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**National Banknotes and
Silver Certificates**

by Bruce Champ and James B. Thomson



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National Bank Notes and Silver Certificates

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From 1883 to 1892, the circulation of national bank notes in the United States fell nearly 50 percent. Previous studies have attributed this to supply-side factors that led to a decline in the profitability of note issue during this period. This paper provides an alternative explanation. The decline in note issue was, in large part, demand-driven. The presence of a competing currency with superior features caused the public to substitute away from national bank notes.

Keywords: bank notes, silver certificates, National Banking System, national banks
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1 Introduction

During the period of the National Banking System (1863–1913), national banks could issue notes fully backed by holdings of U.S. government securities. After depositing eligible bonds with the U.S. Treasury, a bank would receive national bank notes worth 90% (100% after 1900) of the par or market value, whichever was lower, of the deposited bonds.

It is well known that during the national banking era national banks never fully utilized their note-issuing powers. As shown in Figure 1, for much of the period, banks held only 20–30% of the eligible bonds as collateral for note issue. After 1900, when changes in the laws made note issue

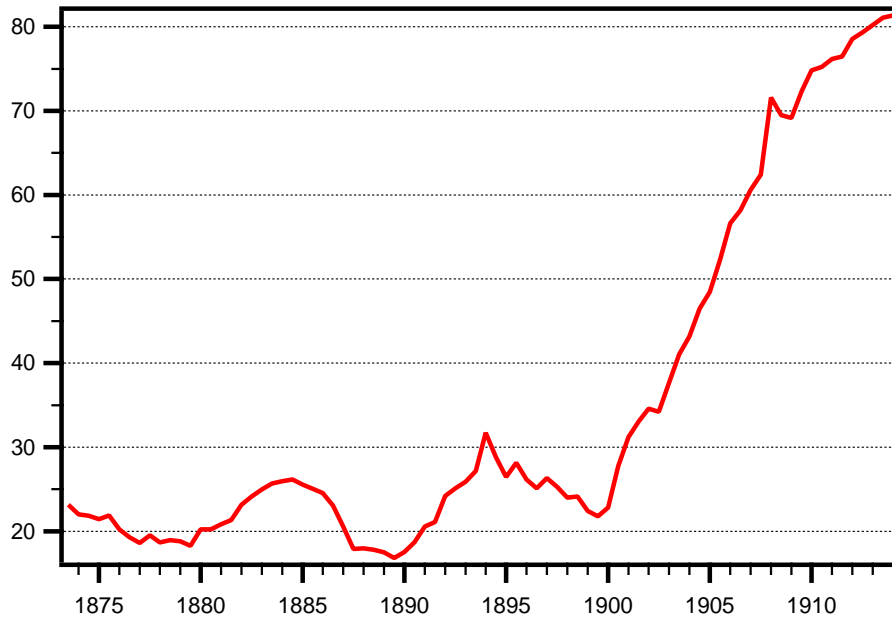


Figure 1: Percent of Eligible Bonds Held as Collateral, 1874–1914

more attractive, banks increased their holdings of collateral and their note issuance.¹ Nonetheless, even at the end of the period of the National Banking System, banks held only 80% of the eligible bonds as collateral for note issue. Hence, the collateral constraint on note issue appears to have never been binding during the period. This is particularly true prior to 1900.

In addition to the low issuance of bank notes, it is also true that the propensity for banks to issue notes varied markedly over the period. Figure 2 shows total national bank note circulation during the period of the National Banking System. The significant increase in note issue after 1900 has already been noted. This increase is easily explained by the favorable changes in the law. However, the pattern of bank note issuance for an earlier time period is puzzling and is the focus of this paper. Beginning in 1883, the aggregate quantity of national bank notes in circulation began to fall. This decline in national bank note circulation continued until 1892 when it began to rebound. But bank note circulation would not recover to its 1883 levels until well after 1900. Making this even more puzzling is the fact that the decline in circulation occurred during a period of strong economic growth in the United States. This paper examines possible explanations for the decline in circulation of national bank notes during the ten-year period from 1883 to 1892.

¹The Act of March 14, 1900, lowered the collateral requirement for note issue from 111% to 100%. It also changed the annual tax on national bank note circulation from 1% to $\frac{1}{2}$ % on those notes backed by bonds bearing 2% coupon rates.

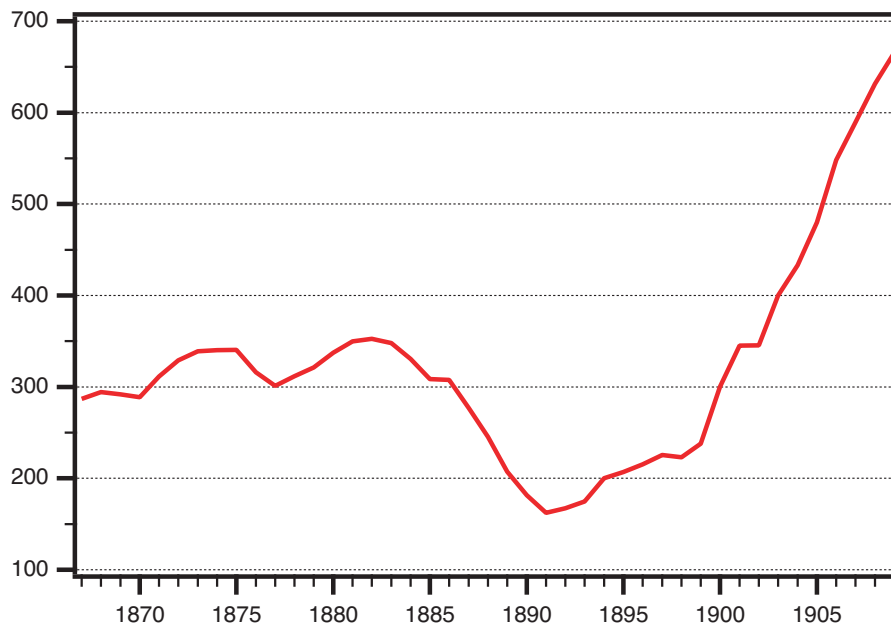


Figure 2: National Bank Note Circulation, 1867–1909 (millions of dollars)

2 Prior Theories

Previous attempts to explain the dip in national bank note issue during the 1880s and early 1890s focus on the supply side of the matter, concentrating on factors that changed the incentives for banks to issue bank notes.² Cagan (1963, 1965) attributes the decline in note issue to falling profitability of national bank note issuance due to increases in the price of collateral. Friedman and Schwartz (1963) succinctly summarize that view.

²Calomiris and Mason (2006) claim that the puzzle of low note issuance during the national banking era disappears when disaggregated data are confronted with the regulatory environment imposed on national bank behavior. Their paper gives important insights into note issuance of the period. However, it only examines the years 1880, 1890, and 1900. For that reason, it cannot adequately explain the dip in note issue during the 1880s.

Yet, despite the failure to use fully the possibilities of note issue, the published market prices of government bonds bearing the circulation privilege were apparently always low enough to make note issue profitable except in the years 1884 to 1891. (Friedman and Schwartz 1963, p. 23)

Beginning in the early 1880s, the federal government began running budgetary surpluses. These surpluses were used to retire a large percentage of the outstanding federal debt. The decline in the supply of government bonds put upward pressure on bond prices. Cagan presents a formula which purports to measure the profitability of note issue. In Cagan's formula, the profitability depends inversely on the purchase price of the bond, among other factors.³ The rising bond prices associated with reductions in the outstanding debt implied lower profitability of note issue. Banks responded by reducing their circulation. Calculations of note profitability performed by various contemporaneous Comptrollers of the Currency also demonstrated lower profitability of note issue during the 1880s.

Champ, Wallace, and Weber (1994) provide a possible reason to doubt this explanation. Prior descriptions of the period claim that the nonbank public viewed national bank notes and lawful money as perfect substitutes.⁴ Champ, Wallace, and Weber refer to this as the "equivalence view" and discuss its implications. Because of their reliance on the equivalence view, prior studies implied that a national bank "could always get its own notes into circulation and, in effect, keep them outstanding." (Champ, Wallace,

³The other factors included the tax on note circulation, redemption costs, and other miscellaneous costs associated with printing bank notes.

Also, see Champ, Wallace, and Weber (1992) for a critique of Cagan's profit rate measure and some suggested alternative measures. However, their corrections would nonetheless imply an inverse relationship between the price of collateral and the return on note issue.

⁴See, for example, Friedman and Schwartz (1963, p. 21).

and Weber 1994, p. 344) However, Champ, Wallace, and Weber show that the equivalence view must be rejected.

Champ, Wallace, and Weber set up a model of note issuance in which the assumption of perfect substitutability is maintained. They show that if the collateral constraint on note issue is not binding (which, as noted previously, it was not during the period of the National Banking System), then yields on the collateral (government bonds) should be equal to the tax rate on note issue (1% before 1900, effectively $\frac{1}{2}\%$ thereafter). This, in turn, would imply that during this period the price of government bonds of a given class should have been fixed, independent of Treasury debt policies. Furthermore, Champ, Wallace, and Weber show that nonbindingness of the collateral constraint also implies safe short-term rates should have been pegged at the tax rate.

However, the data appear inconsistent with these implications. Yields on government bonds were 200 to 300 basis points above the tax rate throughout the period. Short-term interest rates were considerably above the tax rate and were highly variable. This calls into question the assumption that national bank notes and lawful money were perfect substitutes, a key assumption behind many prior studies.

Champ, Wallace, and Weber suggest that a national bank may not have been willing to use its own notes to make certain types of purchases. For example, a national bank may have been reluctant to use its own notes to buy government securities in organized securities markets. Bank notes used for such a purpose most likely would be redeemed quickly through the U.S. Treasury's formal redemption procedure. Given that the costs of

redemption were borne by the *issuing* bank, the small amount of interest earned on the securities over a short period of time would be more than offset by the costs of redemption. Hence, national bank notes would not have been used to arbitrage in government securities markets. For that reason, Champ, Wallace, and Weber raise doubts about a key assumption of prior calculations of note profitability—that banks could earn the market rate of interest on any quantity of notes they desired to issue. Wallace and Zhu (forthcoming) provide a formal model that illustrates this result. These results imply that there may be no link between the yield on government bonds and the tax rate on note issue. They also call into question the validity of previous calculations of the profitability of note issue.

We take a different approach than prior studies, although the work of Champ, Wallace, and Weber was suggestive for our approach. We focus on the specific features of the various monies in circulation at the time. Instead of concentrating on the incentives for banks to issue notes, we pay attention to the incentives of agents to hold the various forms of currency. We believe those incentives were not fixed during the period. Not all forms of money were perfect substitutes for certain uses during the time period. The argument has already been made that national bank notes were not particularly useful devices for making purchases in organized securities markets. We argue here that this can be said for other uses, too.

3 Legal History

The 1870s through the mid-1890s was the period of silver agitation in the United States. Silver agitation was in response to the passage of the Act of February 12, 1873, often referred to as the “Crime of ’73.” This law discontinued coinage of the standard silver dollar.⁵ Except for a minor amount of subsidiary coin, silver had not been in circulation since 1836 due to the fact that the market price of silver exceeded its mint price since that year. Hence, on the surface, the passage of this act seemed innocuous and, in fact, was not strongly debated in Congress.⁶ It was not until after its enactment that the act became a “crime.”

Shortly after the Act of 1873’s passage came significant finds of silver in the Comstock Lode of Nevada. The market price of silver began to fall, substantially enough that resumption of silver coinage looked like a good idea to silver producers and the Act of 1873 looked more and more like a “crime” to them. Silver proponents lobbied strongly for the free coinage of silver at the 1836 mint price. During the late 1870s they began to have some successes, beginning with the Bland-Allison Act in 1878.

3.1 Bland-Allison Act (1878)

The Bland-Allison Act of February 28, 1878, stipulated that the Treasury would purchase between two and four million dollars worth of silver at the current market price. U.S. Treasury Secretaries of the period always chose

⁵An engaging discussion of the Crime of ’73 and the debate over silver appears in Friedman (1992, Chapter 3).

⁶The act passed by a vote of 110 to 13 in the U.S. House of Representatives and 36 to 14 in the U.S. Senate.

to purchase the minimum amount specified by this law.⁷ In total, 291.3 million ounces of silver were purchased under Bland-Allison.

The Bland-Allison Act also stipulated that a holder of silver coin could deposit coin with the U.S. Treasury and receive silver certificates with a minimum denomination of ten dollars.⁸ As we see later, lower-denomination silver certificates were authorized in 1886.

Silver dollars were deemed legal tender, but silver certificates were not. Accordingly, questions lingered as to the silver certificates' status as "lawful money." Typically, lawful money is construed to be money accepted by the federal government in payment of taxes. Classification of a money as lawful money was important to national banks since only lawful money holdings satisfied legal reserve requirements. The act stipulated that silver certificates were "receivable for customs, taxes, and all public dues." This would seem to imply that silver certificates were lawful money and, hence, could be counted as reserves by national banks.

Whether silver certificates counted as lawful money was far from certain until 1882. In fact, before 1882, national banks attempted to pay out silver certificates to the public as quickly as they could.⁹ One would not expect this sort of behavior if national banks could hold silver certificates as part of their reserves. As we will see, the status of silver certificates was clarified with the Act of July 12, 1882.

Certainly, the Bland-Allison Act did not completely satisfy the demands

⁷See Taussig (1892, p. 8).

⁸Under the original act, silver certificates were issued in denominations of \$10, \$20, \$50, \$100, \$500, and \$1,000.

⁹See Taussig (1892, p. 17).

of silver producers who wanted unlimited coinage and a return to the old (higher) mint price of silver. On the other side of the issue were the “hard money” advocates, who frequently called for the repeal of Bland-Allison, as well as subsequent silver purchase acts.

3.2 Extension of national bank charters (1882)

The National Banking Act (1863) specified a 20-year charter for national banks. This implied that at the end of 1882, some national bank charters would lapse. Despite some political pressure to allow the National Banking Act to expire, Congress passed the Act of July 12, 1882. This act allowed for the extension of the corporate existence of the national banks for another 20 years. For our purposes this is not the most important aspect of the law. However, it did guarantee legislative continuance for the national banks.

More important to our story is the impact the Act of July 12, 1882, had on the denominations of national bank notes in circulation. The original National Banking Acts of 1863 and 1864 allowed the issuance of national bank notes in denominations of \$1, \$2, \$5, \$10, \$20, \$50, \$100, \$500, and \$1,000. In addition, these acts limited the aggregate amount of one- and two-dollar notes to one-sixth of the total quantity of national bank notes issued. The latter limitation was never binding, however.

Beginning with the resumption of specie payments in 1879, national banks were forbidden to issue bank notes in denominations of less than \$5. However, as Table 1 shows, a significant quantity of one- and two-dollar notes remained outstanding as of 1882.

To eliminate this low-denomination circulation, the Act of July 12, 1882,

Table 1: National Bank Notes in Circulation by Denomination, 1878–1886 (millions of dollars, percent of total value in parentheses)

Year	Ones	Twos	Fives	Tens	Higher	
					Denominations	Total
1878	4.1 (1.2%)	2.8 (0.9%)	93.9 (28.9%)	104.1 (32.0%)	120.0 (36.9%)	324.9
1879	4.0 (1.2%)	2.8 (0.9%)	96.0 (29.2%)	106.4 (32.3%)	119.8 (36.4%)	329.0
1880	2.7 (0.8%)	1.9 (0.5%)	100.6 (29.2%)	113.6 (33.0%)	125.2 (36.4%)	343.9
1881	1.6 (0.4%)	1.1 (0.3%)	100.0 (28.2%)	119.2 (33.6%)	132.8 (37.4%)	354.6
1882	0.9 (0.3%)	0.6 (0.2%)	97.5 (27.3%)	121.4 (34.0%)	137.1 (38.3%)	357.6
1883	0.6 (0.2%)	0.4 (0.1%)	93.6 (26.3%)	120.0 (33.7%)	141.4 (39.7%)	356.1
1884	0.5 (0.2%)	0.3 (0.1%)	87.2 (25.8%)	113.3 (33.5%)	137.3 (40.5%)	338.7
1885	0.5 (0.1%)	0.3 (0.1%)	81.2 (25.6%)	105.0 (33.1%)	130.0 (41.0%)	316.9
1886	0.4 (0.1%)	0.2 (0.1%)	83.3 (27.0%)	101.5 (32.9%)	123.1 (39.9%)	308.5

Source: Report of the Comptroller of the Currency (various issues). Although national bank notes could be issued in denominations larger than ten dollars, those denominations are not shown separately here for simplicity. All national bank notes with denominations greater than ten dollars are combined in the column “Higher Denominations.”

required *all* national bank notes to go through redemption at the U.S. Treasury. As the Treasury received the old notes, they were replaced with new notes of a different design and only in denominations of at least five dollars. As seen in Table 1, this action nearly eliminated the circulating small-denomination bank notes within a few years.¹⁰

Importantly for national banks, the Act of July 12, 1882, clarified the lawful money status of silver certificates, which as noted before had been debated since their inception. The Report of the Comptroller of the Currency of 1882 discusses this act. The Comptroller clearly states “silver certificates... are authorized to be counted as part of the lawful reserves of national banks.” (Report of the Comptroller of the Currency 1882, p. 44) The act’s clarification of the lawful money status of silver certificates is another key link in our story.

3.3 Low-denomination silver certificates issued (1886)

Four years after low-denomination national bank notes were practically eliminated, Congress introduces low-denomination silver certificates. The Act of August 4, 1886, authorized the U.S. Treasury to issue silver certificates in denominations of \$1, \$2, and \$5. Table 2 shows the increase in low-denomination silver certificates after the passage of this law. The increase in low-denomination silver certificates is also evident in Figure 3. From Table 2 we can see that circulation of silver certificates in denominations

¹⁰It is worth noting that a five-dollar note was roughly equivalent to a week’s wages during this period (See Series D 735–738 in U.S. Bureau of the Census. 1975. *Historical Statistics of the United States, Colonial Times to 1970, Bicentennial Edition, Part 1*, Washington, D.C.). It would be difficult to classify such a note as “small denomination.”

Table 2: Silver Certificates in Circulation by Denomination 1878–1891 (millions of dollars, percent of total value in parentheses)

Year						Higher	
	Ones	Twos	Fives	Tens	Denominations	Total	
1878	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	0.1 (6.7%)	1.7 (93.3%)	1.9	
1879	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	0.2 (6.4%)	2.4 (93.6%)	2.5	
1880	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	2.1 (17.4%)	10.2 (82.7%)	12.4	
1881	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	20.4 (39.8%)	30.8 (60.2%)	51.2	
1882	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	29.2 (44.2%)	36.9 (55.8%)	66.1	
1883	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	36.9 (41.6%)	51.7 (58.4%)	88.6	
1884	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	47.5 (39.3%)	73.4 (60.7%)	120.9	
1885	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	51.7 (37.0%)	88.2 (63.0%)	139.9	
1886	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	50.3 (43.3%)	65.7 (56.7%)	116.0	
1887	14.0 (9.6%)	8.9 (6.1%)	7.7 (5.3%)	54.2 (37.2%)	60.7 (41.7%)	145.5	
1888	26.7 (11.6%)	18.6 (8.1%)	51.6 (22.5%)	80.5 (35.1%)	52.1 (22.7%)	229.5	
1889	27.9 (10.6%)	20.2 (7.7%)	85.6 (32.6%)	87.4 (33.3%)	41.5 (15.8%)	262.6	
1890	31.1 (10.3%)	22.6 (7.5%)	102.1 (33.9%)	111.5 (37.0%)	34.2 (11.4%)	301.5	
1891	29.1 (9.2%)	19.2 (6.1%)	110.1 (35.0%)	110.6 (35.1%)	45.8 (14.5%)	314.7	

Source: Report of the Comptroller of the Currency (various issues). Although silver certificates could be issued in denominations larger than ten dollars, those denominations are not shown separately here for simplicity. All silver certificates with denominations greater than ten dollars are combined in the column “Higher Denominations.”

greater than ten dollars fell from 1886 to 1891, being displaced by lower-denomination silver certificates.

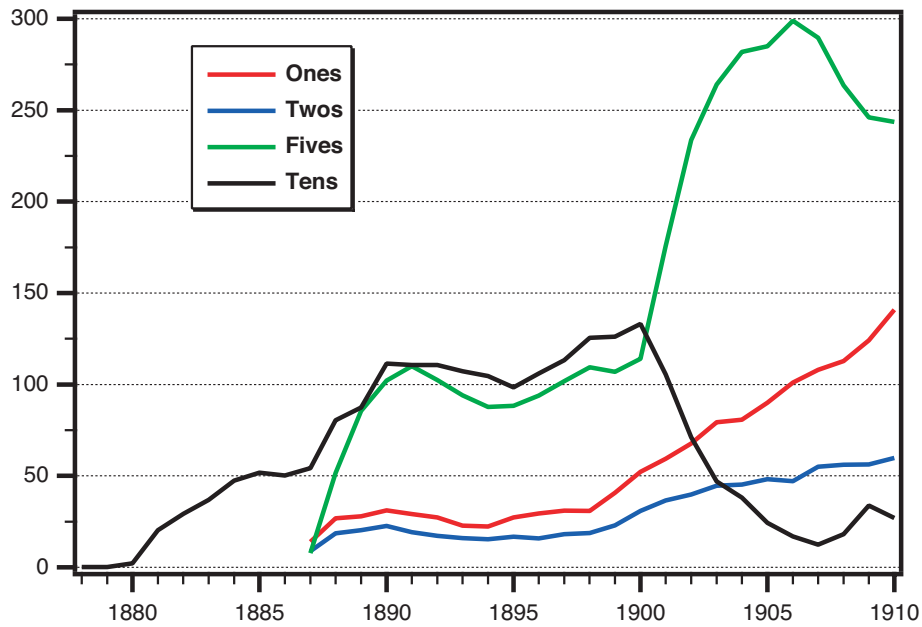


Figure 3: Silver Certificates in Circulation by Denomination, 1878–1910 (millions of dollars)

Within two years of the passage of the act of August 4, 1886, low-denomination silver certificates (ones and twos) accounted for around 20% of the total amount of silver certificates in circulation, and five-dollar silver certificates made up nearly one-third of total circulation.

3.4 Sherman Silver Purchase Act (1890)

Silver agitation continued to be a major political influence as the United States entered the decade of the 1890s. Silver proponents argued for an

increase in the rate of silver purchases. With the entry of several key western states into the Union during 1889 and 1890, silver advocates had increased political clout. In a political compromise, the Sherman Silver Purchase Act of 1890 was passed by Congress. In exchange for Republican support of the purchase act, Democrats casted votes for the protectionist McKinley tariff.

The Sherman Silver Purchase Act mandated the purchase of 4.5 million ounces of silver per month at its market price. Effectively, this act more than doubled the rate of silver purchases by the Treasury. The amount of silver purchases authorized by the Sherman Silver Purchase Act represented nearly the monthly production of the silver mines of the United States. The silver bullion was to be paid for with U.S. Treasury notes in denominations from one dollar to one thousand dollars. These Treasury notes were redeemable in gold or silver coin and could be reissued. They were also deemed legal tender as well as lawful money and therefore satisfied reserve requirements for national bank notes.

3.5 Silver purchase act repealed (1893)

In 1893, the United States found itself embroiled in its third major financial panic since the Civil War. Contemporary writers blamed the panic on the “silver situation.”¹¹ President Grover Cleveland, who reassumed office in March 1893, had made it clear in prior statements that he was opposed

¹¹In July 1893, the *Commercial and Financial Chronicle* wrote, “The country is struggling with disturbed credit and the general derangement of commercial and financial affairs which a forced and over-valued currency has developed. . . . Nothing but corrective legislation which shall remove the disturbing law, can afford any measure of real relief.” (Referred to in Hoffman 1970, p. 229.)

to the silver legislation.¹² The market price of silver had continued to fall throughout the 1880s and early 1890s. By 1893, the market price of silver was nearly one-half its mint price.

This situation caused a continual drain of gold from the Treasury. By the early 1890s the Treasury's ability to redeem currency into gold was called into question. On April 22, 1893, the Treasury's gold reserve fell below the \$100 million mark. Although it was not mandated by law, Secretaries of the Treasury viewed \$100 million dollars as the minimum amount that should be held in the gold reserve.¹³ This prompted President Cleveland to order a special session of Congress in August 1893. In a message to Congress, Cleveland argued for repeal of the Sherman Silver Purchase Act of 1890. The Act of November 1, 1893, formally repealed the Silver Purchase Act. However, the conversion of silver coin into silver certificates was still allowed.

4 A History of Silver Dollar and Silver Certificate Circulation

We believe that silver certificate legislation had important implications for the circulation of national bank notes. Before we detail the reasons for that conclusion, it would be useful to present a brief narration of the country's experience with silver dollar and silver certificate issuance.

¹²During his state of the union address to Congress in December 1885, Cleveland made the following remarks on silver: "Those who do not fear any disastrous consequences arising from the continued compulsory coinage of silver as now directed by law, and who suppose that the addition to the currency of the country intended as its result will be a public benefit, are reminded that history demonstrates that the point is easily reached in the attempt to float at the same time two sorts of money of different excellence when the better will cease to be in general circulation. The hoarding of gold which has already taken place indicates that we shall not escape the usual experience in such cases."

¹³See Taussig (1893, p. 734).

4.1 Early reluctance to accept silver

Under the authority of the Bland-Allison Act (1878), the Treasury began purchasing silver and minting silver dollars. Despite efforts by the U.S. Treasury to keep silver dollars in circulation, “the great bulk of them return[ed] to the Treasury at once.”¹⁴ (Taussig 1890, p. 295) Banks, in particular, were loathe to hold silver dollars, so much so that shortly after the passage of the Bland-Allison Act, the New York clearinghouse prohibited “the payment of balances in silver certificates or silver dollars, except as subsidiary coin in small sums (say under ten dollars)”¹⁵ The Boston clearinghouse adopted a similar rule.¹⁶

Congress attempted to put a stop to this practice. In 1882, the act that extended the corporate existence of national banks contained a clause that stated no national bank could be a member of a clearinghouse that did not accept payment in silver certificates. The New York clearinghouse quickly dropped their rule, but according to Taussig, “their practice remained unaltered.” (Taussig 1892, p. 16–17) Participants in the New York clearinghouse implicitly agreed not to present silver or silver certificates for payment. Banks continued to pay out silver certificates to the public as soon as they were received, with the silver certificates often being used by bank

¹⁴Taussig notes that the Treasury attempted to encourage silver dollar circulation by paying “...the cost of transporting them from the sub-treasuries to any point where they may be wanted.” (Taussig 1890, p. 294) However, the silver dollars did not stay in circulation for very long. Taussig states, “The round-trip from Treasury back to Treasury is easily made, in some districts, in the course of a single week.” (Taussig 1892, p. 20)

¹⁵This rule is referred to in the Report of the Comptroller of the Currency (1878, p. 169).

¹⁶Taussig (1892) states that Philadelphia banks also refused to use “silver currency.” However, “in Chicago, St. Louis, Kansas City and Denver, silver certificates, and bank notes as well, pass between banks as freely as any form of currency, though in fact no large amounts are used.” (Taussig 1892, p. 16*n*)

customers to make payments to the government.

4.2 Increased usage of silver certificates

Initially, the Treasury issued silver certificates primarily in large denominations. These large-denomination silver certificates did not stay in circulation for long, quickly returning to the Treasury as tax payments. In the first two years of their issuance, most of the outstanding silver certificates remained in the Treasury. For example, in June 1879, only \$8 million of the \$36 million in silver certificates issued by the Treasury were in circulation, the remainder sitting idle in Treasury vaults.

Taussig (1892) summarizes the difficulties the Treasury faced in keeping silver certificates in circulation:

It was some time before [the Treasury] learned how impossible it was to get the certificates of large denominations into circulation: a result, however, which followed inevitably from the unwillingness of the banks, who alone can conveniently use the large certificates, to hold them or use them. It was certain from the start that the only form in which the silver currency could get into permanent circulation was in the denominations which serve for every day retail transactions. In the first year no special effort seems to have been made by the Treasury to get out the certificates of the smaller denominations permitted by law." (Taussig 1892, p. 22)

However, toward the end of 1880, circulation of silver certificates increased markedly (see Figure 4, below, and Table 2). In September 1880, the Treasury announced a policy whereby deposits of gold coin could be made with the assistant treasurer in New York. In exchange for these deposits, the assistant treasurer would issue drafts, payable in silver certificates, on the sub-treasuries in the South and the West. Effectively, this allowed those making payments in the South and West to save the cost of transporting

cash. The Treasury's policy caused a marked increase in the circulation of silver certificates, especially in the smallest denominations permitted by law.¹⁷ According to Taussig, "...on the whole, for the three years 1881, 1882, and 1883, the silver currency was absorbed by the public as fast as the dollars were coined at the mint." (Taussig 1892, p. 27)

The strong upward movement in silver certificate circulation stopped with the economic downturn that began in 1884. Through 1884 and most of 1885, silver certificate circulation declined, and silver certificates accumulated in the vaults of the Treasury.

However, this decline was short-lived. As was noted above, Congress passed legislation in 1886 that allowed the issuance of silver certificates in one-, two-, and five-dollar denominations. The passage of this legislation coincided with a turnaround in economic activity. From that point forward, circulation of silver certificates expanded rapidly.

5 Silver Certificates Dominate National Bank Notes

Having completed the legal background of the period, all of the pieces of the puzzle are in place. Previous papers have focused on the general low level of national bank note issuance as being caused by the issuing banks themselves. The view of this paper is that the decline in national bank note circulation from 1893 to 1892 was to a large degree *demand driven*. In this view, the decline in bank note issue occurred because the public and

¹⁷With the exception of a period during late 1882 and early 1883, this Treasury policy continued until January 1885.

financial institutions replaced holdings of national bank notes with holdings of silver certificates. We do not purport to explain the general low level of note issue over the entire period, just the relative dip in circulation during the 1880s and early 1890s.

But why would silver certificates supplant national bank notes during this period? Simply put, silver certificates possessed several features that made them superior to national bank notes for certain uses.

Although debated for a period of time, the Act of July 12, 1882, formalized the lawful money status of silver certificates. This had special importance for the national banks. Being declared lawful money meant that silver certificates could be held by national banks to satisfy reserve requirements. National bank notes never counted as bank reserves. Because of this, national banks had a natural preference for holding silver certificates over notes of national banks in their vaults. In the method of accounting for the day, quantities of Treasury-issued currency counted as “currency in circulation,” even those amounts held in the vaults of banks.¹⁸

Silver certificates also dominated national bank notes in terms of their usefulness in paying taxes. National bank notes could not be used in payment of customs duties, but silver certificates could.

Perhaps most important are the denominations in which national bank notes and silver certificates were issued. We have seen that beginning in 1879 national banks could not issue bank notes in denominations less than five dollars. Furthermore, the Act of July 12, 1882, forced the redemption of all

¹⁸This is in contrast to modern measures of monetary aggregates that only count balances in the hands of the *nonbank* public.

national bank notes, essentially eliminating any one- and two-dollar national bank notes in circulation. In addition, beginning in June 1885, the U.S. Treasury stopped issuing legal tender notes (greenbacks) in denominations of less than five dollars. This resulted in a gradual reduction of small-denomination greenbacks in circulation.

Early in the period, silver certificates did not have any denominational advantage over national bank notes. However, this changed with the passage of the Act of August 4, 1886. The act allowed the Treasury to issue silver certificates in one-, two-, and five-dollar denominations. During a period in which one often heard complaints regarding a lack of small-denomination currency, such a development must have been welcomed by the public. As Taussig states, “Under these circumstances, the small silver certificates, of which the issue began immediately after Congress authorized them, were rapidly, almost eagerly, absorbed by the public. In the autumn months of 1886, the certificates for one, two, and five dollars, were issued as fast as they could be printed.” (Taussig 1892, p. 44) The desirable denominational aspect of silver certificates gave them another advantage over national bank notes. This is evident in the data, to which we now turn.

6 The Data

Although the decline in national bank notes circulation from 1882 to 1891 was remarkable, the increase in silver certificate circulation during that period was equally so. Figure 4 illustrates the circulation of these two currencies. From the peak of bank note issue in 1882 to the trough in 1891, national

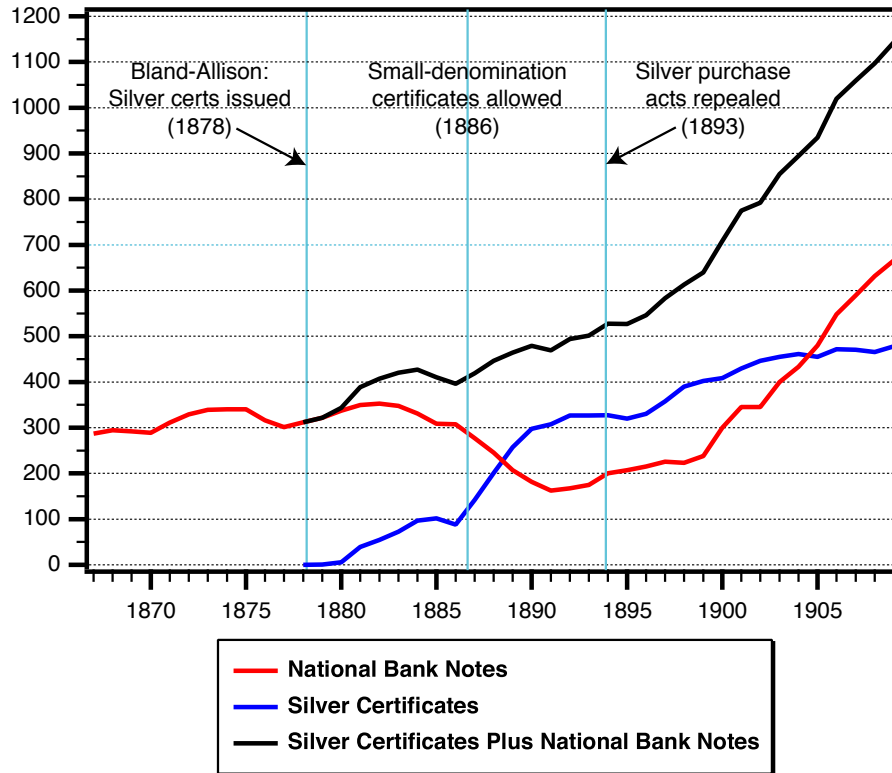


Figure 4: National Bank Notes and Silver Certificates in Circulation, 1867–1909 (millions of dollars)

bank note issue fell by over \$190 million. During the same time period, silver certificate issuance rose by over \$248 million, with a significant fraction of that increase being in lower denominations. In 1891, over 15% of the silver certificates in circulation were in one- and two-dollar denominations.

Figure 4 also illustrates the sum of national bank note and silver certificate circulation (the black line). This clearly illustrates that the sum of the two types of notes grows at a smooth rate during the 1880s as silver

certificates supplant national bank notes.

When the silver purchase acts are repealed in 1893, national bank note issue rebounds. Although the purchase of silver by the Treasury stopped in that year, the conversion of silver dollars into silver certificates continued.

In his 1892 paper, Taussig argues that a decline in the profitability of national bank note circulation caused bank note issuance to fall. This argument is similar to that proposed in Cagan (1963, 1965). Taussig argues that silver certificates rushed into the void created by the decline in national bank note issuance.

Although we have no doubt that increasing government bond prices during the 1880s lowered the incentives to issue national bank notes, we contend that the causality also extends in the opposite direction. We argue that the features of silver certificates caused them to “crowd out” national bank notes.

We have already noted the desirable features of silver certificates that caused it to be superior to national bank notes for many purposes. More evidence for our view that the decline in national bank notes was partially demand driven comes by looking at the amount of national bank notes accumulating in bank vaults. Figure 5 presents data on the quantity of “idle” national bank notes. Idle notes consist of those notes issued by the Treasurer to national banks that are not in circulation among the public.

These idle notes suggest that national banks had difficulty keeping their notes in circulation for a number of years. From 1886 to 1891 more than 25% of the notes issued to national banks sat idle in bank vaults. If the Cagan/Taussig story of lower profitability were correct, we would expect to

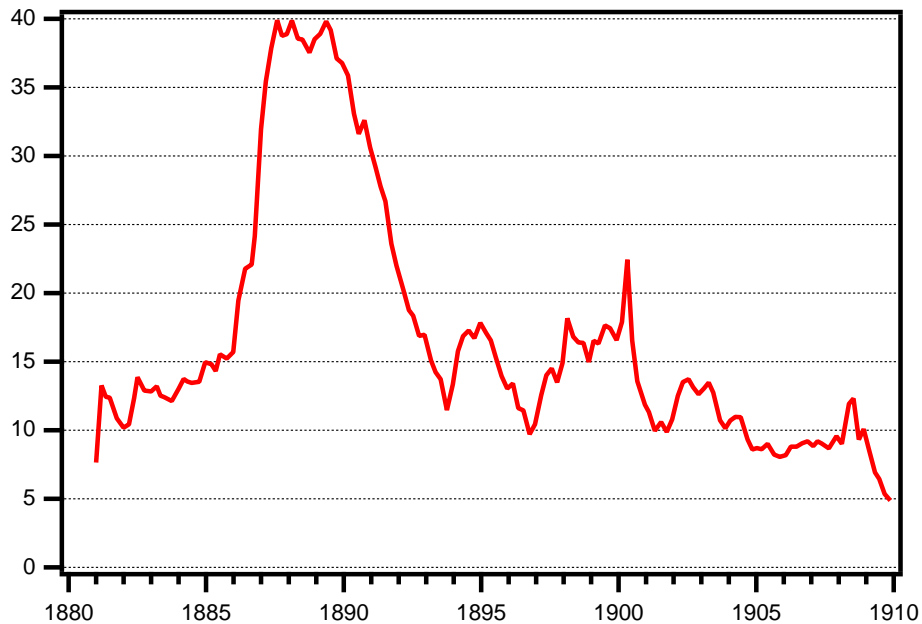


Figure 5: Idle National Bank Notes, 1880–1909 (percent of total circulation)

see a more rapid withdrawal in notes. Furthermore, the timing seems more closely related to a demand-side explanation. Recall that 1886 is the year in which low-denomination silver certificates appear. This is the year in which there is a marked increase in idle national bank notes. In contrast, government bond prices had been rising significantly for years prior to that date.

It is also worth noting that the increase in silver-backed currency was driven by silver purchase requirements under Bland-Allison. Hence, it is unlikely that under the Cagan/Taussig story we would see the almost one-for-one displacement of bank notes by silver certificates. However, such a

displacement is consistent with the crowding out story.

7 Boston: A Case Study

In analyzing the data, one feature grabbed our attention.¹⁹ Although the dip we see in aggregate national bank note circulation during the 1880s and early 1890s also shows up at more disaggregated levels, we see particularly precipitous declines in note issue in certain places. One such place is the city of Boston. Figure 6 shows the circulation of Boston national banks from 1881–1910. From 1883 to 1889, Boston circulation falls by a remarkable 92%. Although it rebounds after that period, it never comes close to regaining its pre-1883 level.

Contrast this to the circulation of New York City banks, also portrayed in Figure 6. Although New York City circulation falls similarly to the aggregate data from 1883 to 1891, it rebounds thereafter. Furthermore, New York City circulation grows strongly after 1900, whereas Boston circulation remains relatively flat. Boston national bank note circulation never recovers to its earlier level.

How does the observation about Boston circulation bear upon the analysis in this paper? F. W. Taussig’s papers on the “silver situation” in the United States provide some support for our view that there was a deliberate substitution of silver certificates for national bank notes during this period. The most telling anecdote supporting our crowding out theory is in Taussig’s

¹⁹The original data comes from the annual reports of the Comptroller of the Currency. The Comptroller reported individual bank balance sheet items, as well as data aggregated by city and state.

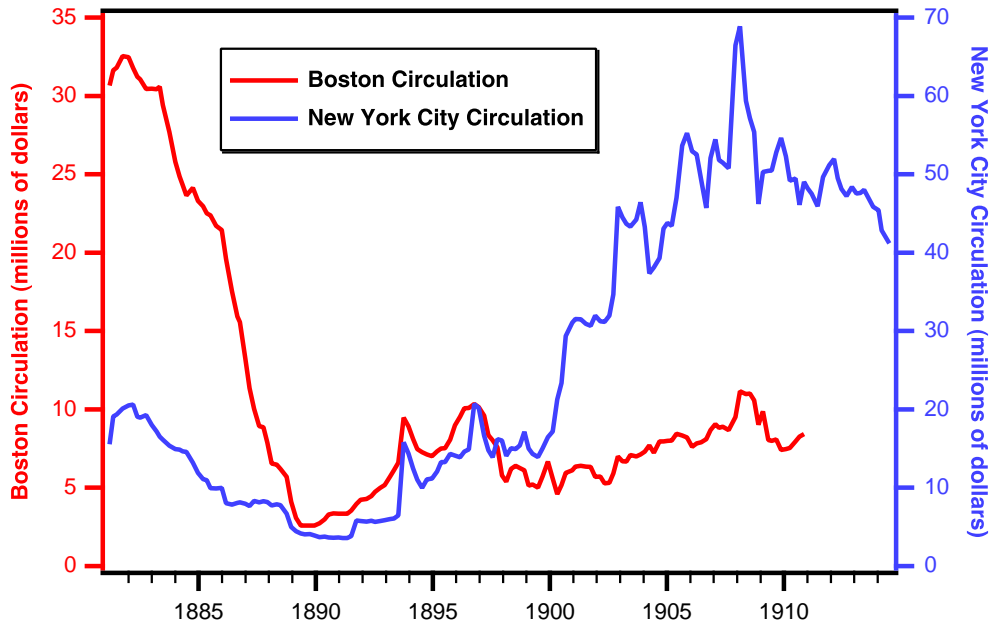


Figure 6: Circulation of Boston and New York City National Banks, 1881–1910 (millions of dollars)

discussion of Boston during the summer of 1885:²⁰

At the sub-Treasury at Boston, silver certificates had been paid out less sparingly than at New York. Silver currency became so plentiful that hardly any other form of money was to be had. A turn of the balance of payments between New York and Boston brought occasion for remitting cash to New York. For such remittances, the tacit understanding of the banks made silver unavailable. Consequently exchange on New York came into demand, and went up to a premium of a dollar a thousand. The express charge for carrying cash to New York is only fifty cents a thousand; but cash available for New York payments, — namely, gold or greenbacks, — was scarce hence the unusual premium on New York exchange. (Taussig 1892, pp. 31–32)

²⁰Taussig’s description of the events in Boston in 1885 is supported by contemporary newspaper accounts. See for instance, “Troubles of the Treasury: Boston Bankers and their New York Remittances—The Status of Silver Certificates. *Boston Globe* (June 26, 1885), p. 4; and “Silver Certificates: The Discrimination Against Them by the New York Banks Is Making the Bostonians Mad.” *Chicago Daily Tribune* (June 26, 1885), p. 5.

Crowding out of bank notes by silver in Boston seems to be more extreme than in other markets for a couple reasons. First, the ability of banks in Boston to get rid of silver certificates either through remittances to New York or payments to the sub-Treasury in Boston was limited (Taussig 1892, p. 32, fn 1). Second, as mentioned in Section 4.2, the Treasury initially had difficulty keeping silver certificates in circulation. One remedy for this was to deliberately push the bulk of silver certificate issuance in markets such as Boston where the prospects that they would be remitted to the Treasury was low. Overall, the collapse of bank note issuance in Boston during the 1880s and Taussig's account of the events during the summer of 1885 are more consistent with silver certificates contributing to the contraction of bank notes than silver certificates expanding to offset declines in bank issued currency.

8 Conclusion

From 1882 to 1893, the circulation of national bank notes fell nearly 50 percent. Prior explanations of this development focused on a decrease in the profitability of issuing national bank notes during this period. This study takes an alternative, although not necessarily contradictory, view of this period. We have found substantial evidence that the decline in national bank note circulation was driven by the demand for national bank notes relative to the demand for other forms of money.

In particular, we have developed a case that suggests silver certificates, to a great extent, supplanted national bank note circulation during the period

from 1882 to 1893. Silver certificates possessed several desirable attributes that made them a more useful form of money for certain purposes than national bank notes. Among these were the following:

- Silver certificates could be used to make tax payments, such as customs duties. National bank notes could not be used for these purposes.
- National bank holdings of silver certificates counted toward satisfying legal reserve requirements for those banks. National bank notes did not satisfy reserve requirements.
- Beginning in 1886, silver certificates were issued in one- and two-dollar denominations. This gave them a denominational advantage over national bank notes and greenbacks.

The view of this paper was that these factors caused a substitution of silver certificates for national bank notes during the 1880s and early 1890s. Undoubtedly, a decline in profitability of national bank note issuance (driven by increases in bond prices) during this period also contributed to the decline in note issuance. However, evidence suggests that the timing of the decline coincides more directly with the phenomenon being driven by a shift in demand away from national bank notes. Regional evidence also appears to support the notion that silver certificates crowded out national bank note circulation.

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