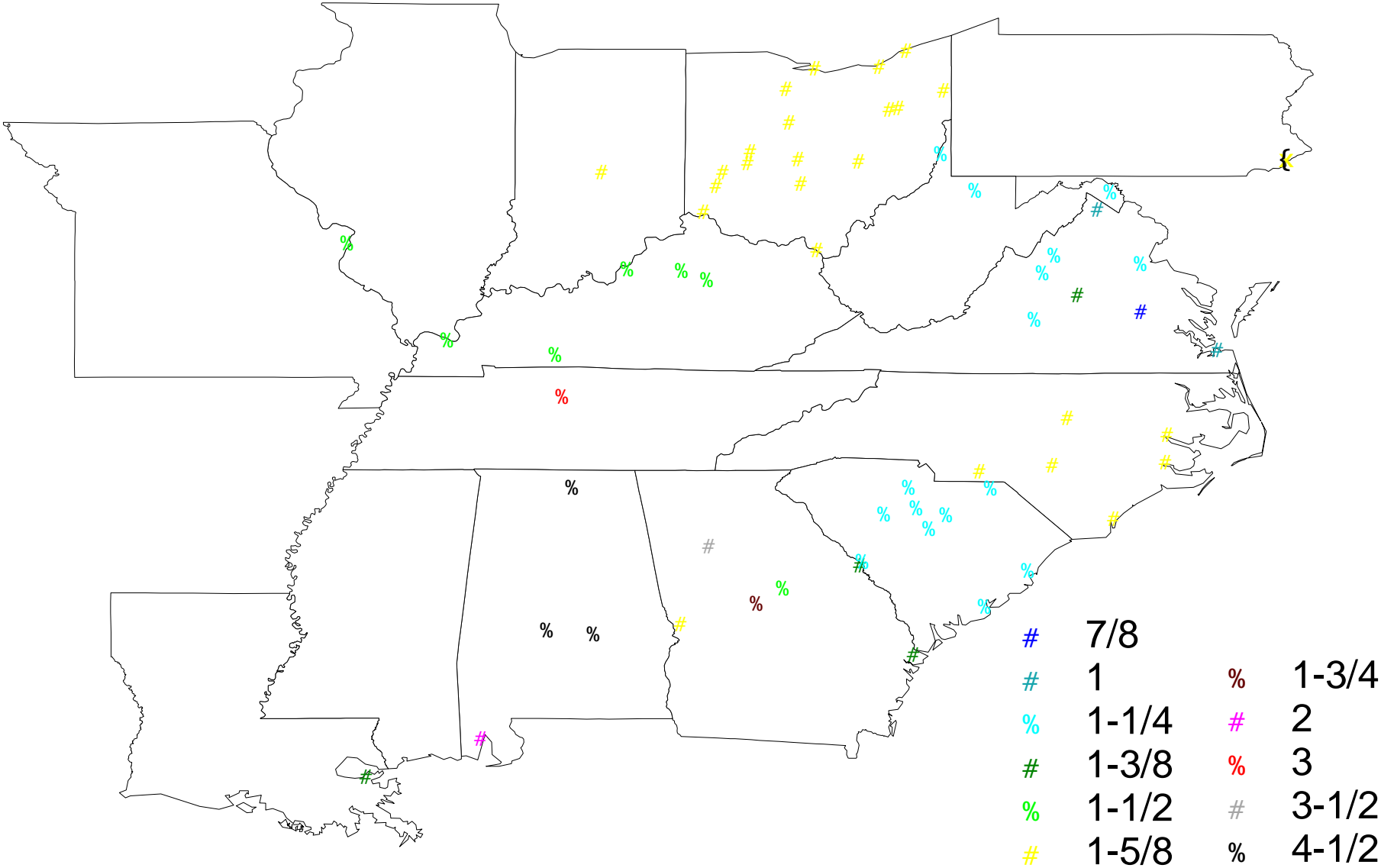


Figure 7 -- Monthly modal discounts on Philadelphia banknotes in NYC, 1839 - 1842

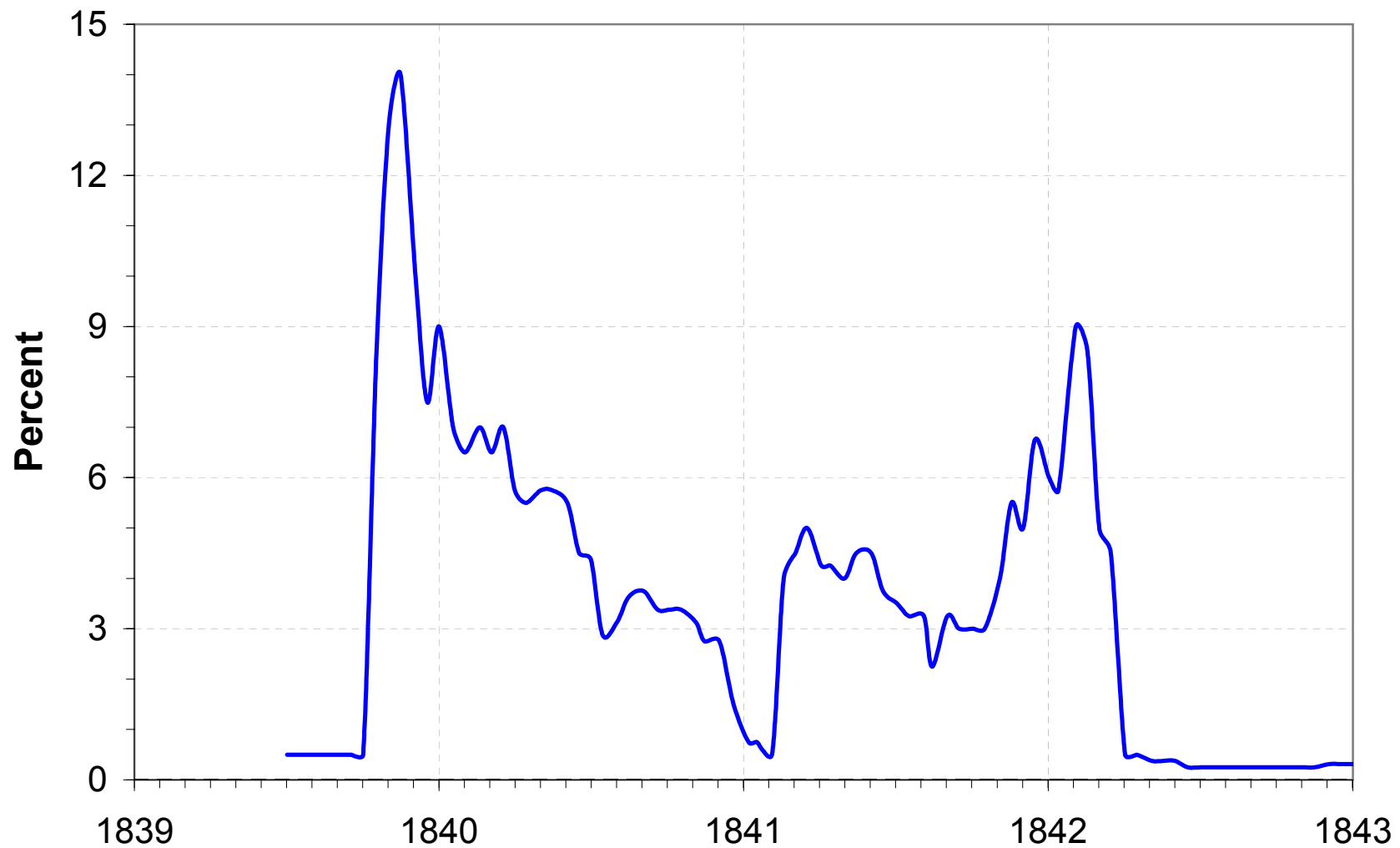


Figure 8 -- Monthly modal discounts on Virginia banknotes in Philadelphia, 1835-42

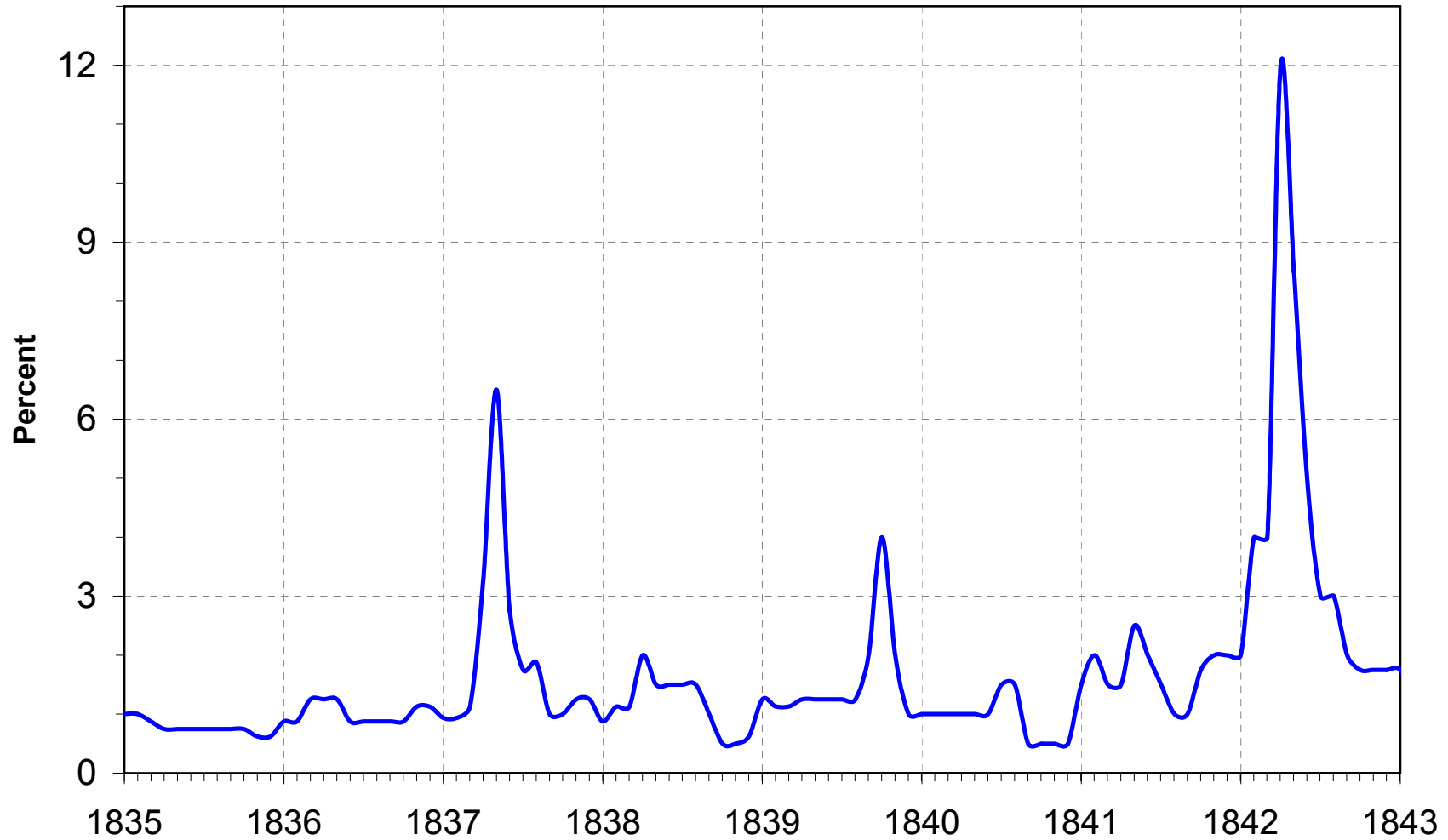


Figure 9 -- Modal discounts on notes of ...

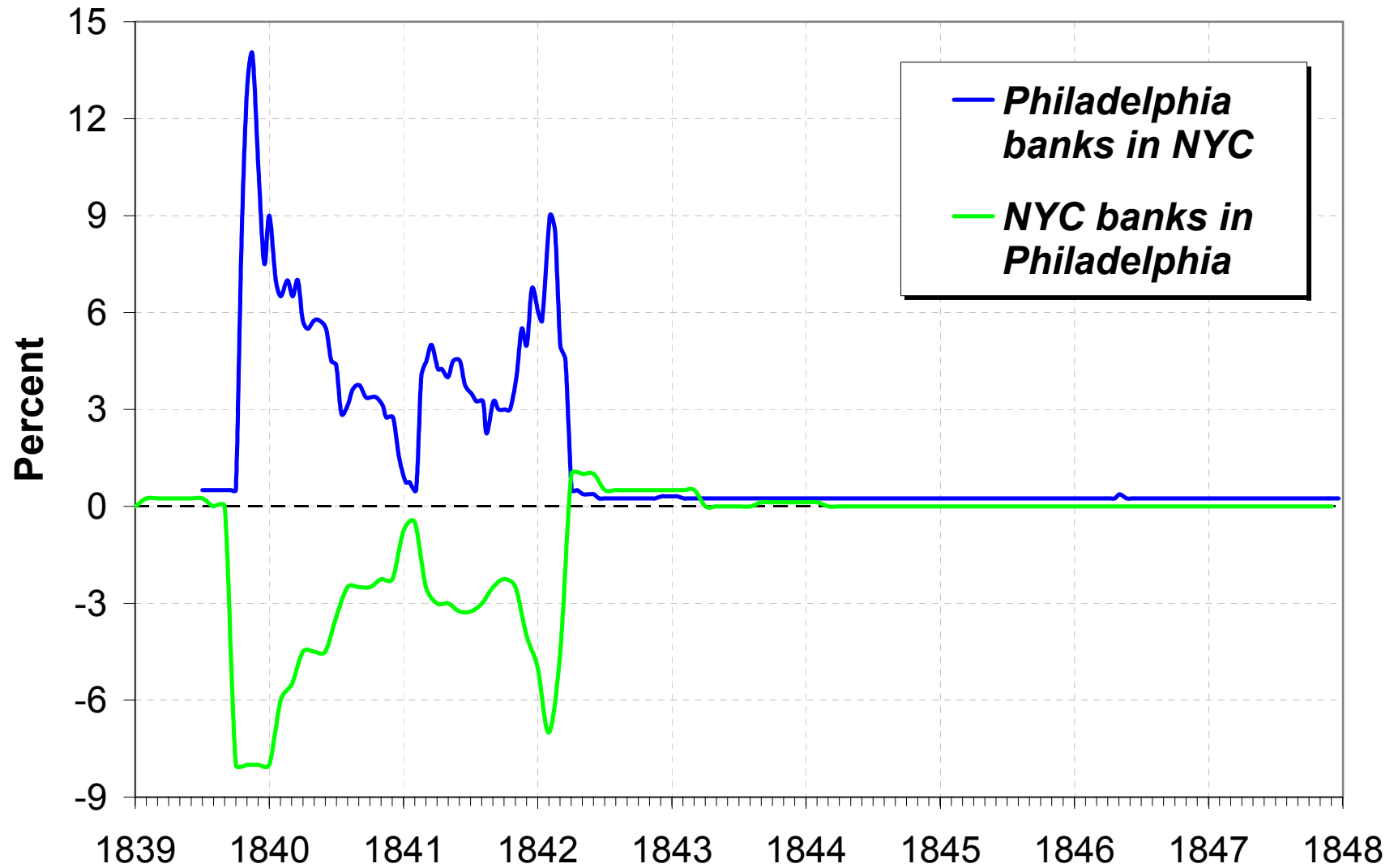


Table 1 -- Discounts on XX notes/ in YY

Date	Cin/Phila	Phila/Cin
Feb 1841	6	-3.5
June 1846	6	0
Feb 1850	7	0
July 1854	5	0

	Cin/NYC	NYC/Cin
Feb 1841	9	-3.5
June 1846	4	0

	Cleve/Phila	Phila/Cleve
Jan 1856	4	0