

AP[®] MACROECONOMICS
2012 SCORING GUIDELINES

Question 2

5 points (1 + 3 + 1)

(a) 1 point:

- One point is earned for calculating the correct reserve requirement of 10 percent (\$10,000/\$100,000).

(b) 3 points:

- One point is earned for stating that total bank reserves will decrease by \$5,000.
- One point is earned for stating that the \$5,000 withdrawal has no effect on the M1 measure of the money supply because it only changes the composition of M1 between cash and demand deposits.
- One point is earned for stating that the new value of the excess reserves is \$500.

(c) 1 point:

- One point is earned for stating that the bank can borrow from the Federal Reserve or from another bank.

2. The following is a simplified balance sheet for Mi Tierra Bank in the United States.

Mi Tierra Bank			
Assets		Liabilities	
Required reserves	\$10,000	Demand deposits	\$100,000
Excess reserves	\$5,000		
Loans	\$85,000	Owner's equity	\$0

- (a) What is the reserve requirement?
- (b) Assume that Luis withdraws \$5,000 in cash from his checking account at Mi Tierra Bank.
- By how much will Mi Tierra Bank's reserves change based on Luis' withdrawal?
 - What is the initial effect of the withdrawal on the M1 measure of money supply? Explain.
 - As a result of the withdrawal, what is the new value of excess reserves on the balance sheet of Mi Tierra Bank based on the reserve requirement from part (a) ?
- (c) Assume that the next day John withdraws from Mi Tierra Bank an amount that exceeds the bank's excess reserves. Assuming that no loans are called in, how can Mi Tierra Bank cover its required reserves?

A) $\frac{\text{required reserves}}{\text{liabilities}} = \frac{10,000}{100,000} = .1$
 reserve requirement is 10%

B) i) Their reserves will lower by \$5,000

ii) M1 will not change because cash money and checking deposits both make up M1. The money is staying within the M1 measure of money supply.

iii) \$500 their reserves lowered to \$10,000, but their liabilities also declined to \$95,000. So now they only require \$9,500 reserves

C) Mi Terra can cover its required reserves by discounting, or borrowing money from the Federal Reserve. The Fed always lets banks borrow from them in case they don't have enough to cover their required reserves.

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Required reserves	\$10,000	Demand deposits	\$100,000
Excess reserves	\$5,000		
Loans	\$85,000	Owner's equity	\$0

- (a) What is the reserve requirement?
- (b) Assume that Luis withdraws \$5,000 in cash from his checking account at Mi Tierra Bank.
 - (i) By how much will Mi Tierra Bank's reserves change based on Luis' withdrawal?
 - (ii) What is the initial effect of the withdrawal on the M1 measure of money supply? Explain.
 - (iii) As a result of the withdrawal, what is the new value of excess reserves on the balance sheet of Mi Tierra Bank based on the reserve requirement from part (a) ?
- (c) Assume that the next day John withdraws from Mi Tierra Bank an amount that exceeds the bank's excess reserves. Assuming that no loans are called in, how can Mi Tierra Bank cover its required reserves?

2. a) The reserve requirement is 10%.

b) i) The reserves of Mi Tierra Bank will decrease by \$5,000

ii) The initial effect is that the supply of money decreases by \$5,000, because the bank can no longer loan it out.

iii) The new value of excess reserves is \$0.

c) Mi Tierra Bank can cover its required reserves by taking a loan from another bank for the amount that John withdrew.

2. The following is a simplified balance sheet for Mi Tierra Bank in the United States.

Mi Tierra Bank			
Assets		Liabilities	
Required reserves	\$10,000	Demand deposits	\$100,000
Excess reserves	\$5,000		
Loans	\$85,000	Owner's equity	\$ 0

- (a) What is the reserve requirement?
- (b) Assume that Luis withdraws \$5,000 in cash from his checking account at Mi Tierra Bank.
 - (i) By how much will Mi Tierra Bank's reserves change based on Luis' withdrawal?
 - (ii) What is the initial effect of the withdrawal on the M1 measure of money supply? Explain.
 - (iii) As a result of the withdrawal, what is the new value of excess reserves on the balance sheet of Mi Tierra Bank based on the reserve requirement from part (a) ?
- (c) Assume that the next day John withdraws from Mi Tierra Bank an amount that exceeds the bank's excess reserves. Assuming that no loans are called in, how can Mi Tierra Bank cover its required reserves?

2. a) .081 8%

b) 100,000 i) They will change by \$5,000

$\begin{array}{r} 100,000 \\ - 5,000 \\ \hline 95,000 \end{array}$ ii) The initial effect is that the bank will lose M1 money supply because it is inherently being
 $\begin{array}{r} 95,000 \\ + 5,000 \\ \hline 100,000 \end{array}$ money.

iii) The new value of excess reserves due to the withdrawal is \$4,800

$\begin{array}{r} 100,000 \\ \times .08 \\ \hline 14,400.00 \\ \hline 14,400 \\ \quad 3 \\ \quad 4800 \\ \hline 3 \overline{) 14400} \\ \underline{12} \\ 24 \end{array}$

2C 2 of 2

Additional answer page for Question 2.

e. Mi Tierra bank can cover its required reserves by buying bonds from the government.

GO ON TO THE NEXT PAGE.

**AP[®] MACROECONOMICS
2012 SCORING COMMENTARY**

Question 2

Overview

Part (a) asked students to use the balance sheet of a bank to find the reserve requirement. Part (b) tested their ability to identify the effect of a cash withdrawal on bank reserves, explain the effect of the cash withdrawal on the money supply, and identify the effect of the cash withdrawal on excess reserves. Part (c) asked students to identify how a bank with deficient reserves could meet its reserve requirements.

Sample: 2A

Score: 5

The student answers all parts of the question correctly and so earned all 5 points.

Sample: 2B

Score: 3

The student received 1 point in part (a) for correctly calculating the reserve requirement as 10 percent, 1 point in part (b) for stating that the “reserves ... will decrease by \$5,000,” and 1 point in part (c) for stating that the bank can borrow from another bank.

Sample: 2C

Score: 1

In part (b) the student earned 1 point for correctly stating that the reserves will decrease by \$5,000.