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Bank Notes and Stored-Value Cards: Stepping Lightly into the Past

by William P. Osterberg and James B. Thomson

Stored-value cards are among the most interesting payments innovations of recent years. Balances on these cards can typically be transferred without involving a depository institution directly. In this respect, the stored-value card (SVC) represents a new form of circulating bank liability reminiscent of the bank notes that made up a large share of the U.S. money supply in the nineteenth and early twentieth centuries. Like bank notes, SVCs replace coin and paper currency in retail payments, shifting the composition of the U.S. monetary base from government and central-bank liabilities toward private bank obligations.

Substituting privately issued money for Federal Reserve notes may have important implications for the behavior of the money supply because it affects bank reserves and the interest sensitivity of the monetary aggregates. This means that SVCs would have to be considered in the conduct of monetary policy. They would also affect the federal budget because they shift seigniorage from government to the private sector (see box inside). The size of these impacts ultimately will depend on market participants' willingness to accept SVCs as substitutes for cash and other retail payments instruments.[1]

This *Economic Commentary* draws parallels between SVCs and the bank notes that circulated in the U.S. between 1863 and 1913. One important lesson from these years was that the benefits of a uniform currency might emerge from the requirement that high-quality assets back private currency. But another important lesson was that *overly* stringent backing requirements could result in an inelastic money supply and contribute to banking panics.[2, 3] During this period, having a uniform currency apparently meant forfeiting an elastic money supply. These lessons will provide historical perspective on SVCs and other new forms of private money.

The National Banking Era

Throughout most of U.S. history, private banks were the primary suppliers of currency. This was last true during the National Banking Era, which began with the passage of the National Currency Act of 1863 and the National Banking Act of 1864, and ended with the passage of the Federal Reserve Act of 1913. In the intervening years, currency consisted largely of U.S. bank notes, which were circulating liabilities of nationally chartered banks.

The profitability of producing private money influences its supply. Some important considerations are illustrated in table 1, a representative 1890 balance sheet for a national bank. Most importantly, deposits of eligible U.S. government securities provided the backing for U.S. bank notes.[4] The backing was equal to the bonds' market value or their par value, whichever was less, at a rate of 110 percent of outstanding notes before 1900 and 100 percent afterward.[5] A national bank faced a number of costs associated with its note liabilities. It had to pay a 1 percent tax (½ percent after 1900) on its average notes outstanding and was responsible for the costs of issuing and redeeming its notes. In addition, after 1874 a national bank was required to deposit an amount equal to 5 percent of its authorized notes in a redemption fund at the U.S. Treasury.

Like the bank notes that circulated in this country from 1863 to 1913, stored-value cards substitute the liabilities of private banks for government and central-bank liabilities. This shift may have important implications for the federal budget, the money supply, and monetary policy.

Profits on outstanding bank notes had two sources. The issuing bank earned interest on the collateral that backed the notes. It also earned seigniorage because the monetary value of the bank notes exceeded the costs of issuing them, which included taxes and redemption costs.

In retrospect, the National Banking Act succeeded in creating a uniform currency that was the liability of private organizations. It was uniform in the sense that bank customers proved indifferent as to whether they held U.S. bank notes or legal-tender notes. Furthermore, the non-bank public accepted the notes of any national bank in payment for goods and services—and for deposit withdrawals—at par with legal-tender notes. As a result, a bank often held the circulating notes of other national banks as part of its liquid reserve.

The nearly perfect substitutability between national bank notes issued by different borrowers—and between national bank notes and legal-tender notes—may have resulted largely from the quality and quantity of collateral backing the notes. After all, the requirement that national bank notes be

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TABLE 1 BALANCE SHEET OF NATIONAL CITY BANK, CLEVELAND, 1890

Resources		Liabilities	
Loans and discounts	$1,000,636.97	Capital stock paid in	$250,000.00
Overdrafts	7,670.79		
U.S. bonds to secure circulation	50,000.00	Surplus fund	150,000.00
U.S. bonds to secure deposits	29,000.00	Undivided profits	112,457.46
U.S. bonds on hand	0		
Stocks, securities, claims, etc.	63,300.00	National bank notes outstanding	45,000.00
Due from approved reserve agents	123,559.00	State bank notes outstanding	0
Due from other national banks	73,055.29		
Due from state banks and bankers	25,595.01	Dividends unpaid	266.00
Bankinghouse, furniture and fixtures	0		
Other real estate and mortgages owned	16,066.67	Individual deposits	729,374.62
Current expenses and taxes paid	4,740.73	U.S. deposits	29,000.00
Premiums on U.S. bonds	0	Deposits of U.S. disbursing officers	0
Checks and other cash items	3,287.46		
Exchanges for clearinghouse	46,318.05	Due to other national banks	126,966.40
Bills of other national banks	7,000.00	Due to state banks and bankers	80,367.33
Fractional currency, nickels, cents	1.84		
Specie	40,400.00	Notes and bills re-discounted	0
Legal-tender notes	41,000.00	Bills payable	0
U.S. certificates of deposit	15,000.00	U.S. bond account	29,000.00
Redemption fund with U.S. Treasurer	2,250.00		
Due from U.S. Treasurer	3,550.00		
Total	**$1,552,431.81**	**Total**	**$1,552,431.81**

SOURCE: *Annual Report of the Comptroller of the Currency,* vol. 2, Washington, D.C.: Government Printing Office, December 1, 1890, p. 681.

more than fully backed by eligible U.S. government bonds effectively eliminated the risk to noteholders of bank failures. This de facto uniformity of bank notes, however, came at the expense of the currency's elasticity.[6] Since the supply of eligible bonds was fixed and their quantity declined throughout the latter part of the 1800s, it was difficult for the banking system to issue more notes when the demand for currency increased. This defect in the National Banking Act persisted until the Aldrich–Vreeland Act was passed in 1908, resolving the elasticity problem by permitting notes to be temporarily issued against other forms of collateral such as state and municipal bonds and ultimately against securities.[7]

Stored-Value Cards

Stored-value cards are one example of a newer, electronic form of private money designed to substitute for cash transactions. These cards carry transferable cash-equivalent balances that may now be reloaded at specially fitted ATM machines and that may eventually be reloaded at home through devices attached to personal computers. We've noted that in some respects, the cash-equivalent balances on stored-value cards resemble circulating bank notes. First, unlike credit-card, debit-card, and check transactions, the use of SVC balances does not require direct involvement of a financial intermediary to verify and transmit the payment.[8] In this sense, SVCs are circulating monetary liabilities of private banks. By eliminating depository institutions' middleman role in making the payments, SVCs reduce the fixed cost of each transaction. This makes them a feasible alternative to cash for small-dollar transactions and gives them the potential to replace a range of cash transactions.[9]

Second, banks earn seigniorage on their SVC balances as they did on circulating bank notes. For fiat money like a Federal Reserve note, seigniorage can properly be thought of as the difference between the income earned on the assets backing the note and the cost of producing and redeeming it.[10] Similarly, seigniorage on an SVC can properly be thought of as the income earned on the assets purchased by issuing the SVC balance and the cost of creating and clearing the balance. As SVC balances displace holdings of currency by the non-bank public, seigniorage is transferred from the government sector to the private one. It is worth noting, however, that the transfer of seigniorage from the public to the private sector is not unique to SVCs. It occurs whenever a private monetary instrument, such as a checking deposit or a traveler's check, replaces publicly issued coin and currency in the money holdings of the non-bank public.

The third similarity between SVCs and circulating bank notes involves their impact on a bank's balance sheet. Panel A of table 2 presents a simplified balance sheet for a bank with no outstanding SVC balances. In this example, we assume that the bank is required to hold a 10-percent reserve against its transaction deposits and that it has no excess reserves. Panel B shows the same bank after depositors have transferred $5,000 from transaction deposits into SVC balances.

The total amount of bank-issued balances that can be used for transactions is $55,000, the sum of transaction deposits and SVC balances. However, total reserves held by this bank have fallen by $500, and earning assets—in this case, securities—have risen by that amount. Hence, just like withdrawing deposits in the form of national bank notes, downloading deposit balances onto an SVC affects the composition of a bank's assets and liabilities, but not the size of its balance sheet.

Implications for the Money Supply and Monetary Policy

One possible impact of SVCs on the money supply can be seen in the example just given. If the non-bank public decides to hold a substantial portion of its transaction balances on SVCs, and if reserve requirements are not extended

TABLE 2 PANEL A: Simplified Balance Sheet for a Bank

Assets		Liabilities and net worth (NW)	
Reserves	$5,500	Transaction deposits	$55,000
Securities	14,500	Other deposits	22,000
Fed funds sold	5,000	Fed funds purchased	3,000
Loans	70,000	Stored-value cards	0
Other assets	5,000	Other liabilities	10,000
		NW	10,000
Total assets	**$100,000**	**Total liabilities and NW**	**$100,000**

TABLE 2 PANEL B: Simplified Balance Sheet for a Bank with SVC Balances

Assets		Liabilities and net worth (NW)	
Reserves	$5,000	Transaction deposits	$50,000
Securities	15,000	Other deposits	22,000
Fed funds sold	5,000	Fed funds purchased	3,000
Loans	70,000	Stored-value cards	5,000
Other assets	5,000	Other liabilities	10,000
		NW	10,000
Total assets	**$100,000**	**Total liabilities and NW**	**$100,000**

SOURCE: Authors.

Seigniorage is the difference between the monetary value of coin or currency and the cost of production. The term, from the French word for ruler, *seigneur,* refers to the fee merchants paid the crown for the privilege of having their bullion converted into coin. This fee, which was in addition to brassage (minting charges), was subtracted either from the number of coins issued to the merchant or from their metal content.

For bank notes and fiat money, seigniorage is more correctly thought of as the profits accruing to the issuer. These profits are the difference between the interest earned on the assets financed by issuing currency and the costs of issuing and redeeming the notes.

SOURCES: Harold G. Moulton, *Principles of Money and Banking.* Chicago: University of Chicago Press, 1916, p. 81; and *The New Palgrave: A Dictionary of Economics,* vol. 4. London: Macmillan Press Limited, 1987, p. 287.

to such balances, the result is a permanent decrease in total reserves. In the current environment, this would reinforce a preexisting trend toward depositing institutions holding lower reserves.[11] Moreover, if SVCs are widely adopted by the non-bank public, the balances held on them will need to be accounted for in the monetary aggregates and the conduct of monetary policy. This will be especially important if SVC balances respond differently to changes in interest rates than do the monetary instruments they replace.

The history of the National Banking Era emphasizes the importance of uniformity and elasticity in the supply of currency or money. The inelasticity problems that developed in the U.S. currency during this period would probably not recur if the newer, electronic forms of private money displaced a substantial portion of coin and Federal Reserve notes. This is because the newer forms of private money are not backed by a specific asset; rather, they represent a general claim against the issuing institution's entire portfolio. Hence, SVC balances are not constrained by the cost and availability of eligible collateral. This would be true even if regulators determined that, in a legal sense, SVC balances were circulating bank notes (since the requirement that such bank notes be backed by eligible collateral was eliminated in the technical amendments to the Housing and Community Development Act of 1992).[12]

Unfortunately, the ability to issue against the entire asset portfolio might indirectly entail a loss of uniformity among different issuers' SVC balances. There are several reasons for this. First, SVC balances are not backed by specific collateral that would effectively guarantee their repayment. Second, the Federal Deposit Insurance Corporation (FDIC) has ruled that SVC balances are not deposits and therefore do not qualify for federal deposit insurance.[13] Under the National Depositor Preference Law of 1993, the determination that SVC balances are not deposits further implies that they are subordinate to depositor and FDIC claims on a bank's assets.[14] In other words, SVC balances are riskier than uninsured deposits. Without some sort of government or private guarantees of repayment, many consumers and merchants would probably be reluctant to hold the SVC balances of all but the biggest and most creditworthy banks. This need to distinguish among SVC balances according to their issuers suggests that greater SVC use could make for a less uniform currency.

Conclusion

Allowing SVCs to be issued against a depository institution's entire portfolio of assets (rather than against eligible collateral only) solves the inelasticity problem that plagued U.S. currency during the National Banking Era. On the other hand, since this new private money will not be backed by the government—either directly through deposit insurance or indirectly by requiring banks to post U.S. government bonds as collateral to back SVC balances—market participants will distinguish among issuers. As a result, many depository institutions might only issue SVC balances that are the liabilities of, or guaranteed by, a third party. This already occurs in the market for traveler's checks, where a bank may sell its customers checks that are the liabilities of American Express. Sometimes, as with credit and debit cards, certification through recognized brand names such as Visa and MasterCard seems to be important, supporting the notion that heavier SVC use could make U.S. currency less uniform. While it is too early to measure SVCs' impact on the elasticity or uniformity of the money supply, it is not too early to begin careful analysis of the issues.

Footnotes

1. For a discussion of some issues surrounding the adoption of electronic money for retail payments, see William P. Osterberg and James B. Thomson, "Network Externalities: The Catch-22 of Retail Payments Innovations," Federal Reserve Bank of Cleveland, *Economic Commentary,* February 15, 1998.

2. Inelasticity here refers to the money supply's responsiveness to shifts in demand.

3. Money is traditionally defined by its use as a unit of account, store of value, and medium of exchange. It is safe to say that, during the

National Banking Era, bank notes were a major component of the money supply. Currently, money as a medium of exchange includes several instruments other than currency, such as transactions balances and stored-value cards. However, most balances on SVCs are not included in the monetary aggregates.

4. A national bank was also required to hold legal-tender notes as a reserve against its circulating notes. Legal-tender notes (greenbacks) were currency issued by the U.S. Treasury under authority granted to it by Congress in 1862 and 1863.

5. The binding constraint was almost always the par value of the bonds because the market value of eligible bonds exceeded the book value during most of this period.

6. See *Report of the Monetary Commission of the Indianapolis Convention.* Chicago: University of Chicago Press, 1898, pp. 309–23.

7. The Aldrich–Vreeland Act also established the National Monetary Commission, whose report ultimately led to the creation of the Federal Reserve System. See Charles A. Conant, *A History of Modern Banks of Issue,* 6th ed. New York: G.P. Putnam's Sons, 1927 (reprinted by Augustus M. Kelly, 1969), pp. 443–45.

8. In at least one SVC system, Mondex, individuals can transfer balances among themselves. See Gerald Stuber, "The Electronic Purse: An Overview of Recent Developments and Policy Issues," Bank of Canada, Working Paper No. 74, January 1996; and Leo Van Hove, "Electronic Purses and Currency: A Competition between Networks," *E-Money,* vol. 1, no. 2 (June 1998), pp. 1–9.

9. By one estimate, stored-value cards will capture 5 million to 10 million users by the year 2000. See McKinsey & Company, "From Atoms to Bits: Managing an Industry in Transition," *Proceedings of the National Payments System Symposium,* Washington, D.C., October 8, 1996.

10. Fiat money is not backed by a commodity such as gold, but derives its usefulness as money from a government decree (fiat).

11. If consumers' holdings of SVC balances reduced their average cash holdings, SVCs' impact on bank reserves would be smaller.

12. See Jeffery M. Lacker, "Stored-Value Cards: Costly Private Substitutes for Government Currency," Federal Reserve Bank of Richmond, *Economic Quarterly,* vol. 82 (Summer 1996), pp. 1–25, footnote 18.

13. See Federal Deposit Insurance Corporation, "General Counsel's Opinion No. 8: Stored-Value Cards," *Federal Register,* vol. 61, no. 150 (August 2, 1996), pp. 40489–94.

14. This was Title 3 of the Omnibus Budget Reconciliation Act of 1993. See James B. Thomson, "The National Depositor Preference Law," Federal Reserve Bank of Cleveland, *Economic Commentary,* February 15, 1994; and William P. Osterberg and James B. Thomson, "Depositor Preference Legislation and Failed Bank Resolution Costs," *Proceedings of a Conference on Bank Structure and Competition,* Federal Reserve Bank of Chicago, May 1998 (forthcoming).

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