Private Money, Sovereign Debt, and Information Sensitivity: Evidence from Stable currencies in the Antebellum United States

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I like this paper and am always happy to see research on the 1840s debt crisis.

I have read it carefully and have gone back to some of my earlier work on the debt crisis to make sure that I am remembering the details correctly.

After a brief review of the debt crisis, I have three main concerns with the paper.

- The emphasis on the implications for today's "stablecurrencies"

- The structure of the test they propose and whether it really gets at what they claim it does.

- Alternative ways to think about "information sensitivity in the context of the debt crisis

New York was the first state to borrow to build a canal in 1817. The canal was completed in 1825 and was a financial success.

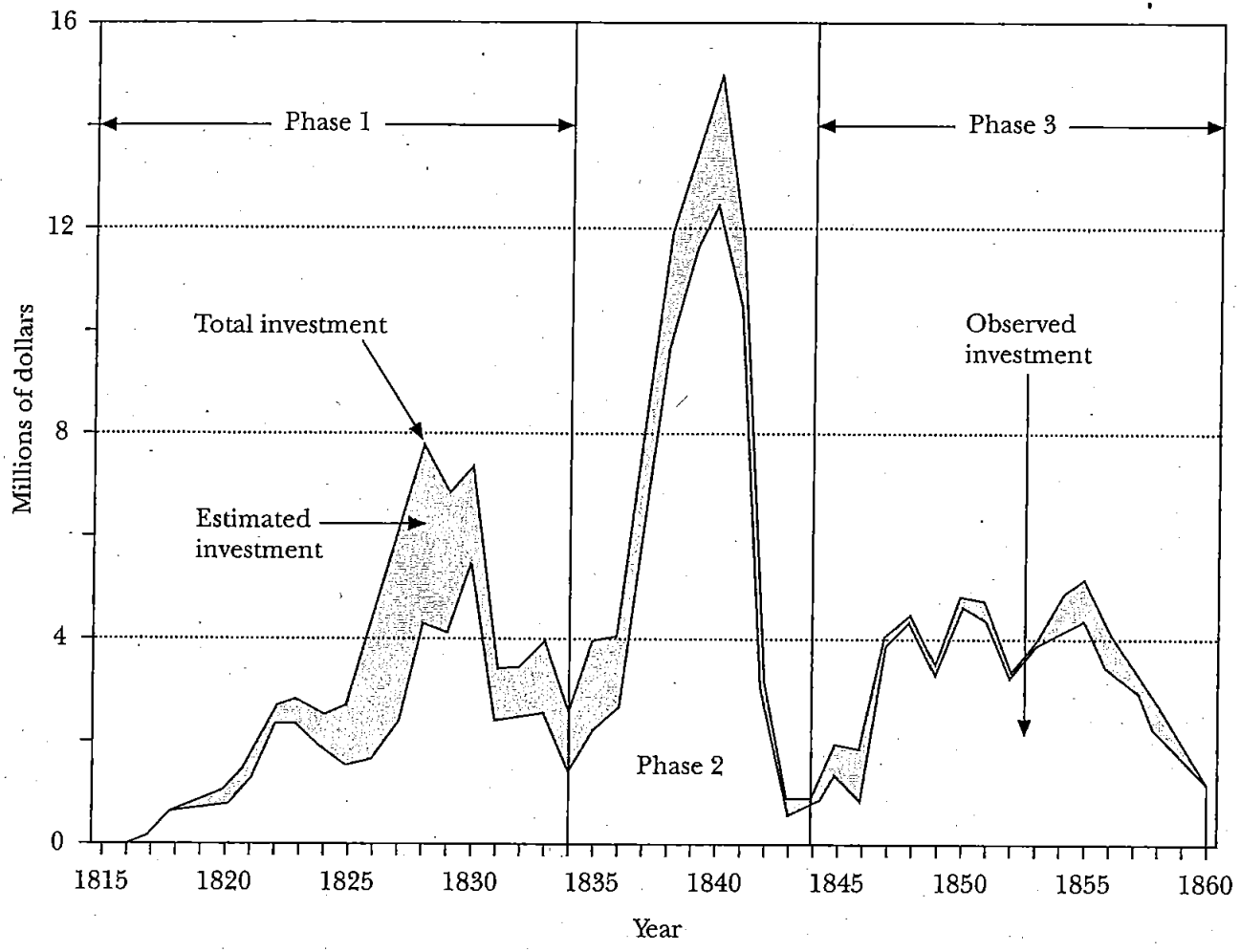
Pennsylvania, Maryland, and Ohio began construction on canals between 1826 and 1828.

There was second peak of canal building after 1835 when NY, Ohio, PA, MD, MA, as well as the western states Indiana, Illinois, and Michigan began borrowing.

Southern states began to borrow heavily, but to establish banks. Southern states do not enter into this story.

FIGURE 6.5

Canal Construction Cycles, 1815–1860



Source: After Segal in Carter Goodrich, *Canals and American Economic Development* (New York: Columbia University Press, 1961): 208–09.

Western states did not start borrowing until 1836.

There was more borrowing after 1836 than before, indeed of the roughly $200,000,000 in state debt outstanding in 1843 almost a quarter was borrowed in 1839, 1840, and 1841.

Fig 8 - State Debt, Total and Bank

West excluding Ohio and Louisiana

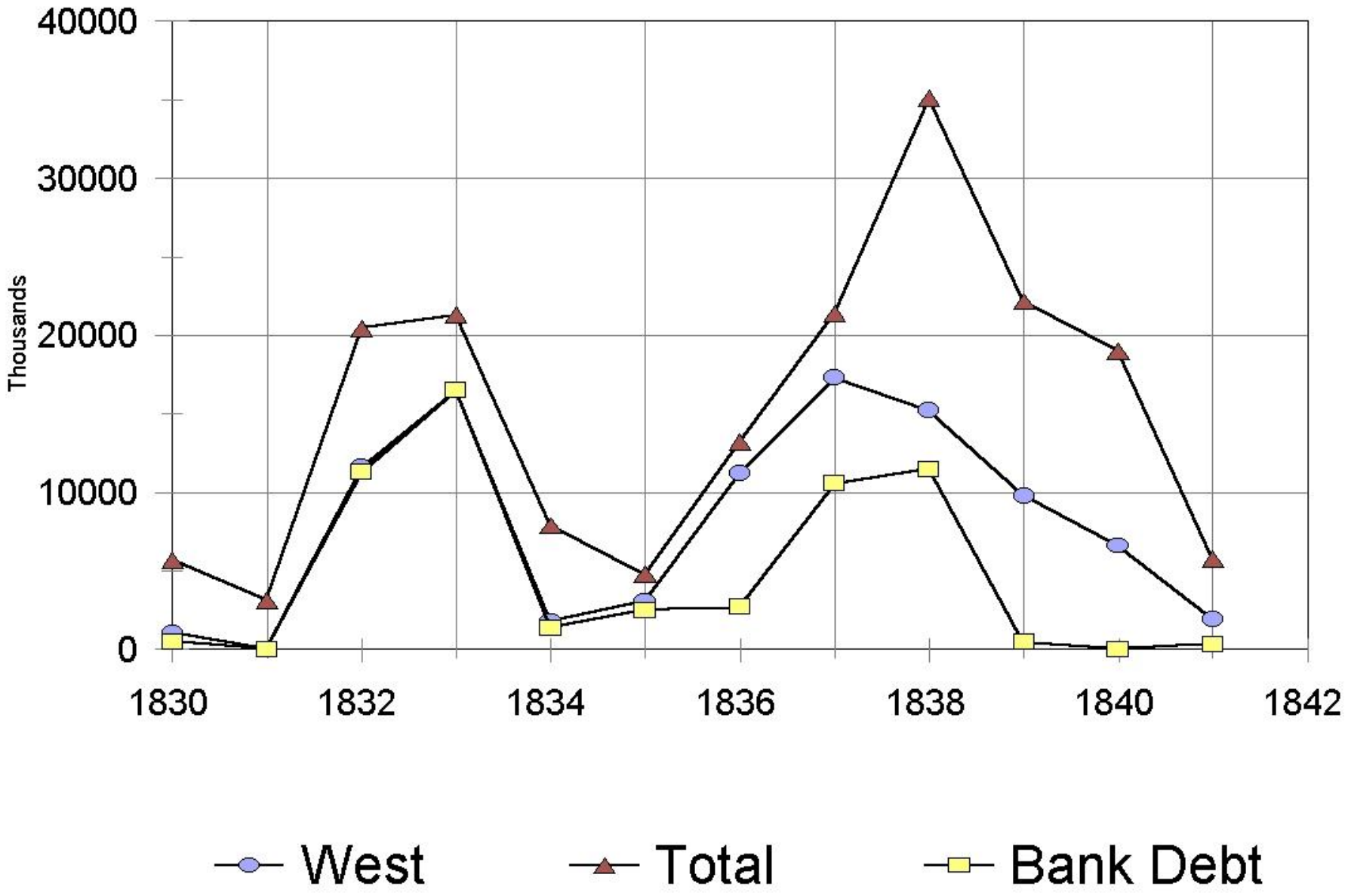


Table 2. *Amount of state debt outstanding on 1 September 1841, percentage of debt authorized between 1836 and 1841, and amount authorized between 1839 and 1841*

Share	*Total debt outstanding, US$*	*Share authorized 1836 and later (%)*	*Debt authorized 1839, 1840, 1841, (US$)*
Alabama	15,400,000	64	0
Arkansas	2,676,000	100	0
Florida	4,000,000	3	100,000
Georgia	1,324,550	100	0
Illinois	13,527,293	100	9,862,293
Indiana	12,751,000	83	1,363,000
Kentucky	3,085,500	94	1,445,500
Louisiana	23,985,000	7	1,185,000
Maine	1,734,861	100	1,465,085
Maryland	15,214,761	68	994,854
Massachusetts	5,969,137	100	1,869,137
Michigan	5,611,000	98	40,000
Mississippi	7,000,000	71	0
Missouri	842,261	100	410,261
New York	21,796,768	71	8,049,755
Ohio	15,080,000	59	3,994,123
Pennsylvania	36,336,043	36	13,202,084
South Carolina	3,691,234	74	600,000
Tennessee	3,416,166	84	0
Virginia	8,744,308	45	2,416,729
Total outstanding	198,030,005	59	46,997,820

Source: *The William Cost Johnson Report*, House Report, 296, 27th Congress, 3rd Session, 1843. The numbers for Ohio in the Johnson report are unreliable for the later years. We include Scheiber's, *Ohio canals*, estimates of borrowing for 1840 and 1841, pp. 143–151, and the $15 million figure cited in English, 'Understanding the costs'.

The rapid increase and spread of state borrowing after 1835 was driven by rising land sales and land prices.

I cannot go into detail, but states made reasonable assumptions about how much they might borrow and repay, given that land values were rising and canal investments would further raise the value of land.

Indiana borrowed authorized its Canal Fund to borrow up to $10,000,000 in 5% bonds for its “Mammoth System of Internal Improvements” (it is what they called it) at a time when annual state revenues were roughly $60,000.

Indiana sold roughly $5,000,000 in bonds to the Morris Canal and Banking Company of New Jersey. The sold the bond on credit, the bank was supposed to pay the state $500,000 semi-annually until the bonds were fully paid.

In the summer of 1839, the Morris Canal and Banking Company informed Indiana that the winter payment would not be forthcoming. Indiana had to stop work on its canals, land values started falling.

Michigan faced much the same circumstances.

Indiana and Michigan, along with Florida, Mississippi, and Arkansas defaulted on their interest payments in 1841.

Default and resumption/repudiation dates

				Resumed		
				or		
State		Date		Repudiated		Date
Indiana		January 1841*		Resumed		July 1847
Florida		January 1841		Repudiated		February 1842
Mississippi		March 1841		Repudiated		February 1842
Arkansas		July 1841		Resumed		July 1869
				Repudiated		July 1884, Holford Bonds
Michigan		July 1841		Resumed		January 1846
				Repudiated Partially		Part paid bonds, July 1849
Illinois		January 1842		Resumed		July 1846
Maryland		January 1842		Resumed		July 1848
Pennsylvania		August 1842		Resumed		February 1845
Louisiana		February 1843		Resumed		1844
				Repudiated		??

Whether a state defaulted was largely a function of state debts per capita

State	Total Debt 1841	Debt PC 1841	Default?
FL	4,000,000	74.07	Y
LA	23,985,000	68.14	Y
MD	15,214,761	32.37	Y
IL	13,527,292	28.42	Y
AK	2,676,000	27.31	Y
MI	5,611,000	26.47	Y
AL	15,400,000	26.06	N
PA	33,301,013	19.32	Y
MS	7,000,000	18.62	Y
IN	12,751,000	18.59	Y
NY	21,797,267	8.97	N
MA	5,424,137	7.35	N
OH	10,924,123	7.19	N
WI	200,000	6.45	N
SC	3,691,234	6.21	N
TN	3,398,000	4.1	N
KY	3,085,500	3.96	N
ME	1,734,861	3.46	N
VA	4,037,200	3.23	N
MO	842,261	2.19	N
GA	1,309,750	1.9	N
NH	0	0	N
CT	0	0	N
VT	0	0	N
RI	0	0	N

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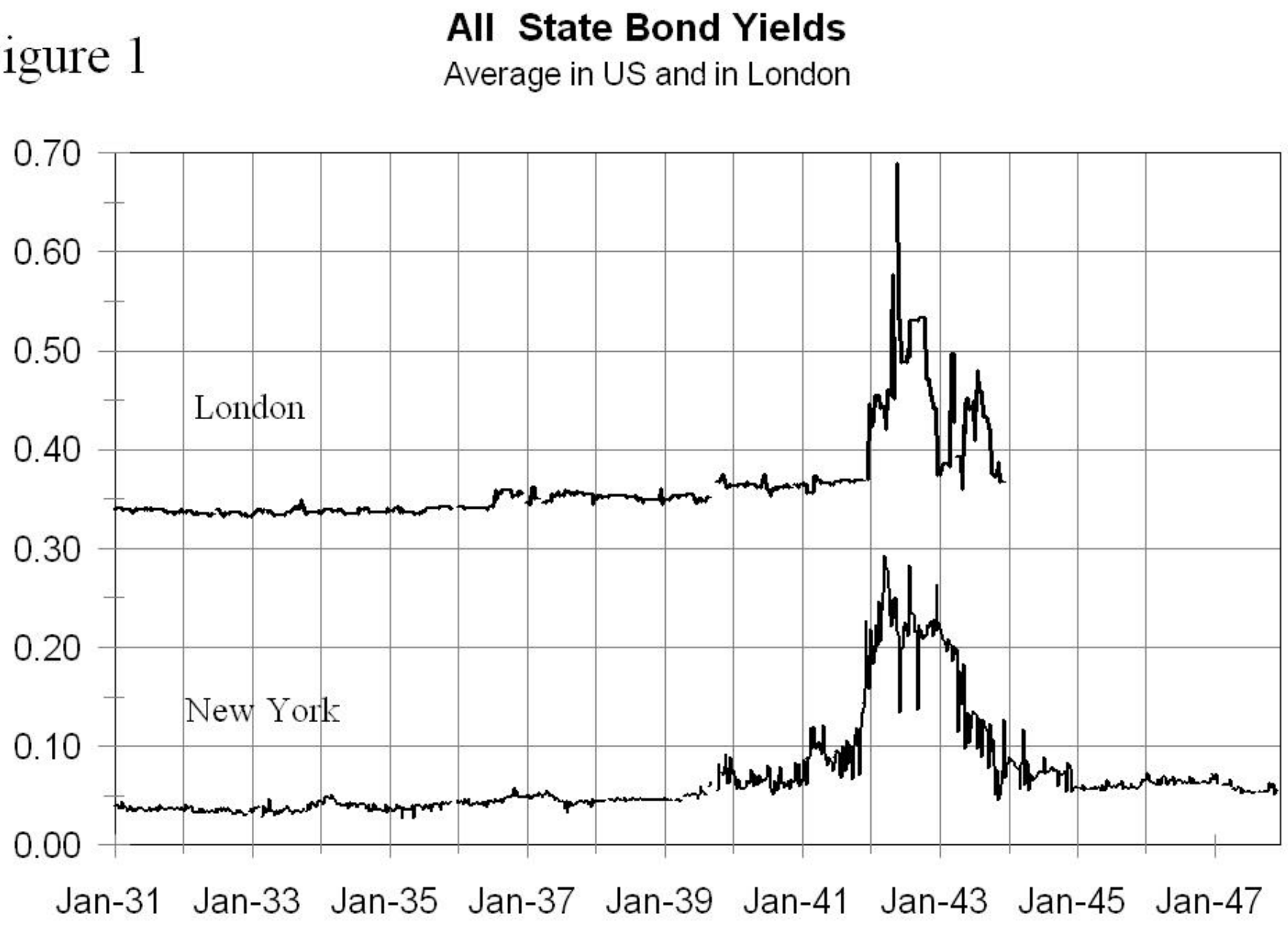
VT	0	0	N

In the fall of 1839, when it became clear that Indiana and other states were going to have trouble repaying their loans, the market for state bonds took a hit, both in New York and London.

The following figure gives the unweighted average of the “yield to maturity” for all the state bonds in the Sylla, Wright, and Wilson (SWW) that this paper uses.

Figure 1


All State Bond Yields
Average in US and in London
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
London
New York
Jan-31
Jan-33
Jan-35
Jan-37
Jan-39
Jan-41
Jan-43
Jan-45
Jan-47

My coauthor, Namsuk Kim, on the Kim and Wallis (2003) paper was one of my graduate students who put together all of the data that SWW had collected into a usable form.

So we had all of the data on state bonds used in this paper.

"As the year [1839] progressed it became clear that Indiana, Michigan, and Illinois were in serious trouble, a concern immediately reflected in yields on their bonds. Indiana bond yields in London rose from 5.92 per cent in June, to 8.76 per cent in November (table 6, there are no quotes in between those dates in London, and there are no quotes for Indiana bonds in New York before 1840)." Kim and Wallis, p. 755

Between 1839 and 1841, the market for Western and Southern state bonds became extremely tight, yields to maturity went from 6% to 12% to 25% (or higher)

The market for Ohio and New York bonds got tighter, but both states were able to borrow at 6-7% in 1840, but in 1842 yields even on those states (neither of which defaulted) rose to 10% and 12%. New York and Ohio yields came back to 4% and 5% in late 1843 when it became clear that they would continue to pay interest on their bonds.

At that time, Indiana and Illinois bond yields were over 20% on bonds that very rarely traded.

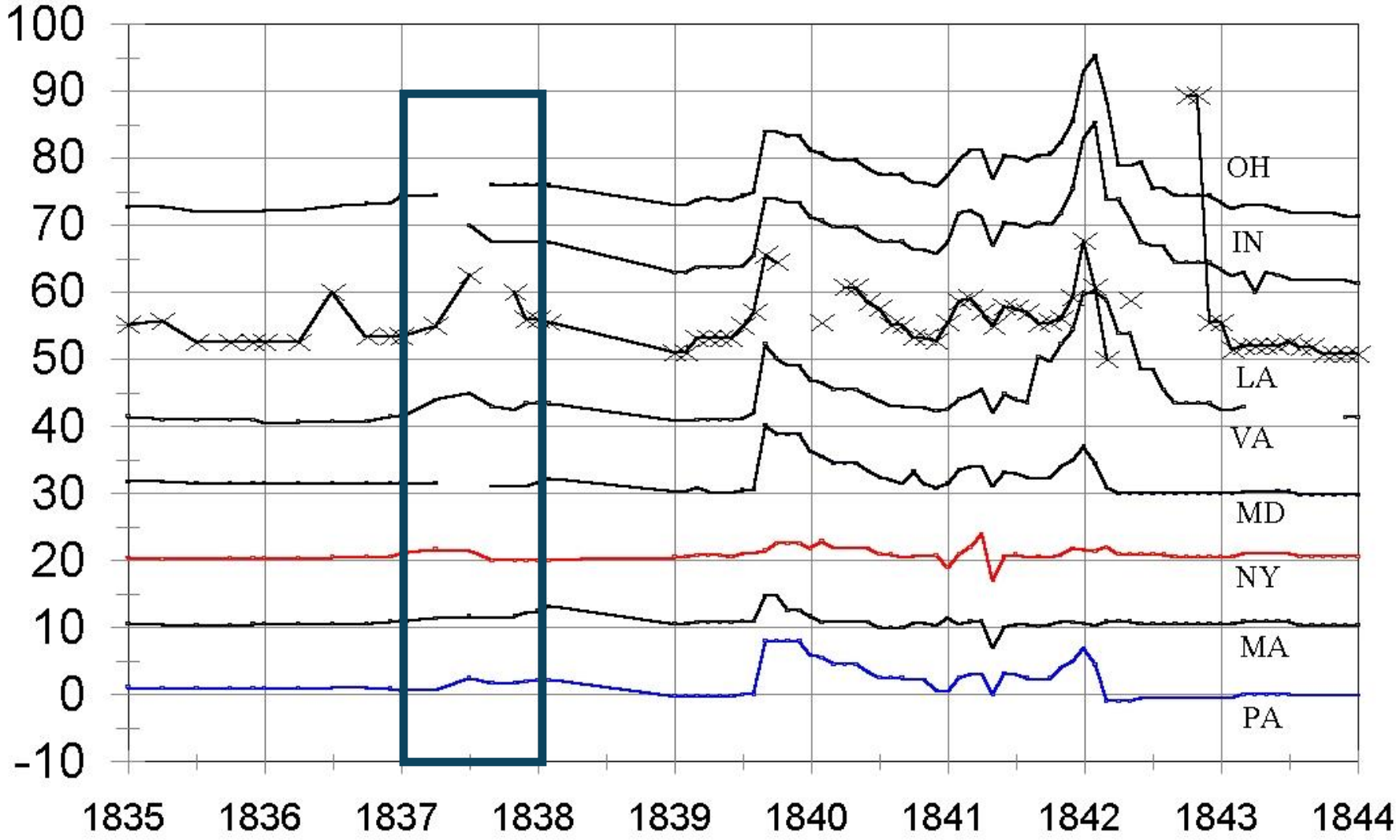
So where does that leave us?

1) The paper is introduced as being about “stablecurrencies.”

The following slides give the discounts on bank notes (from Gorton) over the decade from 1835 to 1845. Nothing stable there.

Fig. 3A - Monthly Bank Note Discounts

NY Prices (scaled)



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NY Prices (scaled)

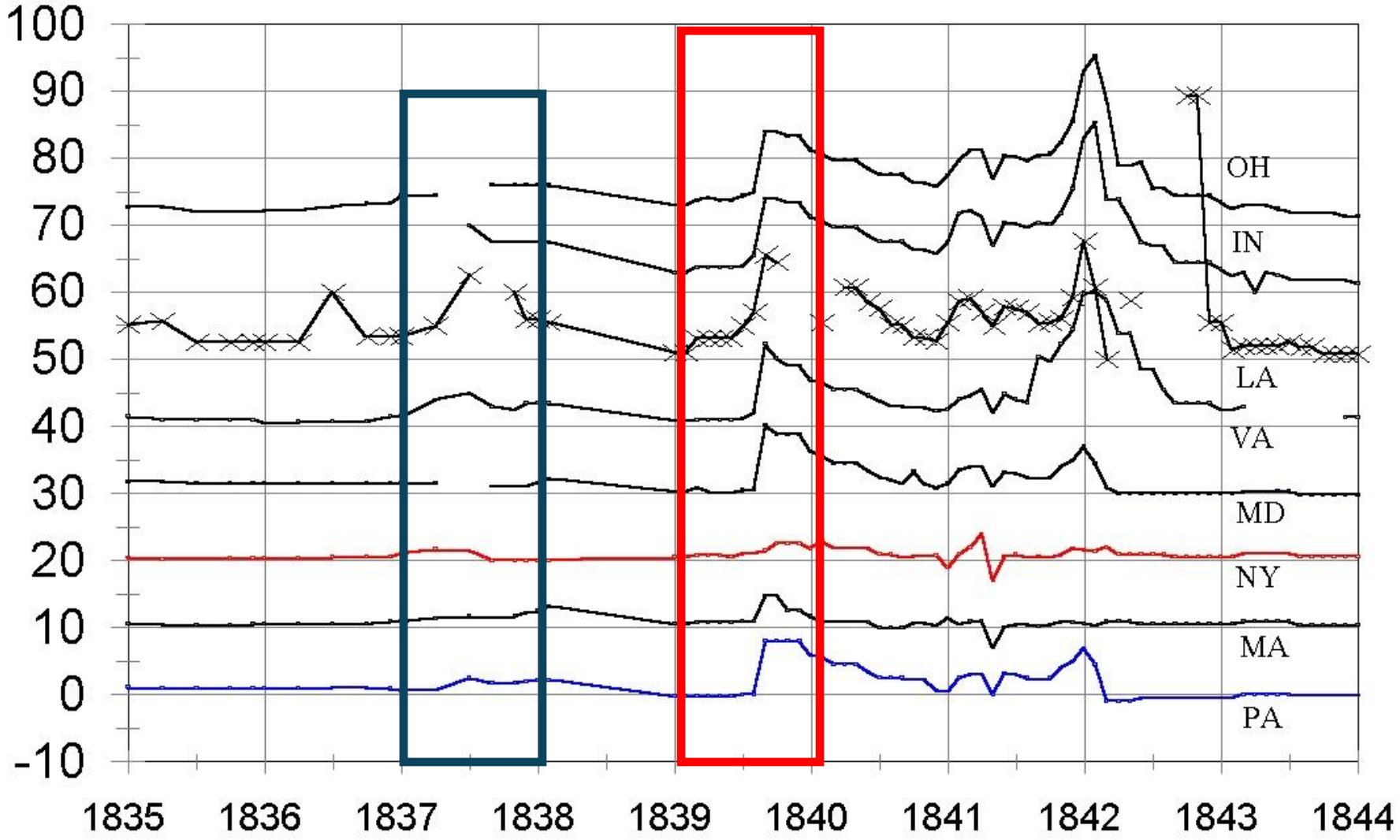
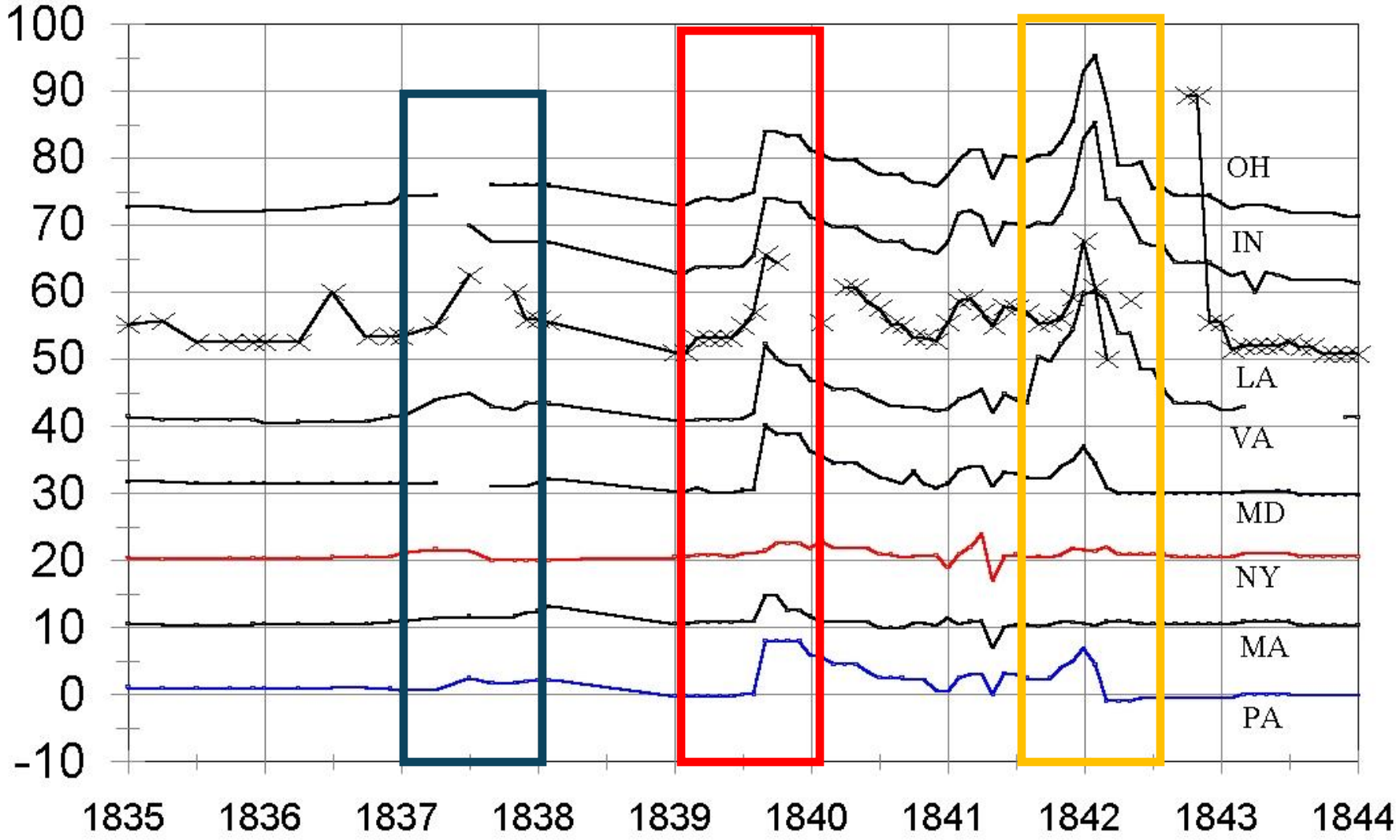


Fig. 3A - Monthly Bank Note Discounts

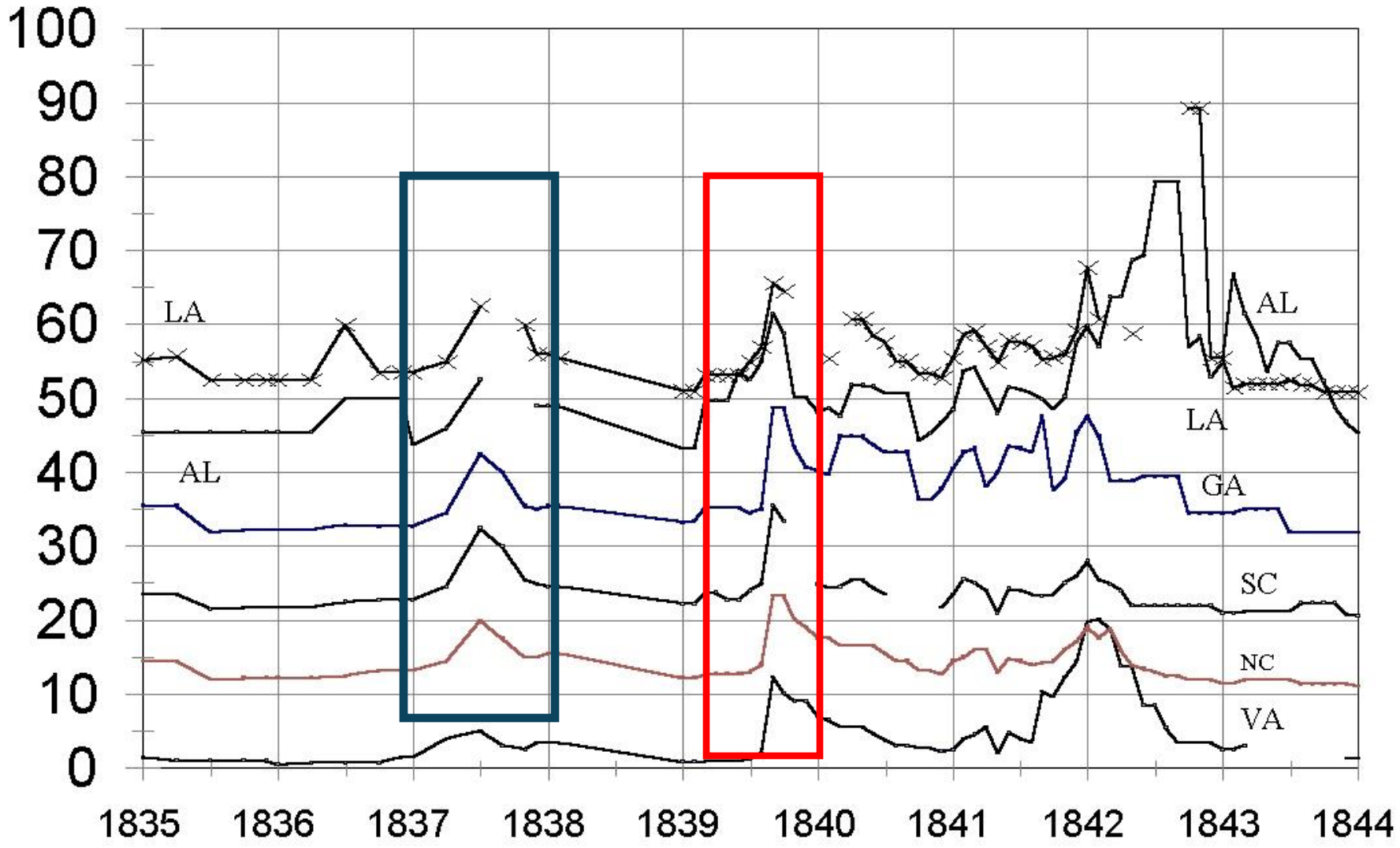
NY Prices (scaled)



For Southern States

Fig. 3B - Monthly Bank Note Discounts

Southern Banks, NY Prices (scaled)



There were no stable currencies in the time or place.

Only in states with free banking laws were banks required to hold/hypothecate state bonds.

Michigan	1837
New York	1838
Georgia	1838
Alabama	1849
New Jersey	1850
Illinois	1851
Massachusetts	1851
Vermont	1851
Ohio	1851
Tennessee	1852
Connecticut	1852
Wisconsin	1852
Indiana	1852
Louisiana	1853
Florida	1853
Michigan	1857
Iowa	1858
Minnesota	1858
Pennsylvania	1860

Only free banks in New York fits their assertion that banks had to hold state bonds as security for notes.

And most of the banks in New York were not free banks,

2) The structure of the test they propose and whether it really gets at what they claim it does.

Here is their estimating equation:

$$p_{bs,t} - p_{bs,t-1} = \alpha_t + \beta_b + \gamma_s^0\left(I_{s,t-1}1\{D_t = 0\}\right) + \gamma_s^1\left(I_{s,t-1}1\{D_t = 1\}\right) \quad (2)$$
$$+\gamma_s^2\left(I_{s,t-1}1\{D_t = 2\}\right) + \epsilon_{bs,t}$$

They are regressing the change in bond prices from observation to observation, on the number of news items related to legislatures or banking.

In the first and last periods, 1830 to June 1839 and January 1835 to 1853, show no effect of news on bond prices.

“Figure 6 presents the estimated coefficients is across states and periods. We find that state financing information has a muted impact on bond pricing prior to the onset of the crisis. The estimates of the gammas are small and statistically indistinguishable from zero for all states, indicating that investors did not systematically incorporate state-level financing information into prices during normal times.” p. 16

If we think of the estimating equation as:

$\Delta \text{Bond Price}_{it} = a + b\text{News}_{it} + e$

The estimate of “b” has to be about zero, which is what they find. Since “News” is about half positive and half negative, the simple count or presence of a news item is not going to be correlated with the bond price.

That can’t be right substantively, although it is right econometrically.

The mean bond price change in the pre- and post-period has to be roughly zero, as bond prices showed very little trend and rises were offset by declines.

But the “News” measure only represents the times the state and its finances (or banks) are mentioned, whether those mentions are positive or negative.

On the other hand, between 1839 and 1844 most of the “News” is bad.

For the six states the include, after the summer of 1839 yields rise in every state over time. Not monotonically, but steadily from 1939 to late 1842. It is only in 1843 that the yields begin to fall, bond prices begin to rise, but then only in New York and Ohio, not in PA, MD, IL, or IN

The bulk of the “News” events has to be associated in this period with falling bond prices/rising yields.

The empirical finding results from the way things are measured, not the reality of the way people interpreted information.

Table A4: Summary Statistics of Bond Price Changes and State News (1830/1-1853/12)

	Mean	Std. Dev.	Min	Max	N
NY					
Bond price changes	0.122	4.466	-38.12	38.62	1449
State news	4.942	1.236	1.90	8.44	1449
OH					
Bond price changes	0.025	3.772	-27.31	27.25	1068
State news	3.465	0.886	1.44	5.81	1068
PA					
Bond price changes	-0.303	3.607	-48.75	33.03	2337
State news	1.599	0.624	0.44	3.38	2337
MD					
Bond price changes	-0.012	2.490	-25.00	15.75	826
State news	0.834	0.298	0.09	1.87	826
IN					
Bond price changes	-0.237	6.585	-44.00	37.38	607
State news	1.091	0.427	0.25	2.67	607
IL					
Bond price changes	-0.585	10.115	-65.50	78.00	329
State news	1.099	0.469	0.31	2.69	329

AS Kim and Wallis point out, the PA data for 1836 to 1840 is problematic, since the BUSP was pegging the bond prices.

3) Alternative ways to think about “information sensitivity” in the context of the debt crisis

There was an enormous difference in the experience of different states over different times.

As Kim and Wallis show, the markets for state bonds in London and New York were well integrated, but the time for “news” to travel between them was two months, a lag they use to identify where the shocks to state finances and bond markets come from.

The “News” variable in this paper varies through state and time, surely a more revealing analysis could illuminate the effect of the news on bond prices using the differences within the state experiences, through time.

Thank you.

Figure 1A -- Smith and Cole Prices

1834-1842 = 100