



The logo for Bank A features a stylized orange house shape. The roof is a triangle containing the text "Bank A" in bold black font. The main body of the house is a large, empty rectangular frame with an orange border.

**Bank A**



New  
Money:  
3,000b

The logo for Bank B is a blue house-like shape. It features a triangular roof and a rectangular body, both outlined in blue. The text "Bank B" is centered within the triangular roof section.

Bank B


$$L = 0.9 * 3,000$$


$$D = 0.9 * 3,000$$

A pink house-shaped icon with a triangular roof and a rectangular body. The text "Bank C" is centered in the roof. The body is empty.

Bank C

A pink house-shaped icon with a triangular roof and a rectangular body. The text "Bank D" is centered in the roof.

Bank D

The logo for Bank E is a yellow house-like shape with a triangular roof and a rectangular body. The text "Bank E" is centered in the roof. The body is empty.

Bank E



The logo for Bank F is a red outline of a house. The roof is a solid red triangle with the text "Bank F" centered inside it. The base of the house is a large, empty white rectangle with a thick red border.

Bank F

D = 3,0000



$L = 0.9 * 0.9 * 3,000$



$D = 0.9 * 0.9 * 3,000$

D











9



3












$L = 0.9 * 0.9 * 0.9 * 3,000$



$D = 0.9 * 0.9 * 0.9 * 3,000$











9









9



3



















9







9









9



3

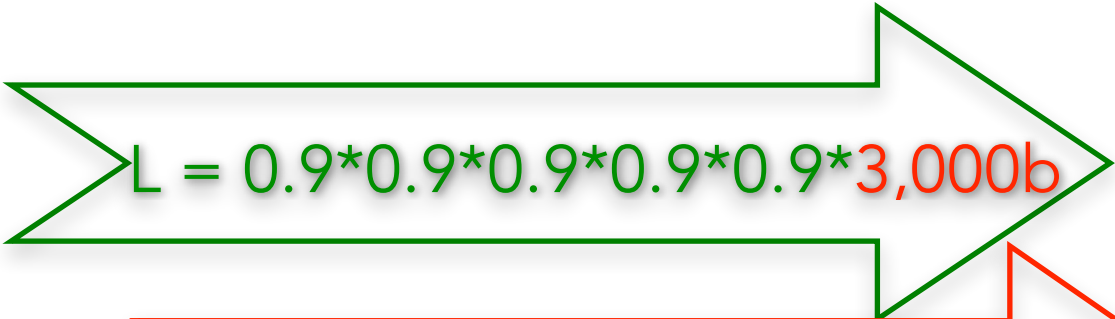












$$L = 0.9 * 0.9 * 0.9 * 0.9 * 0.9 * 3,000b$$


$$D = 0.9 * 0.9 * 0.9 * 0.9 * 0.9 * 3,000b$$

$D = 0.9 * 0.9 * 0.9 * 3,000b$


$$L = 0.9 * 0.9 * 0.9 * 0.9 * 3,000b$$


$$D = 0.9 * 0.9 * 0.9 * 0.9 * 3,000b$$

D = 0.9\*0.9\*0.9\*0.9\*0.9\*3,000b

0.1\*3,0000

+0.1\*0.9\*3,000



+ 0.1 \* 0.9 \* 0.9 \* 3,000

+ 0.1 \* 0.9 \* 0.9 \* 0.9 \* 3,000

+ 0.1 \* 0.9 \* 0.9 \* 0.9 \* 0.9 \* 0.9 \* 3,000

+ 0.1 \* 0.9 \* 0.9 \* 0.9 \* 0.9 \* 0.9 \* 0.9 \* 3,000





t

h





S

p

**r**



C

e

S



S

C



n





n

u



e

S





**r**

S

e

**V**



e

**r**

a



**r**



u

n



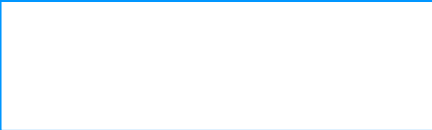
d

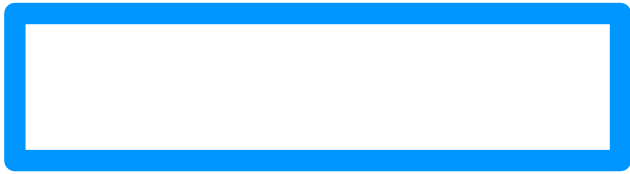
S

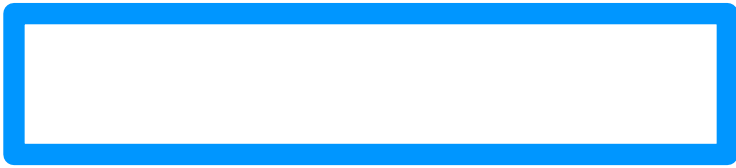
AR

=

Total new  
Reserves in all  
banks

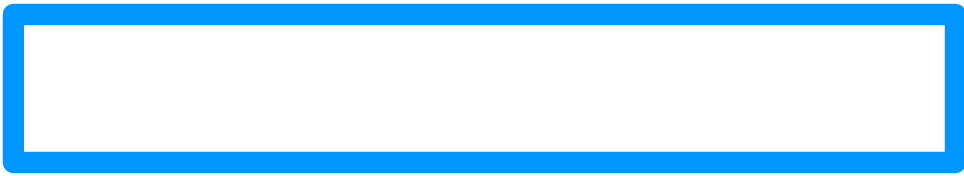














AR

=

Factor out  $0.1 * 3,000$

0.1 \* 3,000 (1

+0.9

$$+ 0.9 * 0.9$$

$$+ 0.9 * 0.9 * 0.9$$



$$+ 0.9 * 0.9 * 0.9 * 0.9$$

+ 0.9\*0.9\*0.9\*0.9\*0.9

+ . . . )

AR

=

+0.9

+0.9<sup>2</sup>

$$+ \dots 0.9^n)$$

+0.9<sup>3</sup>



+0.9<sup>4</sup>

+0.9<sup>5</sup>

+0.9%

$$\Delta R = 0.1 * 3,000,000$$

$$\left( \frac{1}{1 - 0.9} \right)$$

A 3,000b injection of new money into  
the banking system, increase total  
Reserves by 3,000b



e







**S**

C

a



C

u





a



e

n



W









a



R



S





r



e

S

g

e

n

e



**r**

d

**b**

**y**



h

e

n



e

W

m



n

e

**y**







R



Banks must keep  
**10%** of Deposits in  
Reserves

$$R = 0.1 * 3,000,000$$

$$R = 0.1 * 0.9 * 3,000,000$$

$$R = 0.1 * 0.9 * 0.9 * 3,000$$

$$R = 0.1 * 0.9 * 0.9 * 3,000$$

$$R = 0.1 * 0.9 * 0.9 * 0.9 * 0.9 * 3,000$$



$$R = 0.1 * 0.9 * 0.9 * 0.9 * 0.9 * 0.9 * 3,000$$

0.1 \* 3,000 (1

$\Delta R = 3,0000$

$$\left( \frac{0.1}{1 - 0.9} \right)$$

AR = 3,0000

$$\left( \frac{0.1}{0.1} \right)$$

$\Delta R = 3,0000$







Banks must keep  
**10%** of Deposits in  
Reserves



Banks must keep  
**10%** of Deposits in  
Reserves

Let's calculate now Total **Reserves** generated by the new money:  $\Delta R$

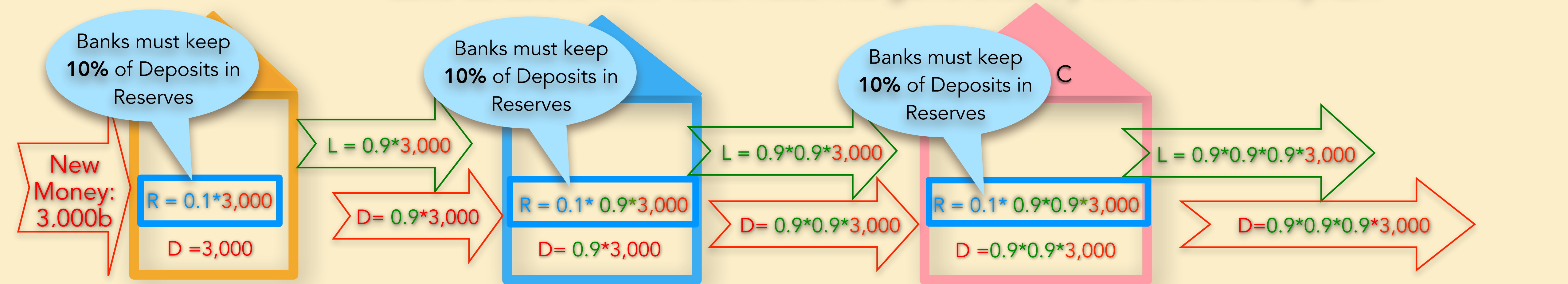
$$D = 0.9 * 3,000,000$$

$$D = 0.9 * 0.9 * 3,000,000$$

$$D = 0.9 * 0.9 * 0.9 * 3,000,000$$

+... this process continues for several rounds

Let's calculate now Total **Reserves** generated by the new money:  $\Delta R$



**Total new Reserves in all banks**

$$\Delta R = 0.1 \times 3,000 + 0.1 \times 0.9 \times 3,000 + 0.1 \times 0.9 \times 0.9 \times 3,000 + 0.1 \times 0.9 \times 0.9 \times 0.9 \times 3,000 + 0.1 \times 0.9 \times 0.9 \times 0.9 \times 0.9 \times 3,000 + \dots$$

Factor out  $0.1 \times 3,000$

$$\Delta R = 0.1 \times 3,000 (1 + 0.9 + 0.9 \times 0.9 + 0.9 \times 0.9 \times 0.9 + 0.9 \times 0.9 \times 0.9 \times 0.9 + 0.9 \times 0.9 \times 0.9 \times 0.9 \times 0.9 + \dots)$$

$$\Delta R = 0.1 \times 3,000 (1 + 0.9 + 0.9^2 + 0.9^3 + 0.9^4 + 0.9^5 + \dots + 0.9^n)$$

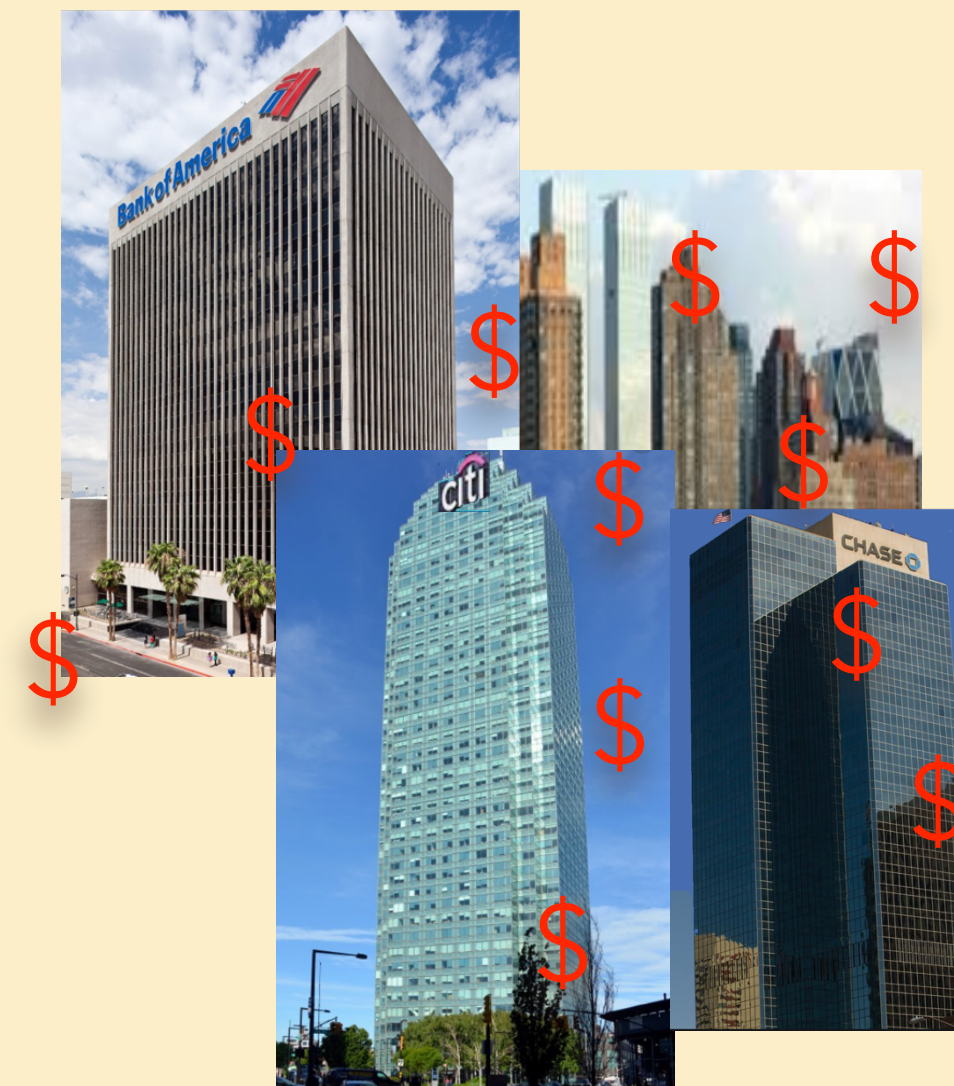
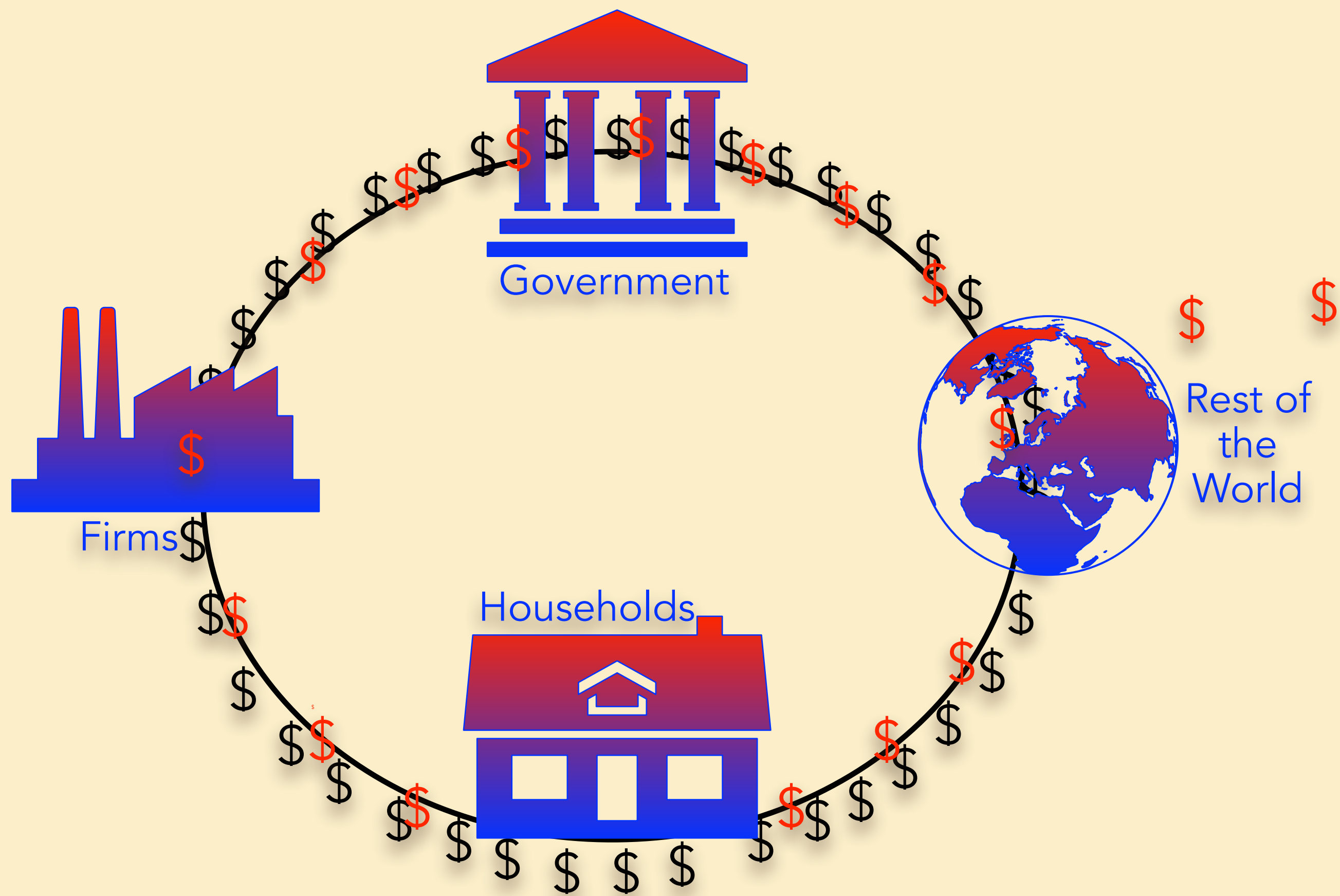
$$\Delta R = 0.1 \times 3,000 \left( \frac{1}{1 - 0.9} \right) \quad \Delta R = 3,000 (1)$$

$$\Delta R = 3,000 \left( \frac{0.1}{1 - 0.9} \right)$$

$$\Delta R = 3,000 \left( \frac{0.1}{0.1} \right)$$

A **3,000b** injection of new money into the banking system, increase total **Reserves** by **3,000b**





The Federal Reserve Bank creates new money