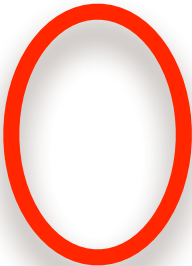


Banks then **create** additional money by **lending** these new
reserves several times





When the Fed **buys** bonds (**QE**) it **creates** money by **adding** bank reserves

When the Fed buys 10b in bonds, it injects 10b
of new money: $\Delta R = 10b$

$r = 10\%$

When the Fed buys 10b in bonds, Banks create 90b in new loans

ALL

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ADD

-

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$$\Delta D = \Delta R \times \frac{1}{r}$$

$$\Delta D = 10 \times \frac{1}{0.1}$$

$$\Delta D = 10 \times 10 = 100$$

AL

=

1000

-

10

=


90

$$\Delta M^s = \Delta \text{Currency} + \Delta \text{Deposits}$$


$$\Delta M^s \equiv 0 + \textcolor{red}{100} \equiv 100$$

When the Fed buys bonds, the Money Supply increase by 100b

When the Fed buys 10b in bonds, Deposits increase
by 100b



The Fed
created
10b



Banks create
an additional
90b

Purchasing bonds from the public or from banks has the same effect except banks are paid more for the bonds than what they would get if they sold their bonds in the Open Market

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$$\Delta D = \Delta R \times \left(\frac{1}{r} \right)$$

$$r = 10\%$$

$$\Delta D = 10 \times \frac{1}{0.1}$$



The Fed
created
10b

$\Delta D = 10 \times 10 = 100$ When the Fed buys 10b in bonds, **Deposits** increase
by 100b

Banks create
an additional
90b

$$\Delta L = \Delta D - \Delta R$$

$\Delta L = 100 - 10 = 90$ When the Fed buys 10b in bonds, Banks create 90b in new **loans**

$$\Delta M^s = \Delta \text{Currency} + \Delta \text{Deposits}$$

$\Delta M^s = 0 + 100 = 100$ When the Fed buys bonds, the Money Supply increase by 100b

Assets

Liabilities



Assume the Fed is
presently holding
100b in Bonds

Bank Reserves

$$R_A = 0.1 \times 250 = 25b$$

$$R_B = 0.1 \times 100 = 10b$$

$$R_C = 0.1 \times 150 = 15b$$

$$R_D = 0.1 \times 300 = 30b$$

$$R_E = 0.1 \times 200 = 20b$$

$$\text{Total Reserves} = 100b$$