Gov buys my services for 100

Fed does not buy the SEC

Gov

A	L
	+100 SEC.
	−100 NET WORTH

ME

A	L
+100 SEC.	+100 NET WORTH

In effect I am paid with a gov. sec.

or

Fed buys the SEC

FED

A	L
+100 SEC.	+100 RES.

SAME

CB

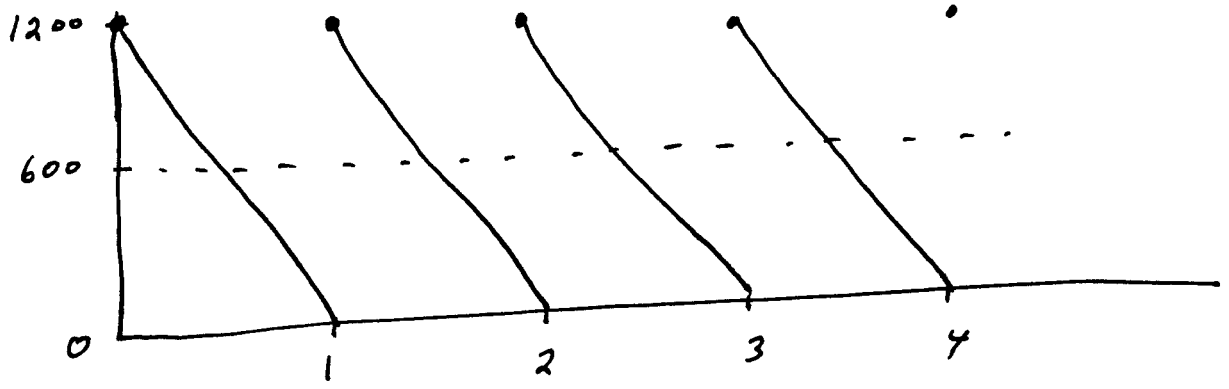
A	L
+100 RES	+100 DEP.

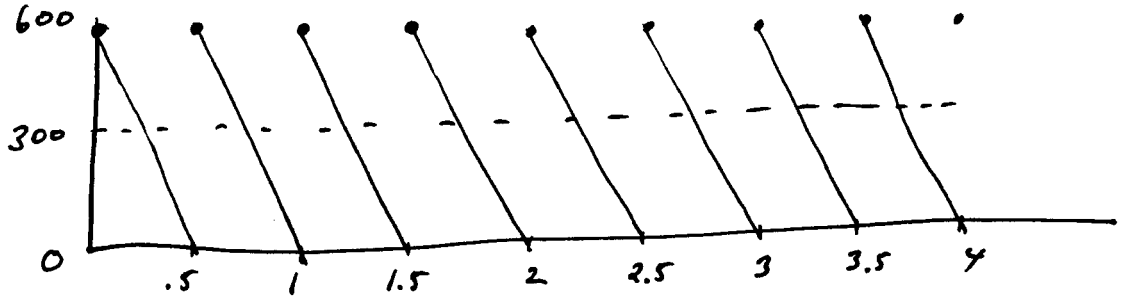
Banks can now expand the money supply

ME

A	L
+100 DEP.	+100 NET WORTH

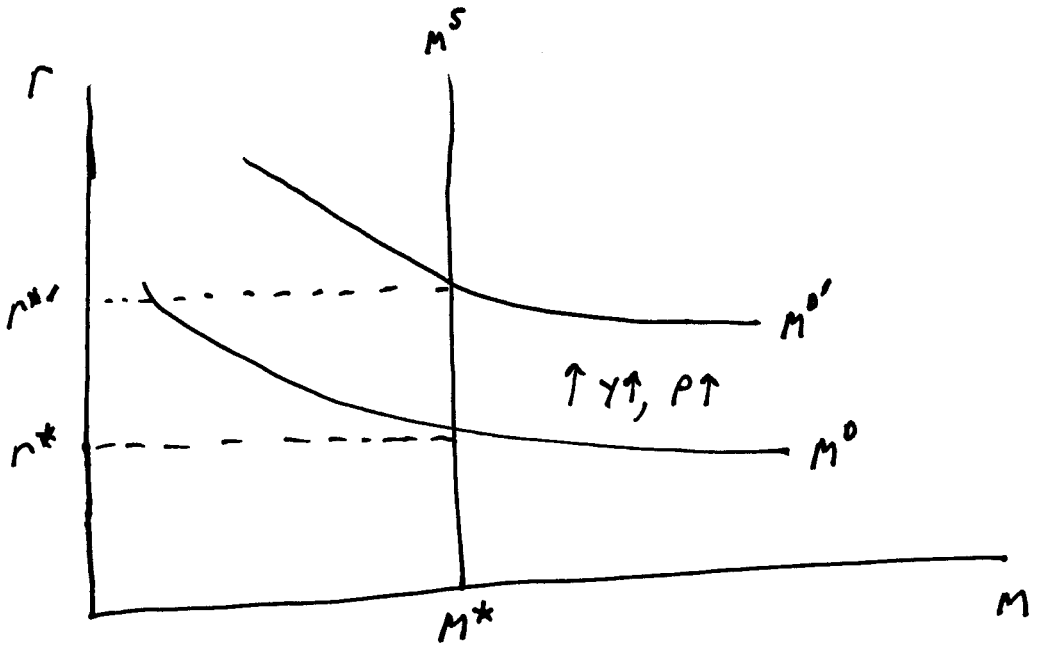
I am paid 100 by check, which I deposit.





$r \uparrow \Rightarrow M^D \downarrow$ $\quad P\uparrow \Rightarrow M^D \uparrow$

$Y \uparrow \Rightarrow M^D \uparrow$



(TIE to T ACCOUNTS) $\quad \rightarrow$ FED buys securities

$\leftarrow$ FED sells securities

Jan. 29, 2009

$r_1 = .0051$

$r_2 = .0095$

$r_3 = .0134$

$r_5 = .0187$

$r_{10} = .0287$

$r_{30} = .0357$

$$(1 + r_1)(1 + r^e_{1+1}) = (1 + r_2)^2 \qquad \text{so } r^e_{1+1} = .0139$$

$$(1 + r_2)^2(1 + r^e_{1+2}) = (1 + r_3)^3 \qquad \text{so } r^e_{1+2} = .0212$$

$$P_1 = \frac{2}{1+r_1} + \frac{100}{1+r_1} = \frac{102}{1+r_1} \qquad \text{so } r_1 = \frac{102 - P_1}{P_1}$$

$$P_2 = \frac{3.5}{1+r_2} + \frac{3.5}{(1+r_2)^2} + \frac{100}{(1+r_2)^2} \qquad \text{solve for } r_2 \text{ given } P_2$$

P_1, P_2, etc. market determined

r_1, r_2, etc. computed yields to maturity

$1 per year forever

$$V = \frac{1}{(1+r)} + \frac{1}{(1+r)^2} + \frac{1}{(1+r)^3} + \cdots$$

Let $\lambda = \frac{1}{1+r}$

$$= \lambda + \lambda^2 + \lambda^3 + \cdots$$

$$= \lambda(1 + \lambda + \lambda^2 + \cdots)$$

$$= \frac{\lambda}{1-\lambda}$$

$$= \frac{\frac{1}{1+r}}{1 - \frac{1}{1+r}} = \frac{\frac{1}{1+r}}{\frac{1+r-1}{1+r}} = \boxed{\frac{1}{r}}$$

$1 + \lambda + \lambda^2 + \cdots$ divided by $1 - \lambda$ into 1:

$1 - \lambda$ | $1 + \lambda + \lambda^2 + \cdots$

1

$1 - \lambda$

λ

$\lambda - \lambda^2$

λ^2

$\lambda^2 - \lambda^3$

$\cdots$

So $r \uparrow \Rightarrow V \downarrow$

$$SP = \frac{DIV^e}{1+r} + \frac{DIV^e_{+1}}{(1+r)(1+r^e_{+1})} + \frac{DIV^e_{+2}}{(1+r)(1+r^e_{+1})(1+r^e_{+2})} + \cdots + \frac{SP^e_{+T}}{(1+r)(1+r^e_{+1})(1+r^e_{+2})\cdots(1+r^e_{+T})}$$

$$SP = \frac{DIV^e}{1+r} + \frac{SP^e_{+1}}{1+r}$$

$20,000 per year for 50 years $\stackrel{?}{=}$ $1 million

If forever and $r = .08$, $V = \frac{20,000}{.08} = 250,000$

Note: $\frac{20,000}{(1+.08)^{50}} = 426$