

What History Can Teach Us About Digital Currencies

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Disclaimer: Views are those of the author, not of the Bank of Canada, the Federal Reserve Bank of Atlanta, or the Federal Reserve System. Email: wew@webereconomics.com.

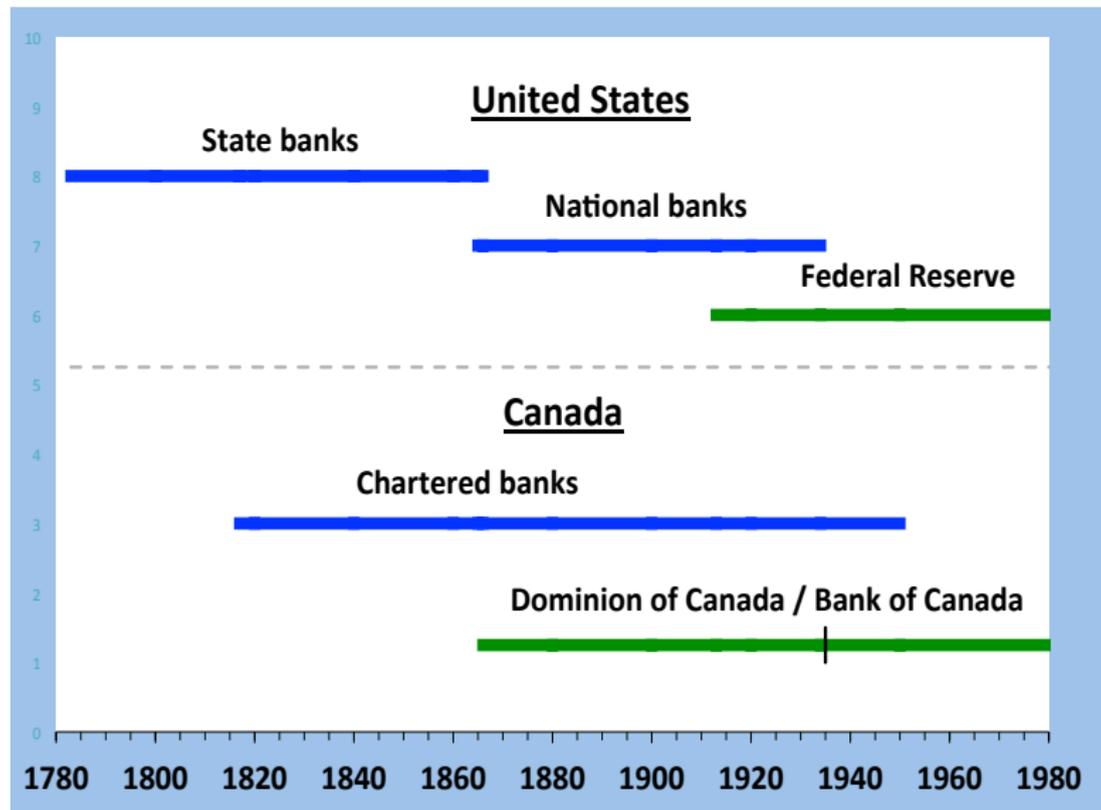
- Movements in many countries to go cashless
 - Sweden: many banks do not hold cash or take cash for deposits
 - Korea: plans to go cashless by 2020
 - Some Asian countries and India: eliminating high denomination bills
 - US: arguments to get rid of \$100 bills

- As cash goes away, other means of payment will take its place
 - Possibilities: Checks, debit cards, credit cards, and **digital currencies**

Introduction

- Might think history cannot teach us much about digital currencies because only recently in existence
- But, financial instruments with the important properties of digital currencies have been in existence for hundreds of years
 - Notes issued by banks and governments
- Purpose of talk: Use U.S. and Canadian experience with notes to draw lessons about digital currencies

Timeline of note issuance in U.S. and Canada



Digital Currency:

- *Definition:*
 - monetary value
 - *stored electronically*
 - ⇒ whose use is neither based on nor requires funds in a deposit or credit account in a financial institution
 - widely accepted as means of payment,
- Included: prepaid card, “tokens” such as bitcoin (if widely accepted)
- Excluded: debit, credit, and gift cards

Example: U.S. State Bank Note



Why Notes Like Digital Currency

- Monetary value (“3 Dollars”)
- Not connected to an account in a financial institution
 (“Will pay to the bearer”)
- Widely accepted

- However, not stored electronically

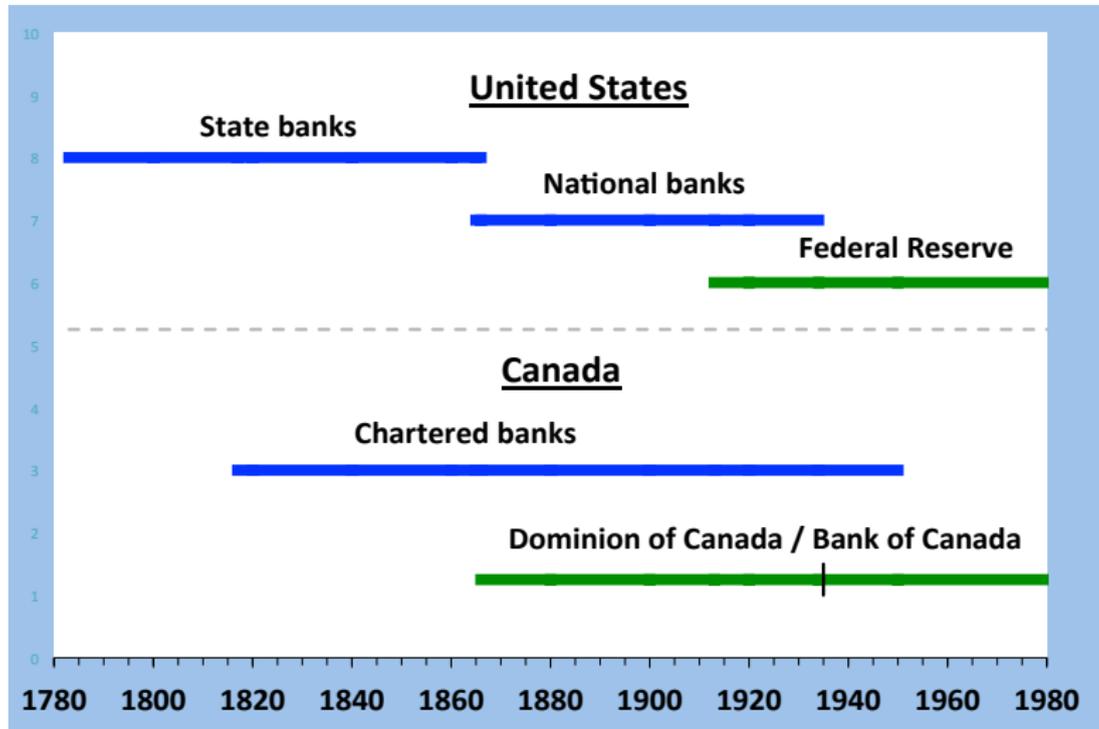
- My argument: if replace “stored electronically” with “stored on paper,” notes satisfy definition of a digital currency

Lesson 1:

Private and government digital currencies can coexist.
Government digital currencies will not drive out private digital currencies unless government acts to eliminate them.

Lesson 1

- Although coexisted for a while, appears government notes eventually drove out bank notes



Lesson 1

- Government actions led to disappearance of bank notes
 - U.S. Treasury eliminated all bonds eligible to back national bank issuance (1934)
 - Canadian government prohibited bank note issuance (1944)

Lesson 2:

Private digital currencies generally will not be safe,
without government intervention

Lesson 2

- U.S. state bank note notes not safe – some holders suffered losses
 - 2,384 banks in business at some point, 1786 – 1860
 - 407 (\approx 1 out of 6) failed with note holder losses
 - Wide range of losses: between 3 and 96 cents per \$
- Canadian bank notes also not safe – some holders suffered losses
 - 55 banks in business at some point, 1867 – 1890
 - only 3 failed with note holder losses
 - But losses large: 40, 42, 100 cents per \$

- Government intervention made bank notes safe
 - U.S.: National bank note holders suffered no losses
 - Reason: Government insurance
National bank note redemption guaranteed by U.S. Treasury
 - Canada: No losses to bank note holders after 1890
 - Reason: Government intervention (not government insurance)
Banks required to contribute specie to Bank Circulation
Redemption Fund that would pay off notes of failed banks

Lesson 3:

Private digital currencies with same monetary unit
likely will not exchange at par,
but government intervention can lead to par exchange.

Lesson 3

- U.S. state bank notes did not exchange at par
 - Outside the local area, bank notes generally were discounted
 - Major cities had Bank Note Reporters published by note brokers
 - Listed discounts in that city on notes of all banks in country

Discounts in New York on Pennsylvania bank notes, 1/1/1854

PENNSYLVANIA.	
RELIEF NOTES, (4th May Act.)	1
Allentown Bank, Allentown	par
[<i>J. Dillinger, Pres.—Chas. W. Cooper, Cash.</i>]	
10s, altered—vig. three females, ship, &c.—road scene on the right—female writing on the left.	
Anthracite Bank, Tamaqua	1/4
[<i>Richard Carter, Pres.—John Hendricks, Cash.</i>]	
5s, vig. three females—female and shield on right end—Washington in the centre.	
Bank of Chambersburgh	1
[<i>J. Culbertson, Pres.—J. Lesley, Cash.</i>]	
5s & 10s, they read "Chambersburgh Bank" &c., instead of "The Bank of Chambersburgh"—vig. a female and child.	
Bank of Commerce, Philadelphia	1/4
[<i>J. E. Borie, Pres.—J. C. Donnell, Cash.</i>]	
5s, vig. female, coat of arms, &c.—sailor on left, and female on right end.	
5s, altered—vig. two females, with a key, safe, &c.—"real estate pledged and private property holden" between the signatures.	
10s, let. A—railcars on the left—agricultural implements on the right—has the figure 10 three times, and X twice on it—unlike genuine.	
50s, altered from 5s—vig. steamer—female with telescope on right—three females, anchor, &c., on left.	
Bank of Chester County, Westchester	1/4
[<i>W. Darlington, Pres.—W. Townsend, Cash.</i>]	
5s & 10s, vig. Neptune in a car, with sea-horses, &c.—not like genuine.	
10s, let. A, lithograph—vig. female with wings—"Westchester" is blurred.	
10s, altered—vig. Declaration of Independence.	
20s, altered—vig. a blacksmith at his forge.	

Lesson 3

- U.S.: State bank notes did not exchange at par
 - Outside the local area, bank notes generally were discounted
 - Major cities had Bank Note Reporters published by note brokers
 - Listed discounts in that city on notes of all banks in country
- Notes of Canadian banks also did not exchange at par until 1890

Lesson 3

- Government intervention eventually led to par exchange
- U.S. national bank notes exchanged at par unlike state bank notes
 - Treasury set up mechanism where banks could redeem notes of other banks for specie at par
- Canadian bank notes exchanged at par after 1890
 - Bank Act 1890 required banks set up note redemption facilities in all commercial centers

- A point to note:
 - In both countries, government intervention was required
 - private mechanisms never arose on their own

Summary

- Lessons from history:
 - ① Private and government digital currencies can coexist
 - Government digital currencies will not drive out private digital currencies unless government acts to eliminate them
 - ② Private digital currencies generally will not be safe without government intervention
 - ③ Private digital currencies with the same monetary unit will not generally exchange at par
 - but government intervention can lead to par exchange

Some Questions for Discussion

- Will governments insure at least some private digital currencies?
 - Yes, cannot credibly commit not to especially if issuer large
 - Will central banks issue digital currencies?
 - Yes, especially if large seigniorage losses from decreased demand for currency
 - Will there be digital currencies with alternative monetary units?
 - ?????????
- ⇒ History convinces me that means of payment evolve and adapt and there will be new means of payment in the future