$$C = a + b(Y - T)$$

$$Y = C + I + G$$

$$T = tY - TR$$

$$G = T$$

$$Y = a + b(Y - tY + TR) + I + tY - TR$$

$$(1 - b + bt - t)\,Y = a + b\,TR + I - TR$$

$$Y = \frac{a}{1-b+bt-t} + \underbrace{\frac{(1-b)\,TR}{1-b+bt-t}}_{-1.5} + \underbrace{\frac{1}{1-b+bt-t}}_{6} I$$

$b = .75$

$t = 1/3$

---

1) T exogenous : why balanced budget multiplier $= 1$?

2) $T = tY$: why G multiplier falls from 4 to 2 ?

3) $T = tY - TR$: why TR multiplier is 1.5, not 2 ?

4) $G = T$: why is I multiplier 6 ? why is TR multiplier -1.5 ?

Hint: 1) & 3) same insight

	A	L	
RES.	0	0	DEP.

	A	L	
RES.	100	100	DEP.

	A	L	
RES.	100	500	DEP.
LOANS	400		

$$\text{MONEY MULTIPLIER} = \frac{1}{RRR}$$

$$\frac{1}{.2} = 5$$

---

1)

	A	L	
RES.	20	100	DEP.
LOAN	80		

2)

	A	L	
RES.	16	80	DEP.
LOANS	64		

3)

	A	L	
RES.	12.8	64	DEP.
LOANS	51.2		

⋮

$$\begin{array}{r} 100 \\ +\ 80 \\ +\ 64 \\ +\ \vdots \\ \hline 500 \end{array}$$

RRR $.2 \rightarrow .125$

FED

A		L	
SEC.	200	100	RES.
		100	CUR.

CB

A		L	
RES	100	500	DEP.
LOANS	400		

$.2 \times 500 = 100$

A		L	
SEC.	200	100	RES.
		100	CUR.

A		L	
RES.	100	800	DEP.
LOANS	700		

$.125 \times 800 = 100$

CB Borrowing

FED

A		L	
SEC.	200	120	RES.
LOANS	20	100	CUR.

CB

A		L	
RES.	120	600	DEP.
LOANS	500	20	OWED TO FED

RD vs. RS

OPEN MARKET OPERATIONS

FED

A		L	
SEC.	100	20	RES.
		80	CUR.

CB

A		L	
RES.	20	100	DEP.
LOANS	80		

JANE

DEP.	5	0	DEBT
SEC.	5	10	NET WORTH

FED BUYS 5 IN SEC. FROM JANE

FED

A		L	
SEC.	105	25	RES.
		80	CUR.

CB

A		L	
RES.	25	105	DEP.
LOANS	80		

JANE

DEP.	10	0	DEBT
SEC.	0	10	NET WORTH

↓

SAME

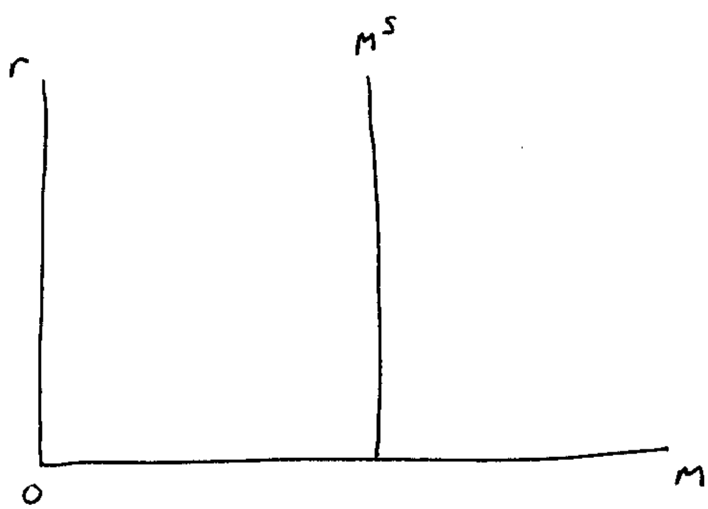
CB

RES.	25	125	DEP.
LOANS	100		

$\boxed{.2 \times 125 = 25}$

↓

SAME



1. M1 consists of (1) currency outside the U.S. Treasury, Federal Reserve Banks, and the vaults of depository institutions; (2) travelers checks of nonbank issuers; (3) demand deposits at commercial banks (excluding those amounts held by depository institutions, the U.S. government, and foreign banks and official institutions) less cash items in the process of collection and Federal Reserve float; and (4) other checkable deposits (OCDs), consisting of negotiable order of withdrawal (NOW) and automatic transfer service (ATS) accounts at depository institutions, credit union share draft accounts, and demand deposits at thrift institutions. Seasonally adjusted M1 is constructed by summing currency, travelers checks, demand deposits, and OCDs, each seasonally adjusted separately.

2. M2 consists of M1 plus (1) savings deposits (including money market deposit accounts); (2) small-denomination time deposits (time deposits in amounts of less than $100,000), less individual retirement account (IRA) and Keogh balances at depository institutions; and (3) balances in retail money market mutual funds, less IRA and Keogh balances at money market mutual funds. Seasonally adjusted M2 is constructed by summing savings deposits, small-denomination time deposits, and retail money funds, each seasonally adjusted separately, and adding this result to seasonally adjusted M1.

3. M3 consists of M2 plus (1) balances in institutional money market mutual funds; (2) large-denomination time deposits (time deposits in amounts of $100,000 or more); (3) repurchase agreement (RP) liabilities of depository institutions, in denominations of $100,000 or more, on U.S. government and federal agency securities; and (4) Eurodollars held by U.S. addressees at foreign branches of U.S. banks worldwide and at all banking offices in the United Kingdom and Canada. Large-denomination time deposits, RPs, and Eurodollars exclude those amounts held by depository institutions, the U.S. government, foreign banks and official institutions, and money market mutual funds. Seasonally adjusted M3 is constructed by summing institutional money funds, large-denomination time deposits, RPs, and Eurodollars, each adjusted separately, and adding this result to seasonally adjusted M2.