Lecture VI: Agricultural Credit and Monetary Policy

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Simple Free Banking Example

- In order to understand the interaction between banks and monetary policy, and the effect this interaction has on agriculture, a brief discussion of monetary economics is useful.
- As a starting point, we consider a stylized example of a bank operating in the free-banking era which existed from roughly 1810 through 1864.

Initial Balance Sheet

- Assume that they start by issuing common stock worth $1,000,000.
- They appoint a loan officer and lend 100% of these funds yielding the balance sheet in Table 1.

Assets		Liabilities & Equity	
Loans	$1,000,000	Common Stock	$1,000,000

Initial Income Statement / Uses of Income

- As depicted in Table 2, assuming an interest rate of 5 percent, the investment yields a revenue of $50,000.
- If the investors pay the loan officer $5,000 for his time, this leaves a profit of $45,000.
- Next, we assume that the investors distribute $35,000 in dividends (yielding a rate of return on the owner's capital of 3.5 percent)

Item	Amount
Revenues (Interest Received)	$50,000
Costs (Variable Costs)	$5,000
Profit	$45,000
Dividend Paid	($35,000)
Addition to Retained Earnings	$10,000

Balance Sheet at the End of the Year

- These activities leave $1,010,000 of lend-able funds (in cash) for the next year as depicted in the year-end balance sheet.

Assets		Liabilities & Equity	
Cash	$1,010,000	Common Stock	$1,000,000
		Retained Earnings	$10,000

Free Banking with Bank Notes

- We start by assuming that a borrower or a group of borrowers apply for loans at a bank.
- After signing the appropriate debt instruments, the bank issues the borrower purchasing power in the form of bank notes as depicted in Table 4.
- The borrowers then take these notes and buy either production goods (machinery, seeds, fertilizer, etc.) or consumption goods (an Apple^{TM}computer).
- Each of these sellers then take the bank notes back to the issuing bank to exchange the bank notes for specie. If all the bank notes are redeemed in specie, the forgoing discussion of lending remains unchanged.

Ledger Entries to Make Loans with Bank Notes

Account	Debit	Credit
Short-Term Loans Receivable	$500,000	
Long-Term Loans Receivable	$500,000	
Bank Notes		$1,000,000
Bank Notes	$1,000,000	
Cash		$1,000,000

Banking with Cash Reserve

- However, for a variety of reasons many individuals may prefer to use the bank notes as a substitute for hard money. Bank notes are lighter (i.e., at the time of the controversy a $100 bank note was lighter than the equivalent purchasing power of gold).
- We assume that of the $1,000,000 of bank notes issued by the bank, $50,000 remains in circulation. As depicted in Table 5, the retention of $50,000 of the bank notes in circulation increases the lendable money held by the bank.

Assets		Liabilities & Equity	
Cash	$50,000	Common Stock	$1,000,000
Loans Receivable		Bank Notes	$50,000
Short-Term Notes	$500,000		
Long-Term Notes	$500,000		

Lending More Money

- If the quantity of fiduciary money which remains in circulation is relatively stable, a portion of the additional cash can be loaned for additional profit.
- For example, suppose that the bank decides to establish a reserve of $25,000 to meet any unforeseen redemption requests.
- We assume that the bank makes an additional $25,000 in loans as depicted in Table 6.

Assets		Liabilities & Equity	
Cash	$25,000	Common Stock	$1,000,000
Loans Receivable		Bank Notes	$50,000
Short-Term Notes	$525,000		
Long-Term Notes	$500,000		

Income Statement with Bank Notes

Item	Amount
Revenues (Interest Received)	$51,250
Costs (Variable Costs)	$5,750
Profit	$45,500
Dividend Paid	($35,250)
Addition to Retained Earnings	$10,250

Banking with Deposits

- In many ways, the bank that we have constructed to this point is really not a bank, but an investment bank.
- The critical point is that we have no deposits, the only money at risk is that of the investors who purchased the common stock.
- Consider what happens if the bank depicted in Table 7 accepts $ 500,000 in deposits. The balance sheet for this bank is depicted in Table 8.

Assets		Liabilities & Equity	
Cash	$525,000	Deposits Payable	$500,000
Loans Receivable		Bank Notes	$50,000
Short-Term Notes	$525,000	Common Stock	$1,000,000
Long-Term Notes	$500,000		

- In order to make profitable use of these deposits, the bank would attempt to lend these additional funds out as part of their portfolio.
- However, the bank also needs to keep enough liquid assets on hand to meet the transaction demands for its depositors.
- The computation is similar to the one discussed above in choosing the level of currency to hold to meet the potential specie demand from its bank notes.
- We assume that the bank, based on its previous experience, chooses to keep 1/8 of the deposits on hand to meet the potential liquidity needs of its depositors.
- The bank would then choose to loan $ 437,500.

Balance Sheet accepting Deposits - Loaning Short Term

- The resulting balance sheet is depicted in Table 9 (assuming for the time being that all this money is placed short-term).

Assets		Liabilities & Equity	
Cash	\$87,500	Deposits Payable	\$500,000
Loans Receivable		Bank Notes	\$50,000
Short-Term Notes	\$962,500	Common Stock	\$1,000,000
Long-Term Notes	\$500,000		

The Money Multiplier

- Each time the money is turned through the bank, the size of the deposits returned to the bank declines.
- However, the bank is actually creating money by its lending activities.
- The amount of new money created follows the money multiplier equation

$$\Delta M = \frac{1}{1-\delta} M_0 \tag{1}$$

where M_0 is the quantity of the original monetary stimulus (in the days of specie currency – the amount of gold brought in as a result of trade), δ is the fractional reserve (in our case $\delta = 1/8$, and ΔM is the change in the overall money supply.

Agricultural Banks and Monetary Policy

- Agriculture and agricultural banking's place in the monetary policy debate may be somewhat different than other sectors.
- The factors that contributed to the chaos of the 1970s from the general economy's perspective may have benefited agriculture.
- Increases in inflation and low real interest rates benefited agriculture on two fronts.
  - First, these factors contributed to a general decline in the real exchange rate which contributed to an agricultural export boom.
  - Second, the lower real interest rates benefited a sector where debt is the dominant source of external capital.
- In addition, the low real interest rates contributed with the increased exports to a land value boom. Agricultural equity values soared.