Too Much Tuesday, February 26
Whoah Wednesday, February 27

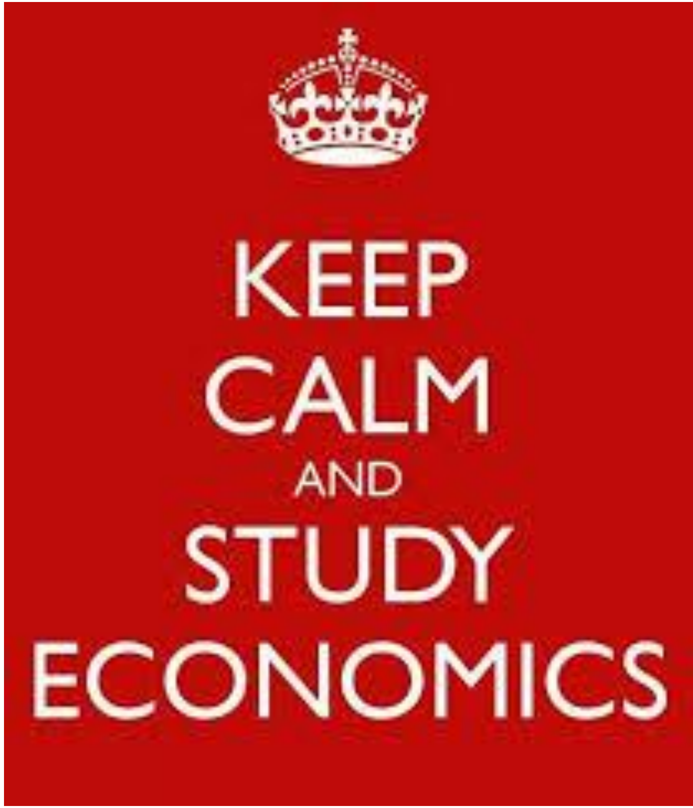
Warm up: Create an index card that contains information about fractional reserve banking and the money multiplier.

Learning target: I can use bank balance sheets to show the effects of deposits, OMO, and the money multiplier work through the magic of fractional reserve banking.

Expect a quiz at the end of this week! Expect a unit 4 test around March 11 and 12.

Test corrections due today!

Tutoring is every Tuesday and Thursday in this room! There are busses!



Who thought this unit could be so much fun?!

Welcome to Fun Set 4.4

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Fractional Reserve Banking

When banks hold only a small portion of deposits to cover potential withdrawals and then loans the rest of the money out.

2009B Practice FRQ

In Country Z, the required reserve ratio is 10 percent. Assume that the central bank sells $50 million in government securities on the open market.

(a) Calculate each of the following.

  (i) The total change in reserves in the banking system

  (ii) The maximum possible change in the money supply

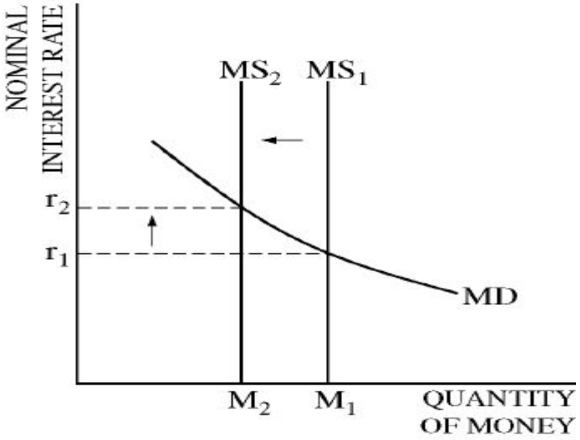
(b) Using a correctly labeled graph of the money market, show the impact of the central bank's bond sale on the nominal interest rate.

(c) What is the impact of the central bank's bond sale on the equilibrium price level in the short run?

(d) As a result of the price level change in part (c), are people with fixed incomes better off, worse off, or unaffected? Explain.

(a) 2 points:

- One point is earned for determining the total change in reserves: $50 million.
- One point is earned for calculating the maximum possible change in the money supply: $10 \times \$50 = \$500$ million.



(b) 2 points:

- One point is earned for a correctly labeled graph of the money market.
- One point is earned for showing a leftward shift of the money supply curve and an increase in the nominal interest rate.

(c) 1 point:

- One point is earned for concluding that the equilibrium price level will fall.

(d) 2 points:

- One point is earned for concluding that people with a fixed income would be better off.
- One point is earned for explaining that the lower price level raises real income or increases the purchasing power of the fixed income.

3. Assume that the reserve requirement is 20 percent and banks hold no excess reserves.

   (a) Assume that Kim deposits $100 of cash from her pocket into her checking account. Calculate each of the following.

      (i) The maximum dollar amount the commercial bank can initially lend

      (ii) The maximum total change in demand deposits in the banking system

      (iii) The maximum change in the money supply

   (b) Assume that the Federal Reserve buys $5 million in government bonds on the open market. As a result of the open market purchase, calculate the maximum increase in the money supply in the banking system.

   (c) Given the increase in the money supply in part (b), what happens to real wages in the short run? Explain.

So, the change in demand deposits in the banking system. Demand deposit is the amount deposited into a bank and payable back to the customer upon demand. The whole $100 is owed to Kim.

Excess reserves x money multiplier = max. change in loans

$80 x 5 = $400

Max. change in loans + original deposit = max. change in demand deposits

$400 + $100 = $500

So, $100 is deposited which makes demand deposits increase by $100 and then money creation happens within the banking system.

6 points (3 + 1 + 2)

(a) 3 points:

- One point is earned for stating that the maximum dollar amount the bank can initially lend is $80.
- One point is earned for stating that the maximum change in demand deposits is $500.
- One point is earned for stating that the maximum change in the money supply is $400.

(b) 1 point:

- One point is earned for stating that the Federal Reserve's action will increase the money supply by at most $25 million.

(c) 2 points:

- One point is earned for stating that the real wages will fall.
- One point is earned for explaining that real wages fall because the Federal Reserve's action causes inflation.

2. Assume that an economy is in long-run equilibrium. Assume that consumers wish to hold less money because they use credit cards more frequently to purchase goods and services than cash.

    (a) Draw a correctly labeled graph of the money market and show the effect of the reduced holdings of money on the equilibrium nominal interest rate in the short run.

    (b) Based on the change in the interest rate in part (a), what will happen to each of the following in the short run?

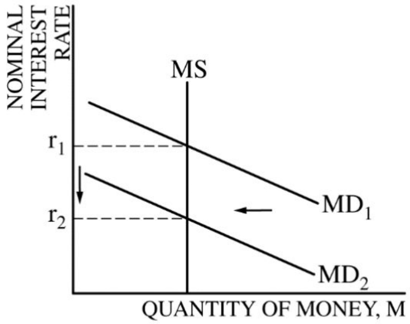
        (i) Prices of previously issued bonds

        (ii) The price level and real income. Explain.

    (c) With a constant money supply, based on your answer to part b(ii), will the velocity of money increase, decrease, or remain the same, or is the change indeterminate?

    (d) If the central bank wishes to reverse the change in the interest rate identified in part (a), what open market operation would it use?

6 points (2 + 2 +1 + 1)



(a) 2 points:

- One point is earned for drawing a correctly labeled graph of the money market.
- One point is earned for showing a leftward shift in the money demand curve, resulting in a lower nominal interest rate.

(b) 2 points:

- One point is earned for stating that the price of previously issued bonds will increase.
- One point is earned for stating that both the price level and real income will increase and for explaining that the lower interest rate will increase consumption, investment, and/or net exports (interest-sensitive spending), which increases aggregate demand.

(c) 1 point:

- One point is earned for stating that the velocity of money will increase.

(d) 1 point:

- One point is earned for stating that the central bank would sell bonds.

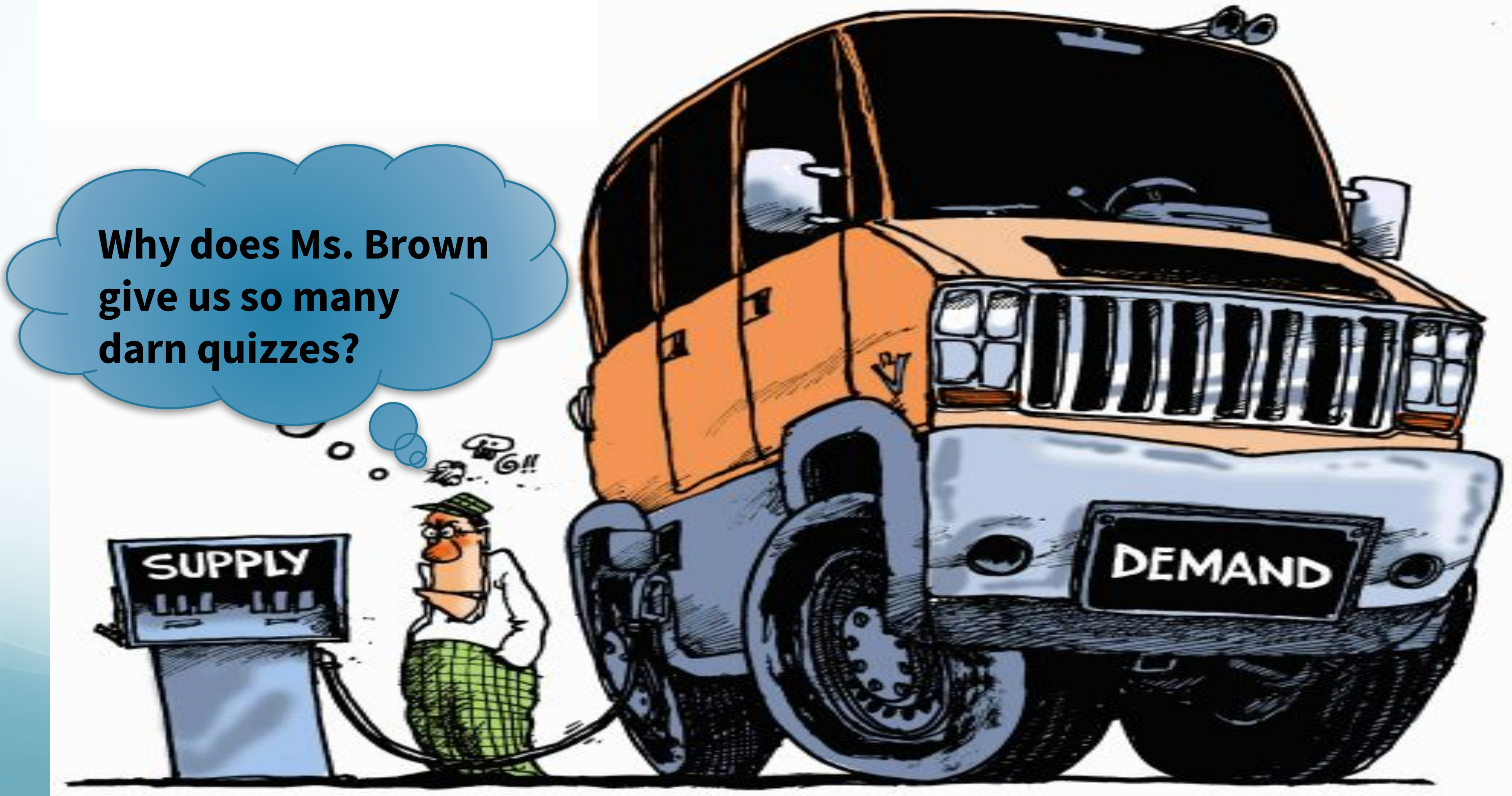
Thrill-a-minute Thursday, February 28
You are loved Friday, March 1

Warm up: Quiz your neighbor on the index cards we have created recently.

Learning target: I can use bank balance sheets to show the effects of deposits, OMO, and the money multiplier work through the magic of fractional reserve banking.

Expect a unit 4 test around March 11 and 12.

HW4-4 due NOW!


Why does Ms. Brown give us so many darn quizzes?
SUPPLY
DEMAND

Bank Balance Sheets

<u>Balance Sheet</u>- A record of a bank's assets, liabilities, and net worth (AKA retained earnings, owners' equity).

- **<u>Assets-</u> Anything tangible or intangible that is owned.**
- **<u>Liability-</u> Anything that is owed.**
- **<u>Loan</u>- An agreement between a lender and a borrower, usually at a fee called the <u>interest rate</u>.**

A loan is an asset for the lender and a liability for the borrower.

Bank Balance Sheets

<u>Demand Deposits-</u> Money deposited in a commercial bank in a checking account.

<u>Required Reserves-</u> The percentage of deposits that banks must hold by law.

<u>Excess Reserves-</u> The amount of excess reserves that banks can loan out.

Are demand deposits in a bank an asset or a liability?

Liability for the bank, asset to the depositor.

Bank Balance Sheets

Assets		Liabilities & Equity	
Loans	$8,000	Demand Deposits	$5,000
Reserves	$500	Owner's Equity	$5,000
Treasury Bonds	$1,500		
Total Assets	**$10,000**	**Total Liabilities & Equity**	**$10,000**

It is "balanced" because the total assets must equal total liabilities & equity.

If the bank is holding no excess reserves, how much is the required reserve ratio?

.1 or 10%

TIME TO PRACTICE

Bank Balance Sheets

Assets		Liabilities & Equity	
Req. Reserves	$2,000	Demand Deposits	$20,000
Excess Reserves	$3,000	Owner's Equity	$5,000
Treasury Bonds	$5,000		
Loans	$15,000		

If Bob deposits $1000 into this bank:

1. **What is the required reserve ratio?**
2. **Will M1 money supply initially ↑, ↓, stay same?**
3. **How much is the required reserves?**
4. **How much is the excess reserves?**
5. **How much more can the bank initially lend out?**
6. **Maximum change in money supply from deposit?**