# THE CASE OF THE GIGANTIC $100,000 BILL

# COMPELLING QUESTION

**How do loans made
by depository institutions (banks)
affect the size of the money supply?**

# OBJECTIVES

**Students will be able to:**

**Demonstrate how successive deposits and loans by depository institutions cause the money supply to expand.**

**Calculate the simple money multiplier when a required reserve ratio is provided.**

**Explain that money is created when banks make loans and destroyed when loans are repaid.**

# WHO DO YOU THINK CREATES MONEY?

**We're going to explore the process by which depository institutions create money.**

# ON THE WALL …

… is our gigantic $100,000 bill.

# MORE ON THE $100,000 BILL

**The highest denomination note printed in the United States today is the $100 bill, but in the first half of the 20th century, there were larger denomination notes issued. The largest ever were the $100,000 Series 1934 Gold Certificates, which were issued only to Federal Reserve Banks and were used only for official transactions between Federal Reserve Banks.**

# QUICK REVIEW

What's the money supply?

The total amount of money available in the economy to purchase goods and services.

What's M1 include?

Coins and paper currency, all deposits in banks and savings institutions on which checks can be written, and traveler's checks.

(For our purposes today, we will assume that the money supply is limited to total checkable deposits at depository institutions and all currency in circulation.)

# AND A REMINDER

When people deposit money in a bank, savings institution or credit union, the depository institution holds some of the deposited money as reserves and lends the rest of it. Depository institutions earn revenue by charging a higher rate of interest on the loans they make than the rate they pay to customers on deposited money.

# WHAT ARE RESERVE REQUIREMENTS?

The Federal Reserve requires banks to hold a percentage of their transaction account balances as reserves – not loan them out.

REQUIRED RESERVES are that portion of a bank's reserves retained to meet Federal Reserve requirements.

EXCESS RESERVES are that portion of a bank's reserves in excess of that amount.

# MORE ON RESERVE REQUIREMENTS?

The highest reserve requirement
in the United States is 10 percent.
In this lesson, we will have
a 20 percent required reserve ratio.

# LOGISTICS

**VOLUNTEERS:**

**Keeper of the Money Supply.**

**Five bankers.**

**Four borrowers.**

**EVERYONE NEEDS:**

**Activity 22.2, on which you will record deposits, required reserves, and excess reserves for each bank during each round of the activity.**

# BACK TO THE $100,000 BILL

While $100,000 gold certificates never circulated publicly in the U.S., we are going to assume that gigantic $100,000 bills are in circulation.

The Keeper of the Money Supply found this gigantic $100,000 bill under the floorboards at home. Is this $100,000 bill already counted as part of M1? Why or why not?

Yes. M1 includes all currency in the hands of the public.

# THE KEEPER OF THE MONEY SUPPLY'S ROLE

The Keeper is going to use the space in back to keep track of the expansion of M1 by tracing the outline of the paper currency during each round of the activity.

The Keeper should now trace around the gigantic $100,000 bill on the back board. The tracing should start on the left.

# LET'S MAKE A DEPOSIT!

**The Keeper should deposit the gigantic $100,000 bill into Bank A.**

**Banker A should take the $100,000 bill from the Keeper and record the $100,000 deposit on Activity 22.2 (as should all of you).**

# QUESTIONS

Now that the $100,000 has been deposited into the Keeper's checking account at Bank A, has M1 changed? Why or why not?

No. The $100,000 used to be currency.
Now it is in a checking account.
Both are part of M1.

# MORE QUESTIONS

**Given that $100,000 has just been deposited into Bank A, by how much have Bank A's required reserves increased?**

**$100,000 x 20% = $20,000**

**By how much have Bank A's excess reserves increased?**

**$100,000 - $20,000 = $80,000**

# AND MORE QUESTIONS

What percentage of the gigantic $100,000 bill should be cut off to be kept at Bank A as required reserves?

20 percent. Banker A, go ahead and cut the required reserves off the gigantic $100,000 bill.

# WHAT WILL BANK A DO NOW?

What will Bank A do now?

Lend $80,000.

Keeper, how much money do you have in your checking account at Bank A?

$100,000.

Borrower 1, how much money do you have in paper currency, which you just borrowed from Bank A?

$80,000.

By how much has the money supply increased?

$80,000.

# SOME RECORD KEEPING

Borrower 1, let the Keeper of the Money Supply trace the newly created $80,000 adjacent to the tracing of the original $100,000.

Everyone, record the $80,000 increase in the money supply on Activity 22.2.

# WHAT DID BORROWER 1 DO?

Borrower 1, why did you need $80,000?

Now you need to deposit $80,000
in the account of the business or person
you bought from.

Borrower 1, give Banker B the $80,000.

# QUESTIONS

**By how much have Bank B's required reserves increased?**

**$80,000 x 20% = $16,000**

**By how much have Bank B's excess reserves increased?**

**$80,000 - $16,000 = $64,000**

# AND MORE QUESTIONS

What percentage of the remaining $80,000 should be cut off to be kept at Bank B as required reserves?

20 percent. Banker B, go ahead and cut the required reserves off.

# WHAT WILL BANK B DO NOW?

What will Bank B do now?

Lend $64,000.

Borrower 2, come request a $64,000 loan from Banker B.

Banker B, give Borrower 2 the larger part of the bill and hang on to your reserve requirement portion. What just happened?

Money was created.

By how much has the money supply increased?

$64,000.

# SOME RECORD KEEPING

**Borrower 2, let the Keeper of the Money Supply trace the newly created $64,000 adjacent to the previous.**

**Everyone, record the $64,000 increase in the money supply on Activity 22.2.**

# WHAT DID BORROWER 2 DO?

Borrower 2, why did you need $64,000?

Now you need to deposit $64,000
in the account of the business or person
you bought from.

Borrower 2, give Banker C the $64,000.

# QUESTIONS

**By how much have Bank C's required reserves increased?**

**$64,000 x 20% = $12,800**

**By how much have Bank C's excess reserves increased?**

**$64,000 - $12,800 = $51,200**

# AND MORE QUESTIONS

What percentage of the remaining $64,000 should be cut off to be kept at Bank C as required reserves?

20 percent. Banker C, go ahead and cut the required reserves off.

# WHAT WILL BANK C DO NOW?

What will Bank C do now?

Lend $51,200.

Borrower 3, come request a $51,200 loan from Banker C.

Banker C, give Borrower 3 the larger part of the bill and hang on to your reserve requirement portion. What just happened?

Money was created.

By how much has the money supply increased?

$51,200.

# AND SO ON

Go ahead and complete the chart.

# SO WHO CREATES MONEY?

Money is created when banks make loans. The process of successive loans and deposits is called the money creation process.

# THE MONEY MULTIPLIER

The simple money multiplier is the amount that an initial $1 increase in excess reserves will eventually add to the money supply if banks lend all their excess reserves and all the borrowed money is subsequently deposited back into a depository institution or institutions.

The simple money multiplier can be found by dividing the required reserve ratio into 1.

# THE MONEY MULTIPLIER

So, in equation form:

Money multiplier = 1/(required reserve ratio)