Robert Ackerman

- rkackerm@live.unc.edu
- Office Hours: 2:00-3:00PM T/Th
- Office: PA202
- November 25, 2013
Today

• Office hours cancelled tomorrow
• Last recitation plan
• Scheduling review sessions
• Money & commercial banks
Last recitation plan

- Our next recitation (Dec 2) will be our last
- Option A: Cover material from the final two lectures.
- Option B: Practice final review.
Review session scheduling

• Your final is Thursday Dec 12th at Noon.
• Professor Conway is holding a review session Dec 11th 7:00-9:00 PM.
• I am planning to hold at least one review session, possibly two.
• Dec 9th/10th: 5:00-7:00 PM
  6:00-8:00 PM
  7:00-9:00 PM
Money and commercial banks

Commodity money: an object in use as a medium of exchange that also has substantial value in alternative uses.

Fiat money: money that is decreed as such by the government. It has little value as a commodity.
Money and commercial banks

M1: currency in circulation plus balances held in checking accounts.

M2: all the components in M1 plus saving deposits, small time deposits and mutual fund deposits.
Money and commercial banks

“The main difference between M1 and M2 is that all money within M1 can be used directly as a medium of exchange, whereas some types of money with M2 cannot.
M1 November 11, 2013

- Currency: 45%
- Commercial Bank Checking Deposits: 38%
- Other Checkable Deposits: 18%
Money and commercial banks

Commercial bank: firm that extends credit to borrowers using funds raised from savers.

Asset: any item of value that one owns

Liability: a debt that one owes.

Net Worth: the value of a firm to its owners
Balance sheet example
Harvey finds $100 in an old pair of pants and decides to deposit it in his bank, Bank A.
Balance sheet example

Bank A

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities and Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans:</td>
<td>Deposits: $100</td>
</tr>
<tr>
<td>Required Reserves:</td>
<td></td>
</tr>
<tr>
<td>Excess Reserves:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Economics 101
Balance sheet example
The required reserves ratio is 20%.
## Balance sheet example

<table>
<thead>
<tr>
<th>Bank A</th>
<th>Liabilities and Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Deposits: $100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities and Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans: Required Reserves: $20</td>
<td></td>
</tr>
<tr>
<td>Excess Reserves: $80</td>
<td></td>
</tr>
</tbody>
</table>
Balance sheet example
Typically, banks don’t want to have excess reserves. Bank A, loans out this excess amount to George.
## Balance sheet example

### Assets

- Loans: $80
- Required Reserves: $20
- Excess Reserves: $0

### Liabilities and Net Worth

- Deposits: $100
Balance sheet example

Now, Harvey has $100 in a checking account and George has $80 in cash from the bank.

Remember our definition of M1.

How much “money” was there before Harvey deposited his money?

How much is there after George takes out his loan?
Balance sheet example

Start: Harvey $100 cash
      Total: $100

Now: Harvey $100 checking account
     George $80 cash
     Total: $180
Balance sheet example
Now imagine George takes his $80 and deposits it in his bank, Bank B.
## Balance sheet example

<table>
<thead>
<tr>
<th>Assets</th>
<th>Bank B</th>
<th>Liabilities and Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans:</td>
<td></td>
<td>Deposits: $80</td>
</tr>
<tr>
<td>Required Reserves:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess Reserves:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required Reserves:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Balance sheet example
Just like Bank A, Bank B faces a required reserves ratio of 20%.
## Balance sheet example

<table>
<thead>
<tr>
<th>Bank B</th>
<th>Liabilities and Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td><strong>Deposits:</strong> $80</td>
</tr>
<tr>
<td>Loans: Required Reserves: $16</td>
<td></td>
</tr>
<tr>
<td>Excess Reserves: $64</td>
<td></td>
</tr>
</tbody>
</table>
Balance sheet example
Bank B also turns around and loans the excess reserves to someone, in this case Clarence.
## Balance sheet example

<table>
<thead>
<tr>
<th>Bank B</th>
<th>Liabilities and Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td><strong>Deposits</strong>: $80</td>
</tr>
<tr>
<td>Loans:</td>
<td>$64</td>
</tr>
<tr>
<td>Required Reserves:</td>
<td>$16</td>
</tr>
<tr>
<td>Excess Reserves:</td>
<td></td>
</tr>
</tbody>
</table>
Balance sheet example
Now, how much is there after Clarence takes out his loan?
Balance sheet example

Now:    Harvey    $100  checking account
               George    $80  checking account
               Clarence  $64   cash
  Total:    $244
Balance sheet example
If we keep going, the total amount of money created by Harvey’s initial $100 will be $500.

So the money supply created is:

$500 - $100 = $400
Balance sheet example
Now, let’s consider an alternate source of liability for our banks: the Federal Reserve.

Imagine the Federal Reserve wants to increase investment by lending $10 to Bank A.
## Balance sheet example

<table>
<thead>
<tr>
<th>Assets</th>
<th>Bank A</th>
<th>Liabilities and Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans:</td>
<td></td>
<td>Deposits:</td>
</tr>
<tr>
<td>Required</td>
<td></td>
<td>Fed Borrowing: $10</td>
</tr>
<tr>
<td>Reserves:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserves:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Balance sheet example

**Bank A**

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities and Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans:</td>
<td>Deposits:</td>
</tr>
<tr>
<td>Required Reserves: $2</td>
<td>Fed Borrowing: $10</td>
</tr>
<tr>
<td>Excess Reserves: $8</td>
<td></td>
</tr>
</tbody>
</table>

**Assets**
- Loans: $2 (Required) + $8 (Excess) = $10
- Fed Borrowing: $10

**Liabilities**
- Deposits: $10
Balance sheet example
Again, Bank A doesn’t want the excess reserves so they loan them out.
## Balance sheet example

<table>
<thead>
<tr>
<th>Assets</th>
<th>Bank A</th>
<th>Liabilities and Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans: $8</td>
<td></td>
<td>Deposits: $10</td>
</tr>
<tr>
<td>Required Required Reserves: $2</td>
<td></td>
<td>Fed Borrowing: $10</td>
</tr>
<tr>
<td>Excess Reserves: $2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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Balance sheet example
And, just like our previous example this money flows through the economy in the same way, yielding a $50 increase in the money supply.

Q: Why might this not work?

Q: If it does work, what are the drawbacks?
Balance sheet example
And, just like our previous example this money flows through the economy in the same way, yielding a $50 increase in the money supply.

This gives us a familiar concept, in a new setting: the money multiplier.

Money multiplier = 1/M
Where, M = required reserve ratio (0.2)

1/0.2 = 5 = $50/$10
Balance sheet example

Q: Why might this not work?

Q: If it does work, what are the drawbacks?
Balance sheet example

Q: Why might this not work?

1. Each person might not deposit all of the cash they receive.
2. Banks might hold more than the required reserves.
Balance sheet example

Q: If it does work, what are the drawbacks?

Inflation.
Q: Why might this not work?

1. Each person might not deposit all of the cash they receive.
2. Banks might hold more than the required reserves.