

Death of a Reserve Currency

Central banks and crises-historical perspectives

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*Views expressed are solely those of the authors and not of the Federal Reserve Bank of Atlanta or the Federal Reserve System.

Motivation

- Paper is about the downfall of a historically important central bank, B. of Amsterdam (*Amsterdamsche Wisselbank*).
- Literature (Stella et al.): quasi-fiscal activities can create problems for central banks.
- Critical point occurs when a CB's net worth < 0 ("policy bankruptcy"; also Del Negro & Sims).
- We verify this for the Bank of Amsterdam.

Why Bank of Amsterdam?

- The Bank's ledger money ("bank florin") was a dominant international currency 1680-1780.
- Amsterdam was a top financial center built on merchant ("shadow") banks and a deep market for international acceptances.
- Bank florin collapsed 1781-1795.
- A rare observation: "reserve currencies" do not often fall from grace.

Conclusions—preview

- The Bank did not have the capacity to withstand non performance of loans to a GSE (Dutch East India Company).
- Market abandonment of the bank florin was rapid and persistent.
- Other policy actions by the Bank & City of Amsterdam contributed to this weakness.

Research methodology

Reconstruct the balance sheets of the Bank 1775-1791 (17,000 transactions) to see when

1. markets lost faith in the Bank, and
2. the Bank lost its potential to recover without recapitalization (i.e., positive net worth).

Amsterdam: reserve currency status

- Bank florin used to settle bills of exchange drawn on Amsterdam counterparties.
- Typical transaction: *f*3000.
 - (10 X average yearly wage \approx \$550,000 today).
- Peak turnover during 7 Years' War (1756-63)
 - Value: 1.5 X Dutch GDP /year
 - GBP 1868: 3.6 X UK GDP (London Bankers' CH)
 - USD 1955: 2.7 X US GDP (Fedwire)

Table 1. Bank's balance sheet in 1780

In Bank Florins

<u>Assets</u>		<u>Liabilities</u>	
Coins	20,003,439	Accounts	23,191,541
Loans			
Company	2,600,000		
Amsterdam	482,000		
Holland	227,264	<u>Equity</u>	121,162
	23,312,703		23,312,703

Receipts and accounts

- A depositor of a *trade coin* (high denomination, high quality) into the Bank received account credit for the coin at an official value, and a *receipt*.
- A receipt was a renewable, negotiable option to repurchase the same coin within six months' time, at cost of 25 bp for most coins.
- Receipts were almost always redeemed, they functioned as modern *repo*.
- Without a receipt, accounts could not be withdrawn: they were fiat money.

“Repos” vs. outright

- In addition to coins held under receipt, Bank holds coins acquired through open market operations.
- OMOs were outright purchases and sales of small-denomination (1-guilder) coins.
- Such coins not eligible for receipts; traded at secondary market price.

Table 1. The “Narrow Bank”

In Bank Florins

<u>Assets</u>		<u>Liabilities</u>	
Coins		Accounts	
Under Receipt	16,186,210	Restricted	16,186,210
Unencumbered	3,817,229	Unrestricted	7,005,331
Loans			
Company	2,600,000		
Amsterdam	482,000		
Holland	227,264	<u>Equity</u>	121,162
	23,312,703		23,312,703

Table 1. The “Lending Bank”

In Bank Florins

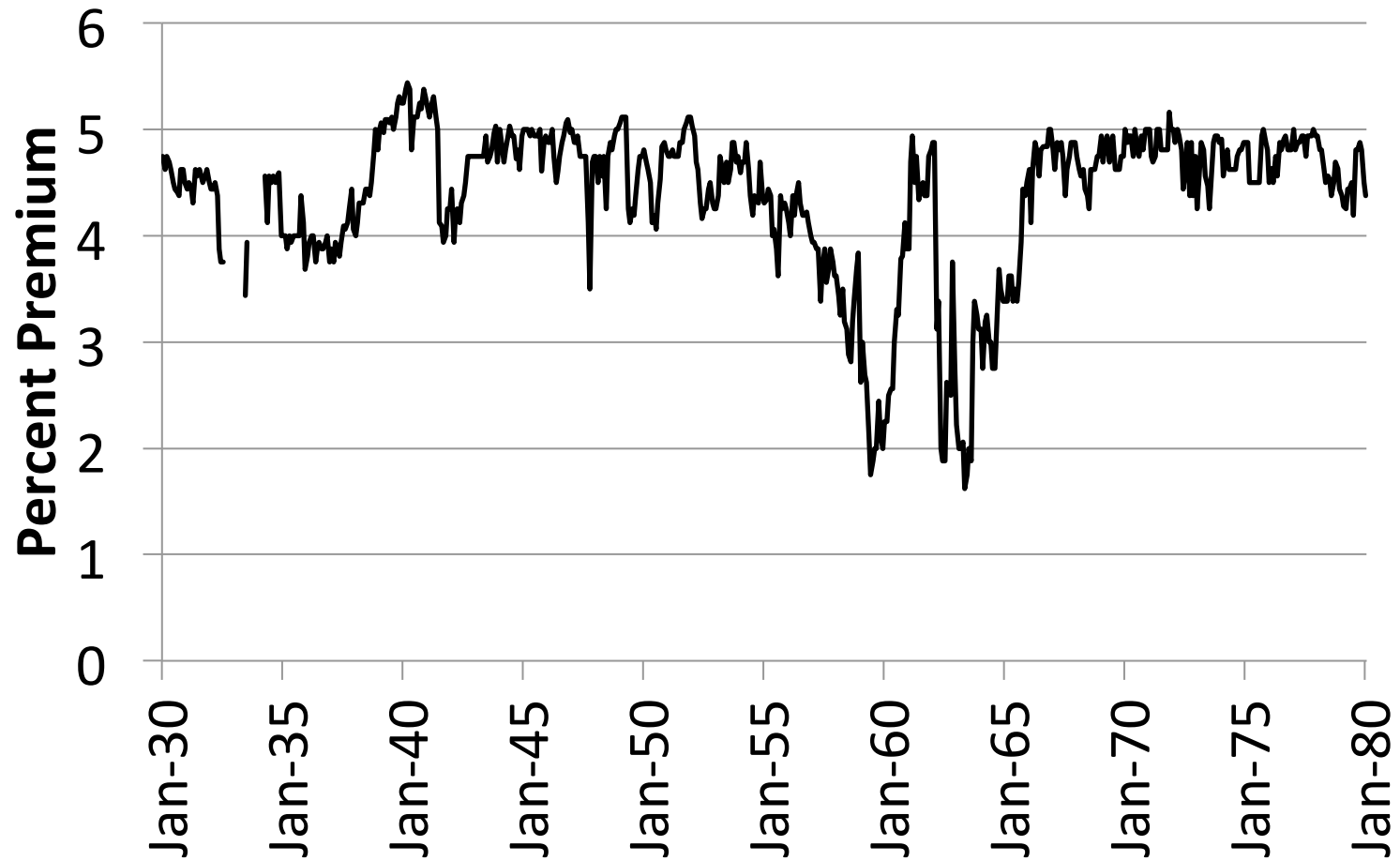
<u>Assets</u>		<u>Liabilities</u>	
Coins		Accounts	
Under Receipt	16,186,210	Restricted	16,186,210
Unencumbered	3,817,229	Unrestricted	7,005,331
Loans			
Company	2,600,000		
Amsterdam	482,000		
Holland	227,264	<u>Equity</u>	121,162
	23,312,703		23,312,703

Price stability

A daily secondary market existed for “current money” versus bank money.

- Bank money customarily traded at a premium (“agio”) over current money of 4-5%.
- Receipts promoted agio stability by anchoring bank florin to trade coin.
- The Bank’s implicit policy goal was agio stability (-> price stability; inflation ≈ 0) .

Figure 1. Agio, 1730:1-1780:1





City of Amsterdam

- Owned and administered the Bank.
- Took each year's operating profits as a seigniorage dividend.
 - Most income “off balance sheet,” not capitalized into Bank assets.
- City occasionally “borrowed” from the Bank, but did not pay interest nor repay principal.
- Seigniorage recorded as write-down of debt.

Table 1. Negative equity

In Bank Florins

<u>Assets</u>		<u>Liabilities</u>	
Coins		Accounts	
Under Receipt	16,186,210	Restricted	16,186,210
Unencumbered	3,817,229	Unrestricted	7,005,331
Loans			
East India Co.	2,600,000		
Amsterdam	482,000		
Holland	227,264	<u>Equity</u>	-360,838
	22,830, 703		22,830, 703

The Bank before 1780: summary

- The Bank enjoyed substantial market funding.
- The bank florin maintained a stable value.
- The Bank operated with plentiful reserves and modest negative equity.

The events of 1780-1783

(Fourth Anglo-Dutch War)

- Bank greatly expanded loans to the Company.
- Company debt nonperforming by mid-1782.
- Markets withdrew wholesale financing.
- Open market operations (in guilder coin) helped maintain the quantity of bank money.
- Bank net worth went negative.
- Agio target could not be maintained.

Figure 2. Bank balance sheet, 1775:1-1792:1

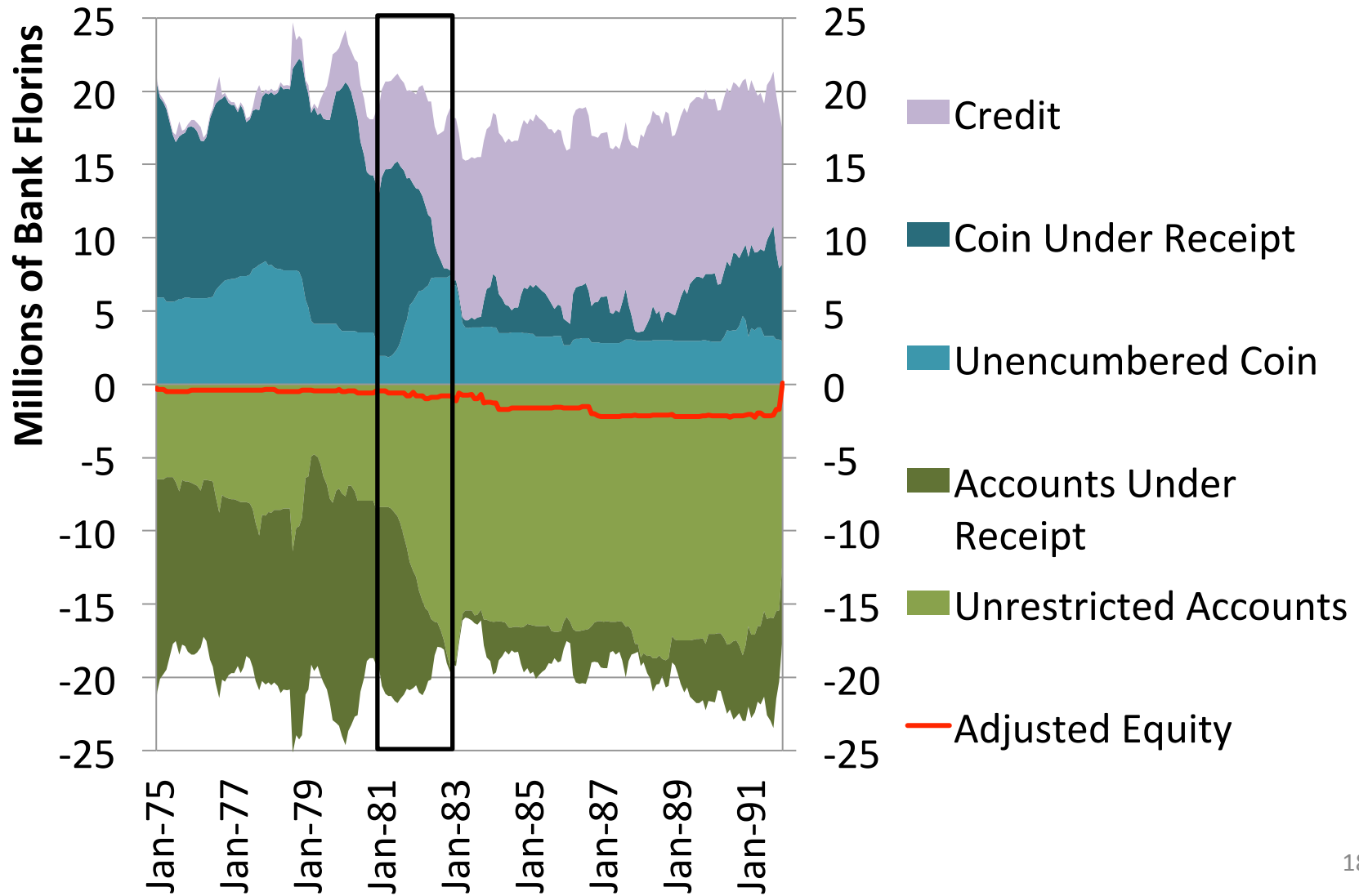


Figure 3. The Bank's loans outstanding, 1775:1-1783:1

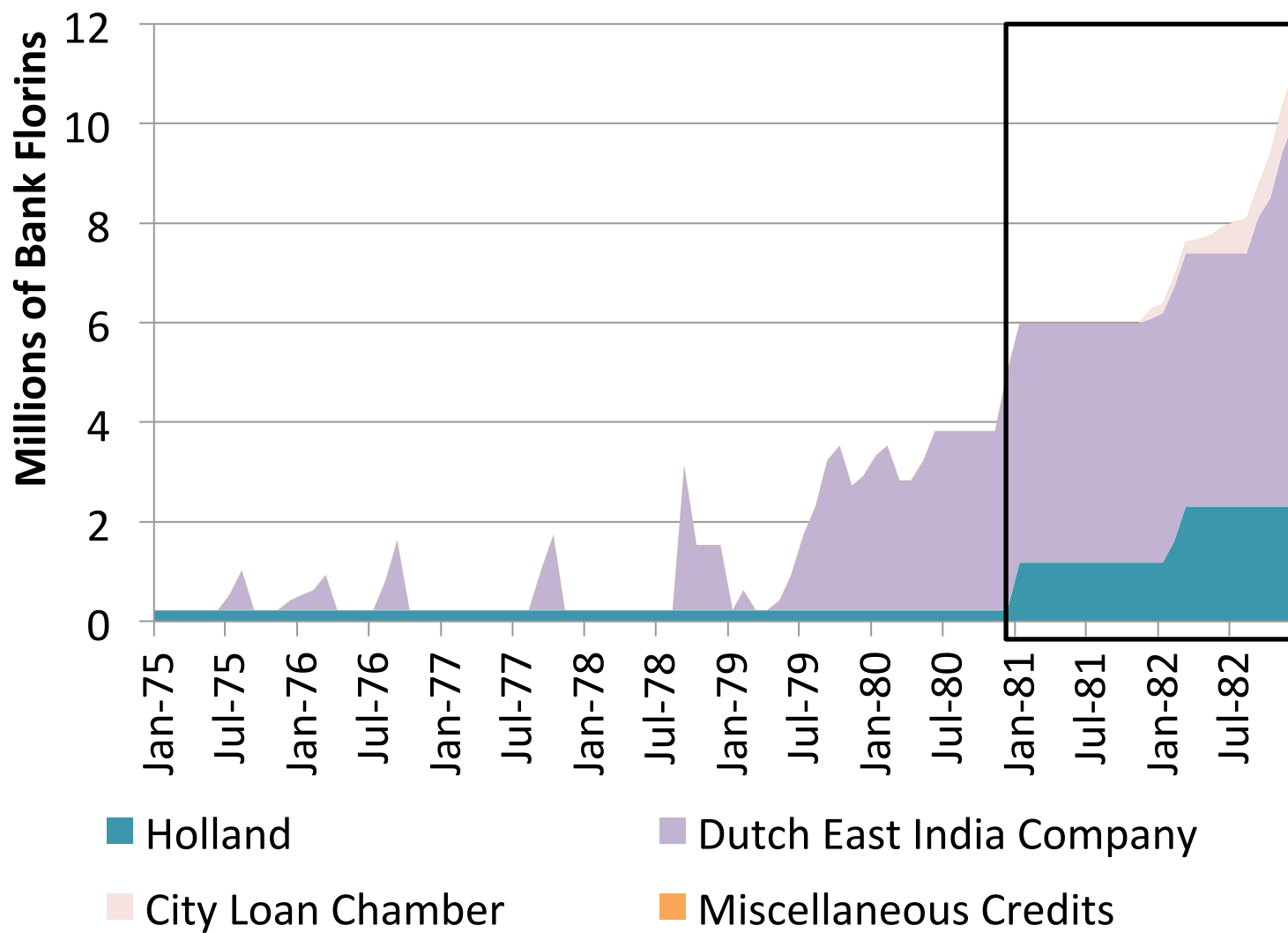
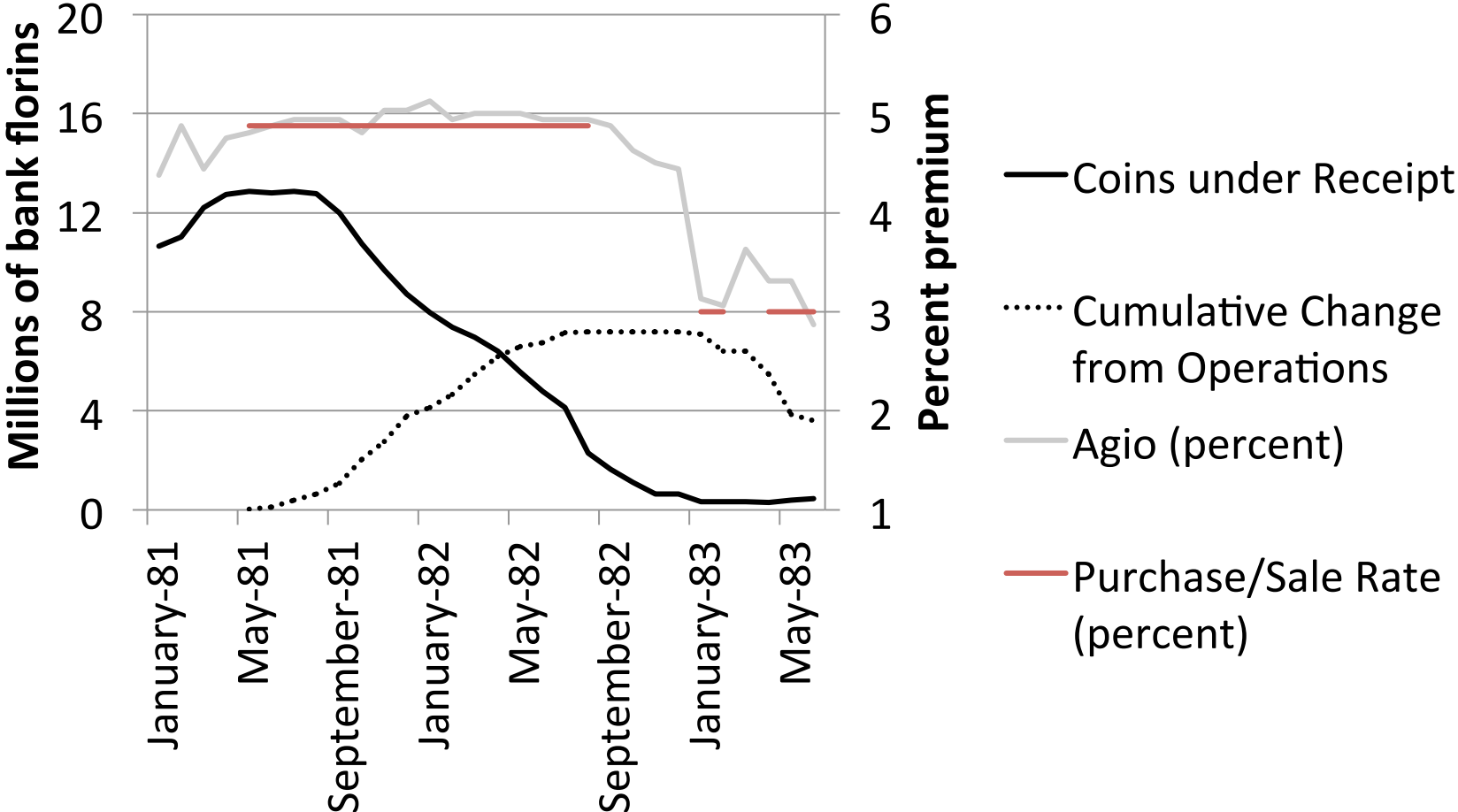


Figure 4. Receipt run, OMOs and impact on the agio, 1781-1783



Bank net worth calculation

- Net worth = Equity + “Franchise value”.
- Equity
 - Adjusted for takings by City.
 - Adjusted for possibility of Company default.
- “Franchise value” = ENPV (OBS net income).
 - Uses previous year’s income going forward.
 - Assumes the City stops taking dividends.
 - Discounts @ 3 percent (bill rate).
- Net worth < 0 = “policy insolvency”.

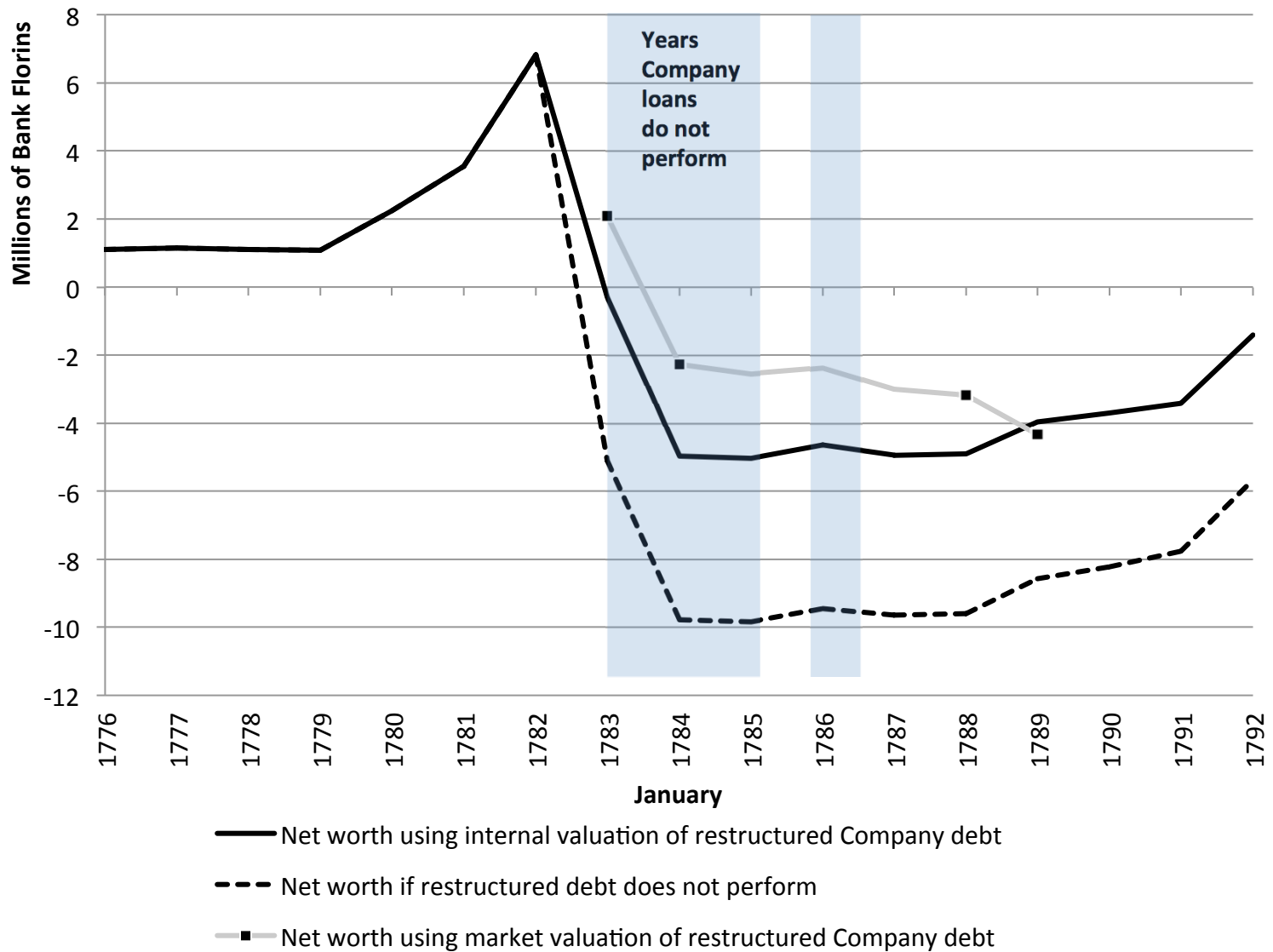
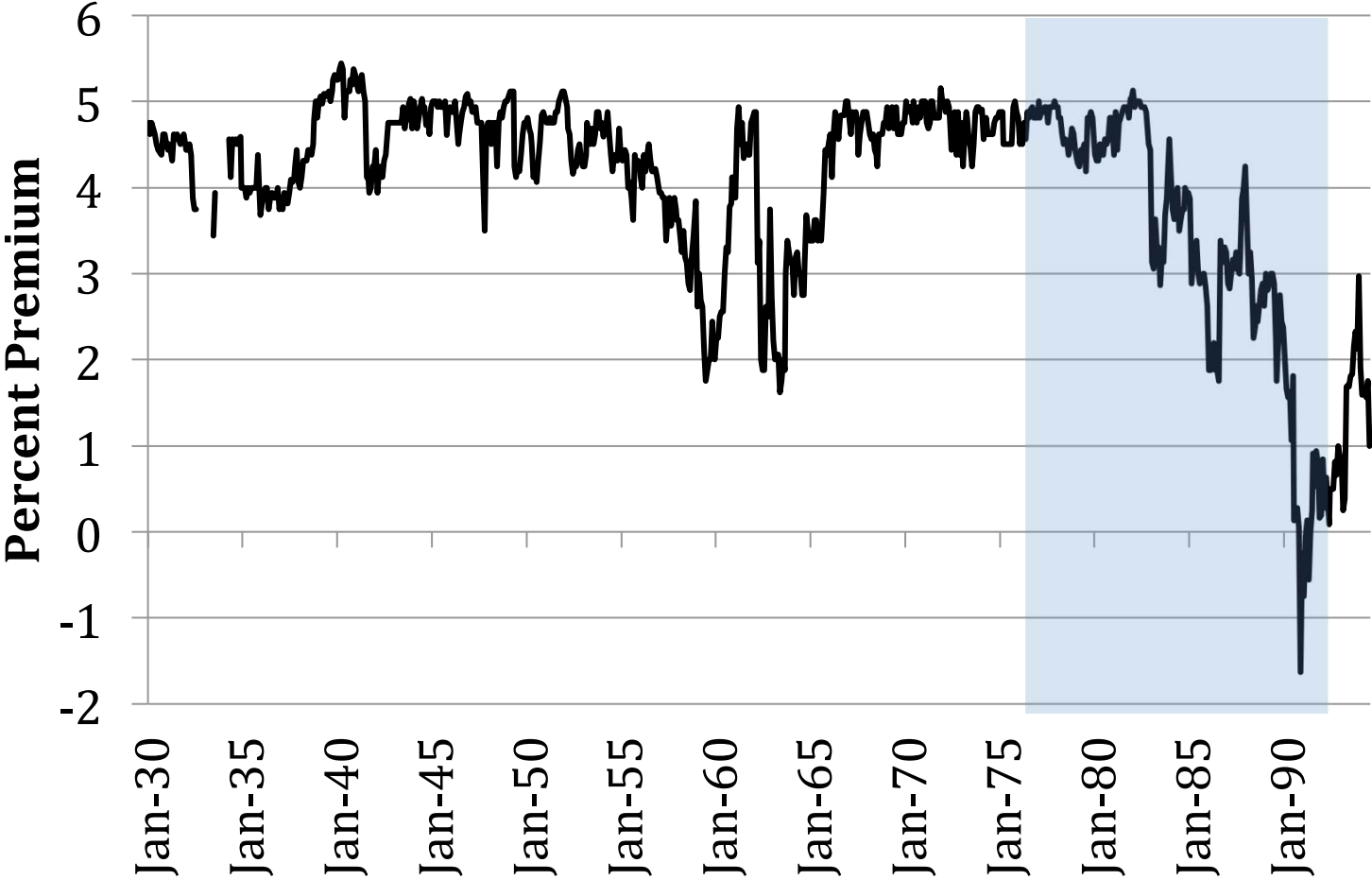


Figure 5. Agio falloff, 1780:1-1792:1



Subsequent events

- 1784-1789: Bank languishes.
- 1790: new crisis, $\text{agio} < 0$.
- 1791: Bank recapitalized by City.
 - Too little, too late (Bank's NW still < 0).
- 1795: France invades; Bank collapses.
- 1820: Bank liquidated.

Summary

Balance sheet reconstructions show

- Before 1780, Bank equity < 0 , but NW > 0 .
- Quasi fiscal policy drives NW $\ll 0$ by 1784.
- Takings by City contributed to NW < 0 .
- 1791 recapitalization inadequate.
- NW < 0 coincides with agio below target.

Main message

Even a successful central bank can sometimes require fiscal support.