

The logo for Bank A is a stylized orange building icon. It features a triangular roof and a rectangular body, both outlined in orange. The text "Bank A" is centered within the triangular roof section.

Bank A



New
Money:
3,000b

The logo for Bank B is a blue house-like shape with a triangular roof and a rectangular body. The text "Bank B" is centered in the roof. The entire logo has a soft grey drop shadow.

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. It features a yellow triangular roof and a yellow rectangular base. The text "Bank E" is centered within the yellow triangular roof.

Bank E

The logo for Bank F is a red house-like shape. It features a solid red triangular roof and a white rectangular base with a thick red border. The text "Bank F" is centered within the red roof.

Bank F

D = 3,000,000


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


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

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



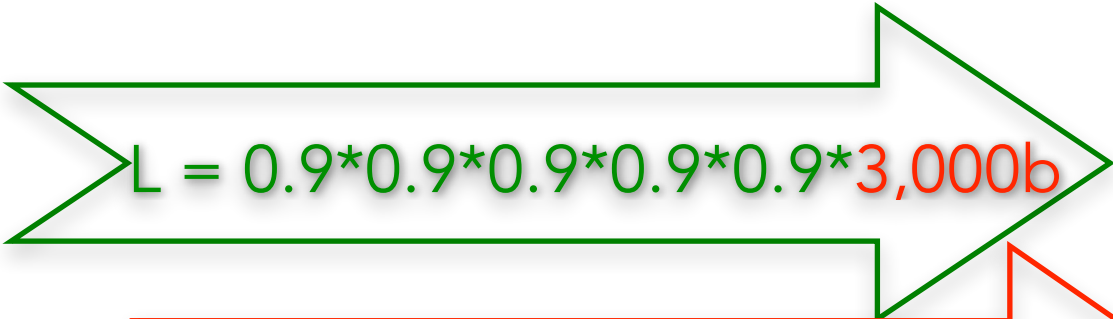
3











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


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

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


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


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

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

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r

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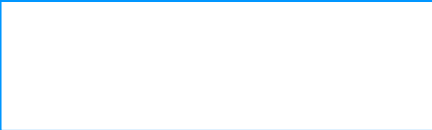
d

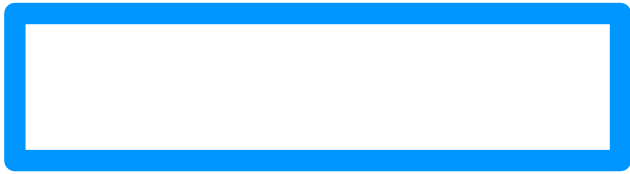
S

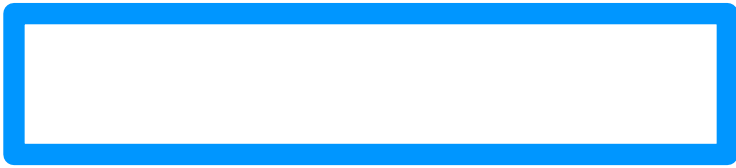
AR

=

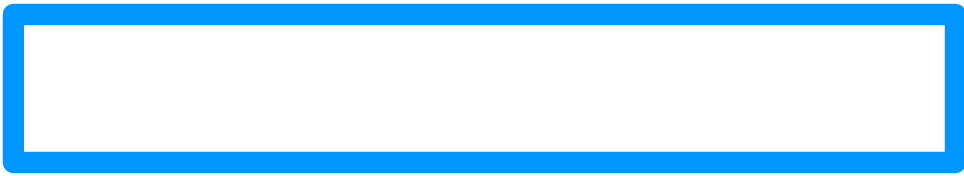
Total new
Reserves in all
banks













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

+0.9²

$$+ \dots 0.9^n)$$

$$+0.9^3$$

$$+0.9^4$$

+0.9⁵

+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





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

AR = 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: ΔR

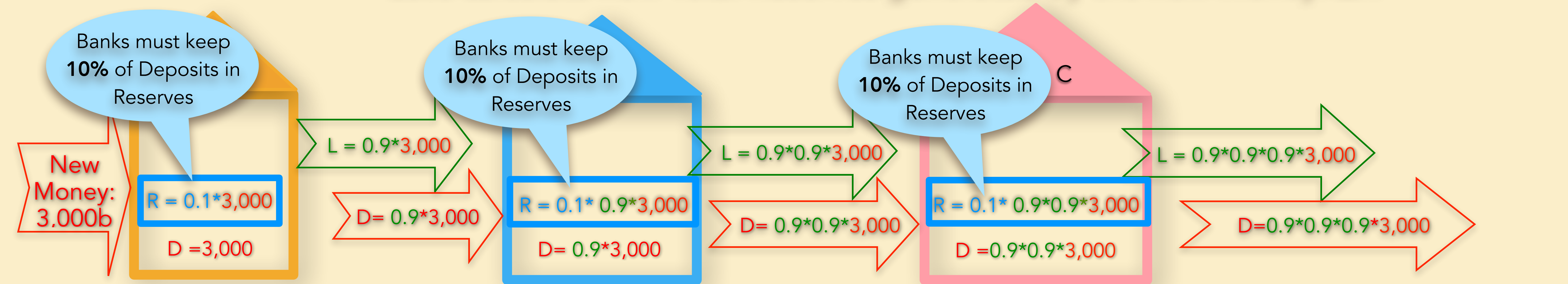
$$D = 0.9 * 3,000,000$$

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

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

+... this process continues for several rounds

Let's calculate now Total **Reserves** generated by the new money: ΔR



Total new Reserves in all banks

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

Factor out $0.1 * 3,000$

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

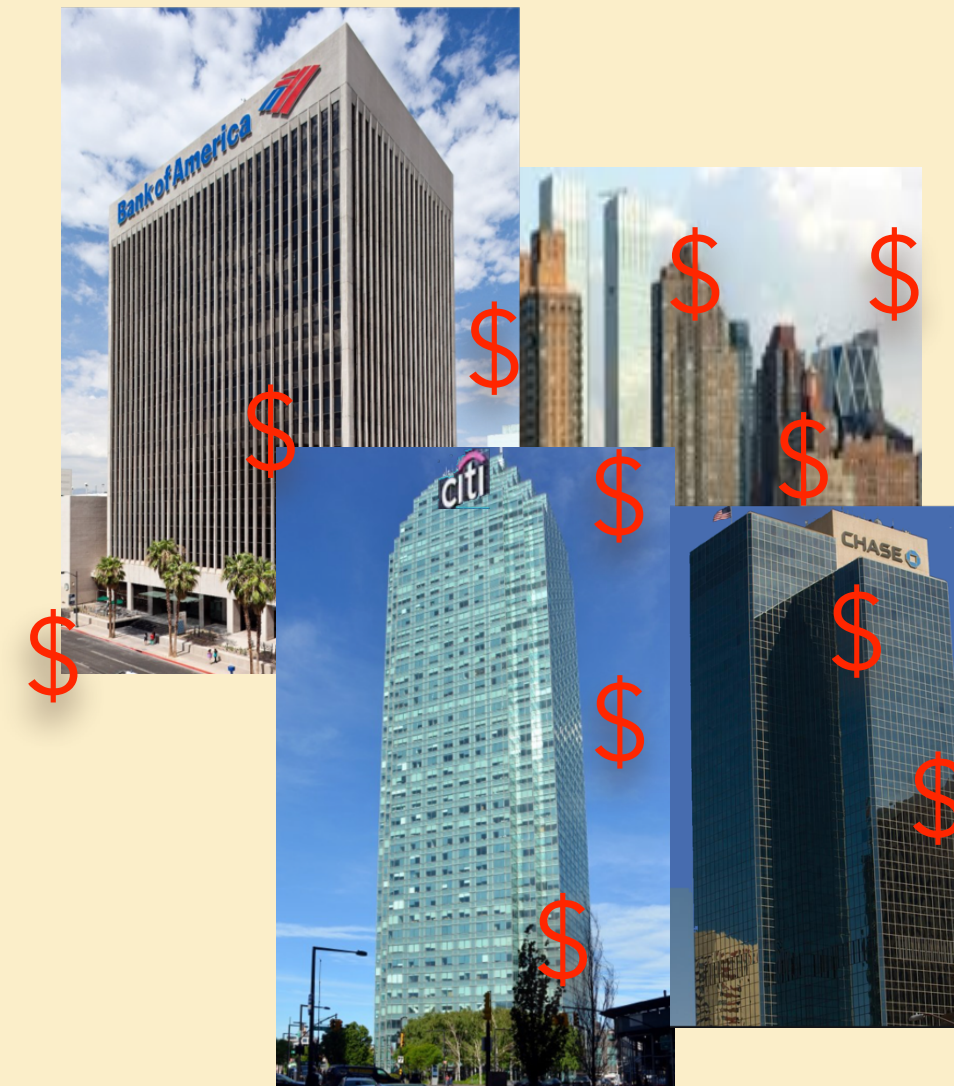
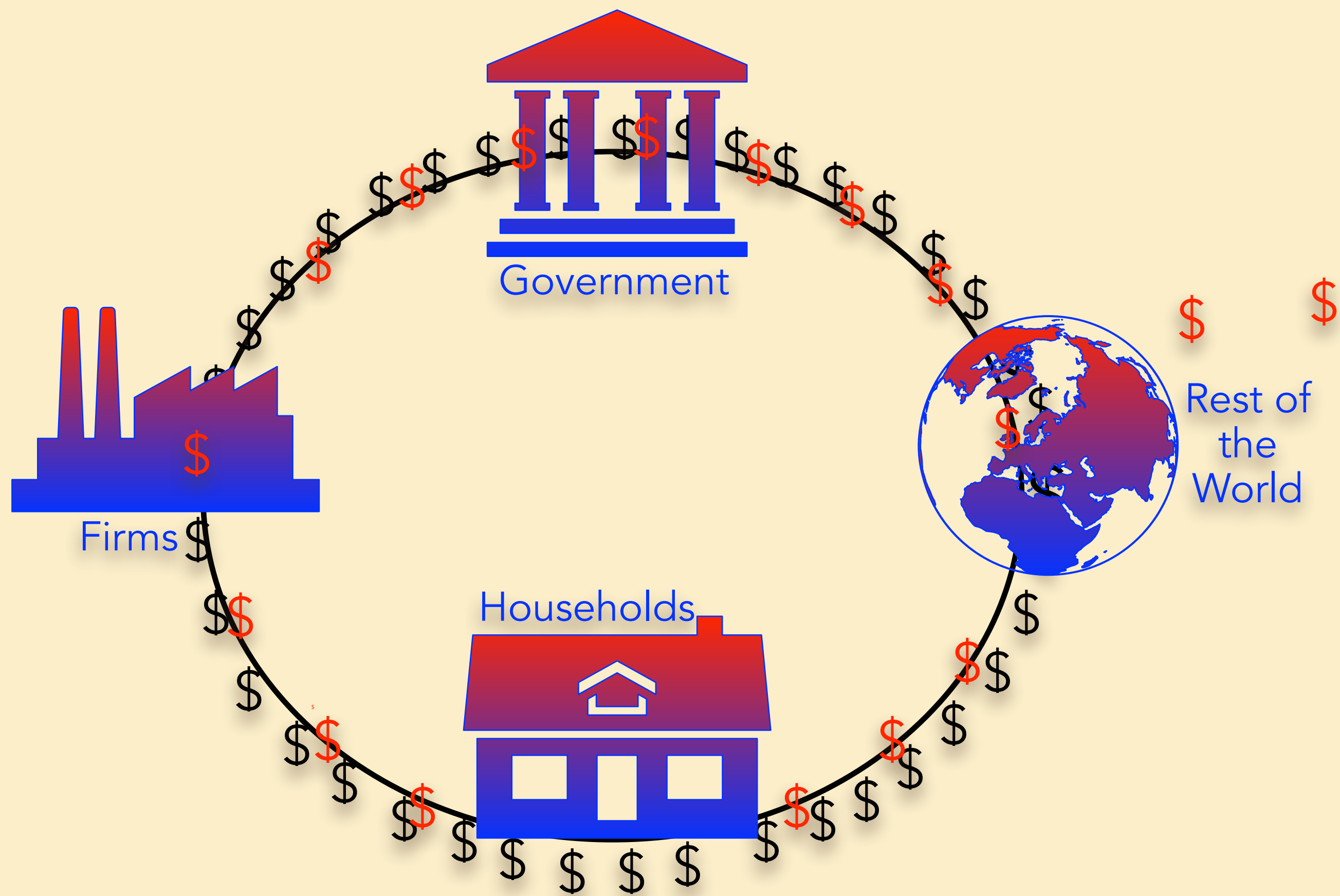
$$\Delta R = 0.1 * 3,000 (1 + 0.9 + 0.9^2 + 0.9^3 + 0.9^4 + 0.9^5 + \dots + 0.9^n)$$

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

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

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

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



The Federal Reserve
Bank creates new money