

ECON 612: MONEY AND BANKING  
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OLD MONEY CREATION\*  
SOLUTIONS AND EXPLANATIONS

COLOR LEGEND

- ⌘ HEADINGS
- ⌘ GIVEN/PREVIOUSLY FOUND INFORMATION
- ⌘ CONCEPTS YOU SHOULD ALREADY KNOW
- ⌘ ANSWER
- ⌘ ANNOTATIONS AND EXTRA EXPLANATIONS

\* A COPY OF THE PROBLEMS IS ATTACHED AT THE END OF THIS DOCUMENT. THERE MAY BE SOME DIFFERENCES BETWEEN THIS VERSION AND THE ONE AVAILABLE ON CANVAS.

## GIVEN INFORMATION

$$rr = 0.25$$

$$E = \$0$$

$$D(A) = \$2,500$$

1 FINDING  $R(A)$  THIS IS THE AMOUNT OF REQUIRED RESERVES BANK A HAS.  
 $R(A) = rrD(A)$  SUBSTITUTE VALUES FROM GIVEN INFORMATION  
 $= 0.25(2500)$

$$R(A) = \$625$$

FINDING  $E(A)$  THIS IS THE AMOUNT OF EXCESS RESERVES BANK A HAS.  
 $E(A) = (1 - rr)D(A)$  SUBSTITUTE VALUES FROM GIVEN INFORMATION  
 $= (1 - 0.25)(2500)$

$$E(A) = \$1,875$$

## 2 GIVEN INFORMATION

$$L(A) = \$1,875$$

### a BALANCE SHEET FOR BANK A

ASSETS	LIABILITIES
$R(A) : \$625$	$D(A) : \$2,500$
$E(A) : \$1,875$	$E : \$1,875$
$L(A) : \$1,875$	

### b GIVEN INFORMATION

$$D(B) = E(A) = L(A)$$

$$D(C) = E(B) = L(B)$$

FINDING  $R(B)$  THIS IS THE AMOUNT OF REQUIRED RESERVES BANK B HAS.

$R(B) = rrD(B)$  SUBSTITUTE VALUES FROM GIVEN INFORMATION AND ANSWERS FROM PART a.  
 $= 0.25(1875)$

$$R(B) = \$468.75$$

FINDING  $E(B)$  THIS IS THE AMOUNT OF EXCESS RESERVES BANK B HAS.

$E(B) = (1 - rr)D(B)$  SUBSTITUTE VALUES FROM GIVEN INFORMATION AND ANSWERS FROM PART a.  
 $= (1 - 0.25)(1875)$

$$E(B) = \$1,406.25$$

### BALANCE SHEET FOR BANK B

ASSETS	LIABILITIES
$R(B) : \$468.75$	$D(B) : \$1,875$
$E(B) : \$1,406.25$	$E : \$1,406.25$
$L(B) : \$1,406.25$	

FINDING  $R(C)$  THIS IS THE AMOUNT OF REQUIRED RESERVES BANK C HAS.

$R(C) = rrD(C)$  SUBSTITUTE VALUES FROM GIVEN INFORMATION AND ANSWERS FROM ABOVE.

$$= 0.25(1406.25)$$

$$= 351.562\ldots$$

$$R(C) \approx \$351.56$$

FINDING  $E(C)$  THIS IS THE AMOUNT OF EXCESS RESERVES BANK C HAS.

$E(C) = (1 - rr)D(C)$  SUBSTITUTE VALUES FROM GIVEN INFORMATION AND ANSWERS FROM ABOVE.

$$= (1 - 0.25)(1406.25)$$

$$= 1054.687\ldots$$

$$E(C) \approx \$1,054.69$$

### BALANCE SHEET FOR BANK C

ASSETS	LIABILITIES
$R(C) : \$351.56$	$D(C) : \$1,406.25$
$E(C) : \$1,054.69$	

c FINDING  $MC(A)$  THIS IS THE AMOUNT OF MONEY CREATED AT BANK A.

$MC(A) = D(A) \cdot \frac{1}{rr}$  SUBSTITUTE VALUES FROM GIVEN INFORMATION

$$= 2500 \left[ \frac{1}{0.25} \right]$$

$$MC(A) = \$10,000$$

FINDING  $MC(B)$  THIS IS THE AMOUNT OF MONEY CREATED AT BANK B.

$MC(B) = D(B) \cdot \frac{1}{rr}$  SUBSTITUTE VALUES FROM GIVEN INFORMATION AND ANSWERS FROM PART a.

$$= 1875 \left[ \frac{1}{0.25} \right]$$

$$MC(B) = \$5,625$$

FINDING  $MC(C)$  THIS IS THE AMOUNT OF MONEY CREATED AT BANK C.

$MC(C) = D(C) \cdot \frac{1}{rr}$  SUBSTITUTE VALUES FROM GIVEN INFORMATION AND ANSWERS FROM PART b.

$$= (1054.687\ldots) \left[ \frac{1}{0.25} \right]$$

$$MC(C) = \$4,218.75$$

### 3 GIVEN INFORMATION

$$rr_1 = 0.40$$

$$E(A) = D(B)$$

FINDING  $E(A)$  THIS IS THE AMOUNT OF EXCESS RESERVES BANK A HAS.

$E(A) = (1 - rr_1)D(A)$  SUBSTITUTE VALUES FROM GIVEN INFORMATION

$$= (1 - 0.40)(2500)$$

$$E(A) = \$1,500$$

FINDING  $E(B)$  THIS IS THE AMOUNT OF EXCESS RESERVES BANK B HAS.

$E(B) = (1 - rr_1)D(B)$  SUBSTITUTE VALUES FROM GIVEN INFORMATION AND ANSWERS FROM ABOVE.

$$= (1 - 0.40)(1500)$$

$$E(B) = \$900$$

### 4 GIVEN INFORMATION

$$rr_2 = 0.20$$

$$E(A) = D(B)$$

$$E(B) = D(C)$$

FINDING  $E(A)$  THIS IS THE AMOUNT OF EXCESS RESERVES BANK A HAS.

$$E(A) = (1 - rr_2) D(A)$$
 SUBSTITUTE VALUES FROM GIVEN INFORMATION

$$= (1 - 0.20)(2500)$$

$$E(A) = \$2,000$$

FINDING  $E(B)$

$$E(B) = (1 - rr_2) D(B)$$
 SUBSTITUTE VALUES FROM GIVEN INFORMATION

$$= (1 - 0.20) E(A)$$
 SUBSTITUTE VALUE FROM ANSWER ABOVE

$$= 0.8(2000)$$

$$E(B) = \$1,600$$

FINDING  $E(C)$

$$E(C) = (1 - rr_2) D(C)$$
 SUBSTITUTE VALUES FROM GIVEN INFORMATION

$$= (1 - 0.20) E(B)$$
 SUBSTITUTE VALUE FROM ANSWER ABOVE

$$= 0.8(1600)$$

$$E(C) = \$1,280$$

## 5 FINDING $MC(1)$

$$MC(1) = D(A) \cdot \frac{1}{rr}$$
 SUBSTITUTE VALUES FROM GIVEN INFORMATION IN PART 1.

$$= 2500 \left[ \frac{1}{0.25} \right]$$

$$MC(1) = \$10,000$$

FINDING  $MC(3)$

$$MC(3) = D(A) \cdot \frac{1}{rr}$$
 SUBSTITUTE VALUES FROM GIVEN INFORMATION IN PART 3.

$$= 2500 \left[ \frac{1}{0.40} \right]$$

$$MC(3) = \$6,250$$

FINDING  $MC(4)$

$$MC(4) = D(A) \cdot \frac{1}{rr}$$
 SUBSTITUTE VALUES FROM GIVEN INFORMATION IN PART 4.

$$= 2500 \left[ \frac{1}{0.20} \right]$$

$$MC(4) = \$12,500$$