



Chapter 16

Determinants
of the Money Supply

The Money Multiplier

- the money multiplier m gives the (more realistic) extent of multiple deposit creation:

$$M = m \times MB$$

where M is the money supply and MB is the monetary base

- to calculate the money multiplier, remember that

$$R = RR + ER = (r \times D) + ER$$

and that

$$\begin{aligned} MB &= R + C \\ &= (r \times D) + ER + C \end{aligned}$$

The Money Multiplier (cont.)

- two implications follow:
 - the amount of monetary base required to support the existing deposits and currency in circulation
 - an increase in monetary base from an additional \$1 in currency does not support any additional deposits

- *currency ratio* (c) = the ratio of currency to deposits:

$$C = c \times D$$

- *excess reserves ratio* (e) = the ratio of excess reserves to deposits:

$$ER = e \times D$$

The Money Multiplier (cont.)

- then:

$$\begin{aligned} MB &= (r \times D) + (e \times D) + (c \times D) \\ &= (r + e + c) \times D \end{aligned}$$

- hence, deposits are equal to

$$D = \frac{1}{r + c + e} \times MB$$

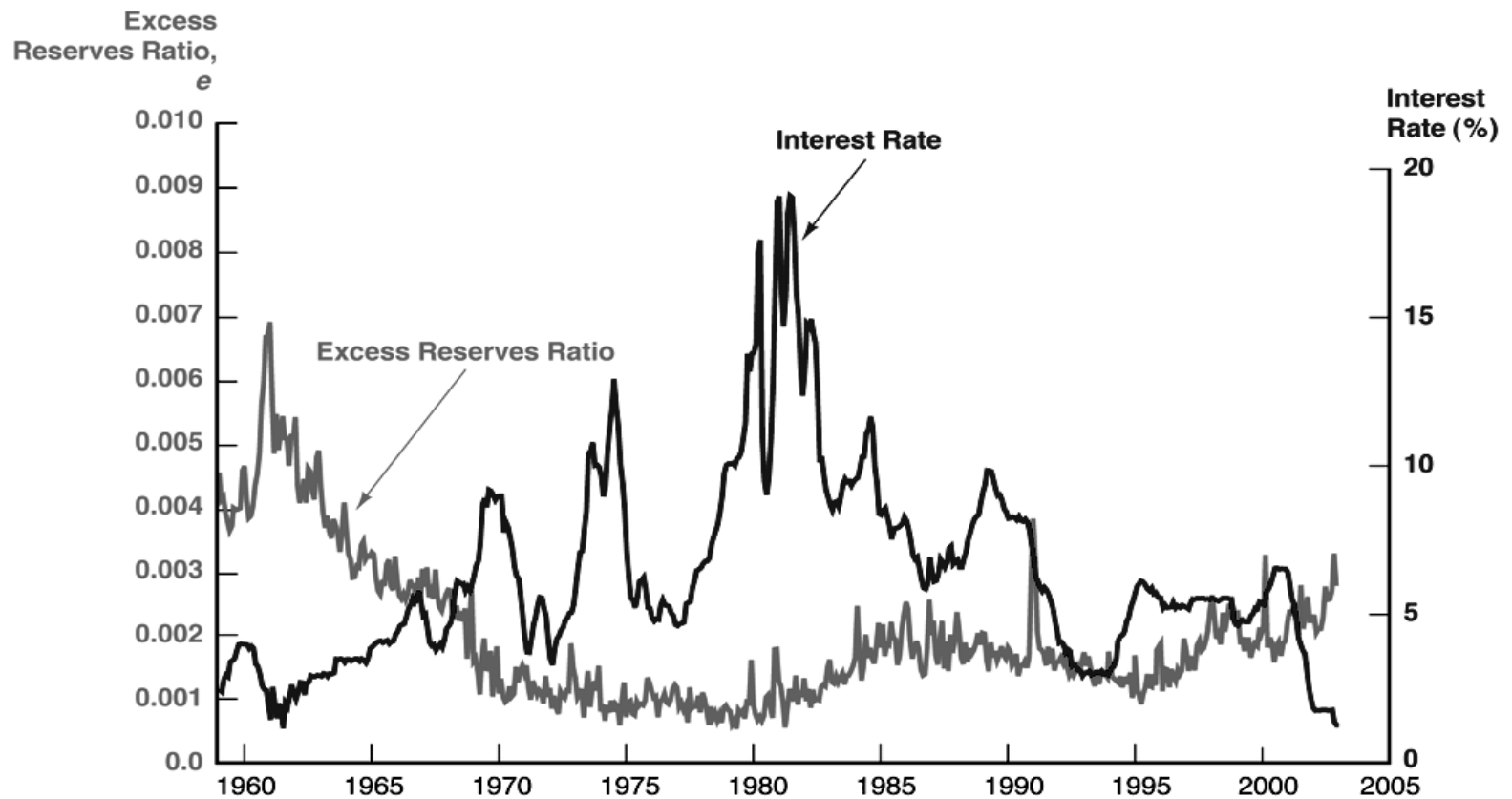
- by definition, money supply (M1) is

$$M = C + D = (c \times D) + D = (1 + c) \times D$$

$$m \times MB = \frac{1 + c}{r + c + e} \times MB$$

- hence, $m = \frac{1 + c}{r + c + e} < \frac{1}{r}$

Excess Reserves Ratio



Determinants of e

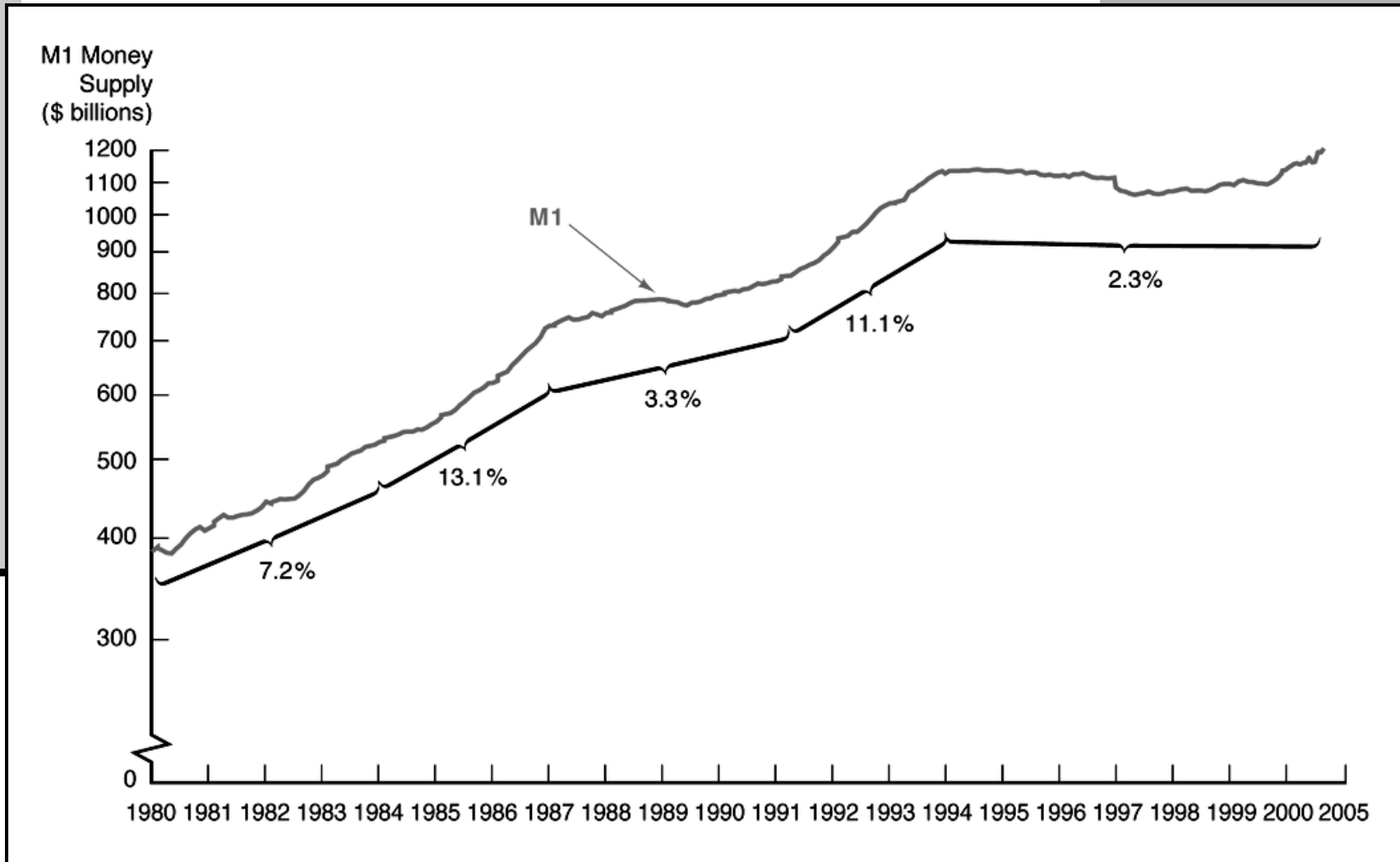
1. $i \uparrow$, relative R^e on $ER \downarrow$ (opportunity cost \uparrow), $e \downarrow$
2. Expected deposit outflows, ER insurance worth more, $e \uparrow$

Factors Determining Money Supply

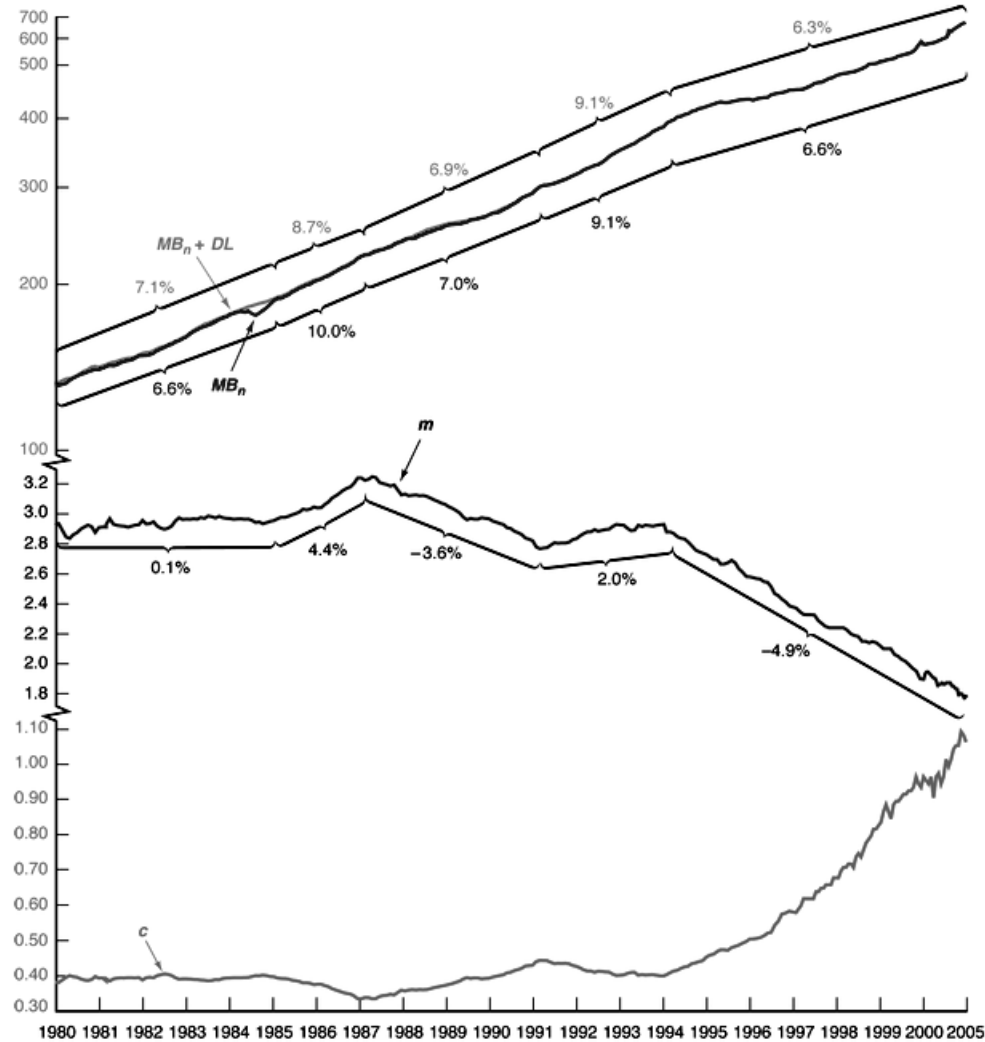
SUMMARY Table 1 Money Supply (M1) Response

Player	Variable	Change in Variable	Money Supply Response	Reason
Federal Reserve System	r	↑	↓	Less multiple deposit expansion
	MB_n	↑	↑	More MB to support D and C
	DL	↑	↑	More MB to support D and C
Depositors	c	↑	↓	Less multiple deposit expansion
Depositors and banks	Expected deposit outflows	↑	↓	e ↑ so fewer reserves to support D
Borrowers from banks and the other three players	i	↑	↑	e ↓ so more reserves to support D

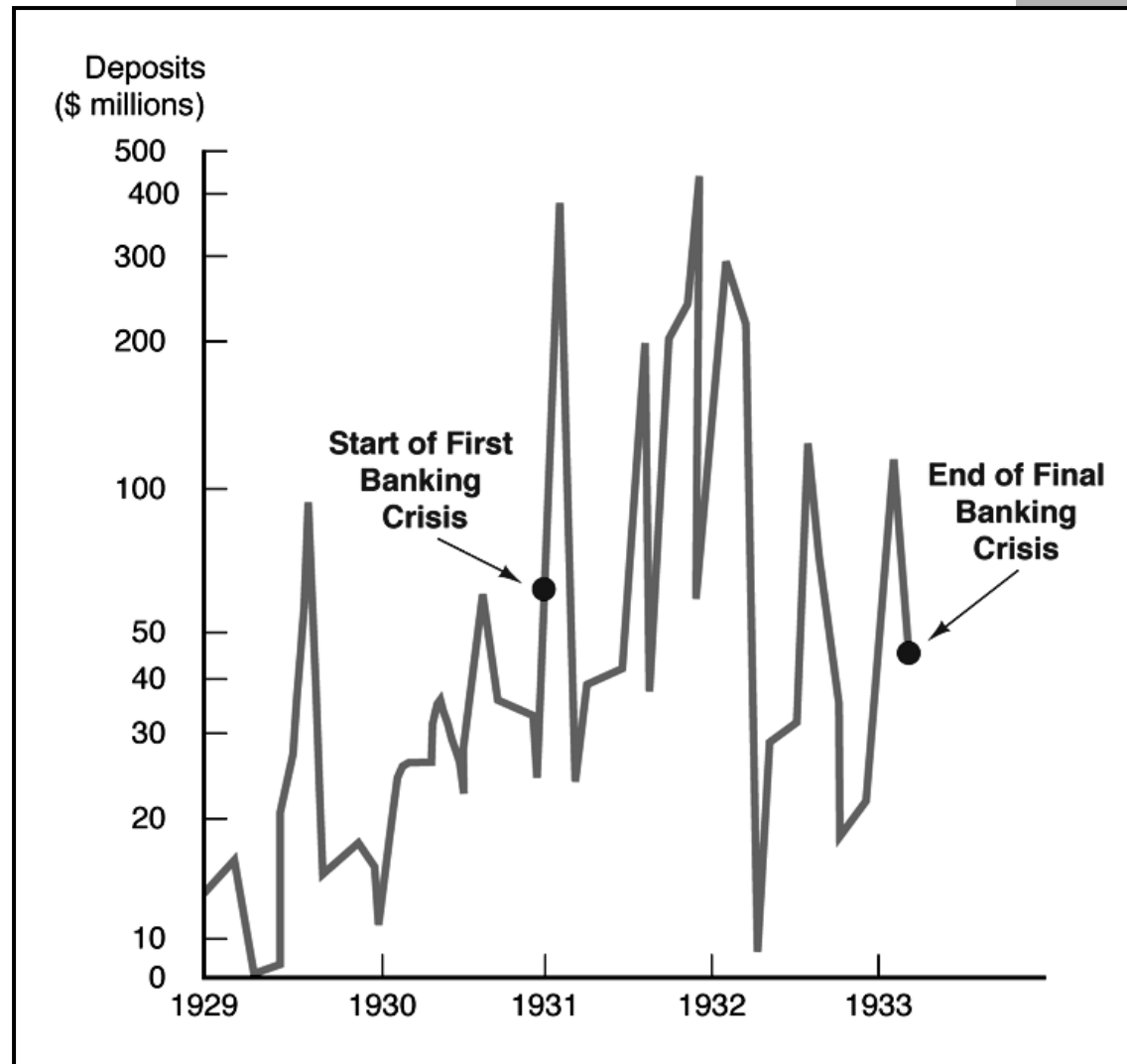
Money Supply



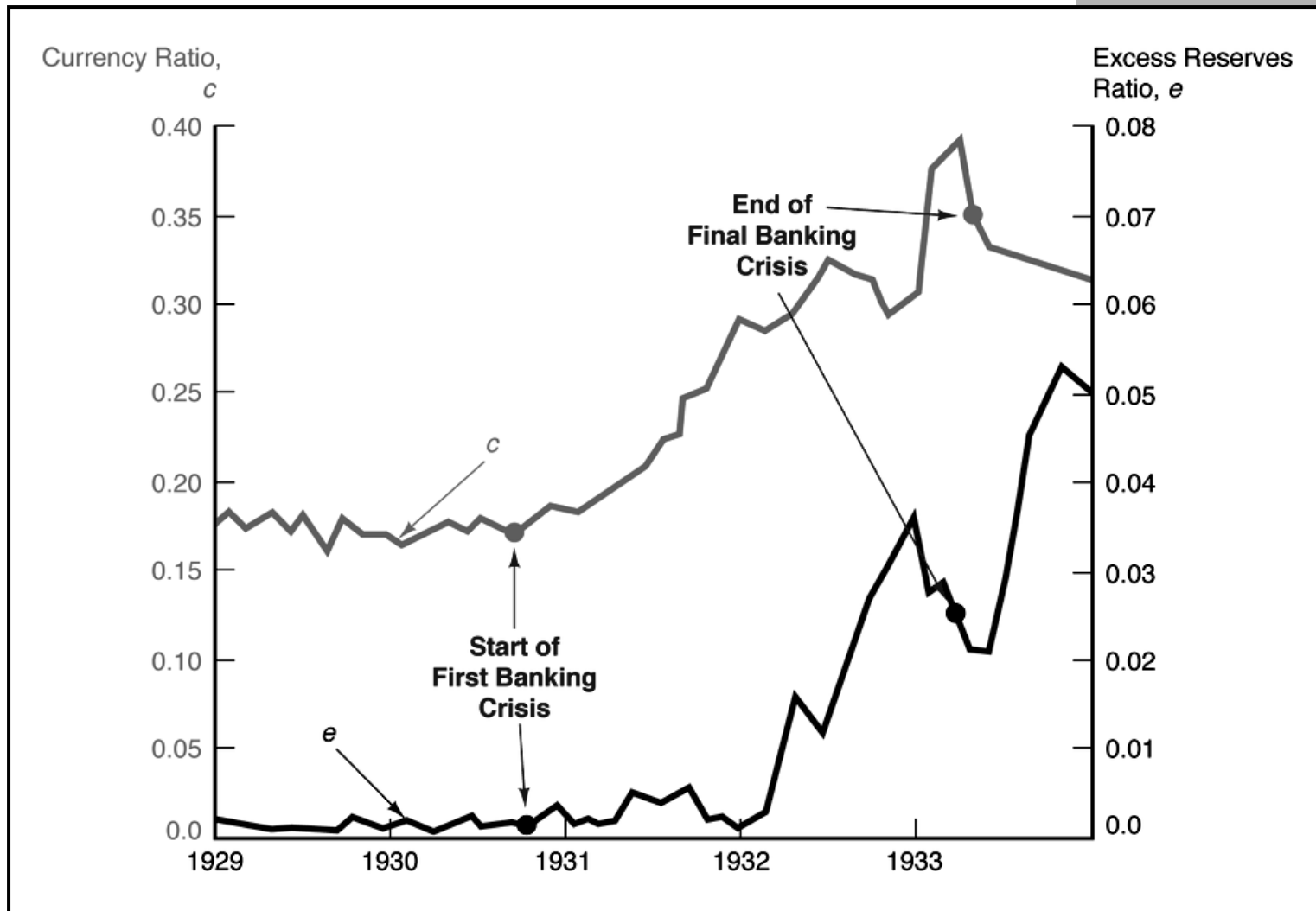
Determinants of the Money Supply



Deposits at Failed Banks: 1929–33



e, c: 1929–33



Money Supply and Monetary Base: 1929–33

