Principles of Economics II (Spring 2013)
Homework #4
(Chapter 29-30, due on May 10, 2013, submitted out of class)

Note: All textbook problem numbers refer to "Problems and Application" part in corresponding chapter, the 6th Chinese/U.S. edition of the textbook.

For Chapter 29

1. 正确还是错误？并解释之：张三在某餐馆吃饭后，获得该餐馆 50 元的赠券，可以在未来一定期限内抵扣在该餐馆用餐的相应金额的现金花费，且该赠券可以转让给其他人。这些赠券是一种货币。

   错误。这些餐券是餐馆开出的承诺未来进行"实物支付"的一种"欠条"。虽然可以转让给其他人，但由于它不能够用于购买其他的物品和服务（而只是该餐馆的物品和服务），因此不能作为货币。

2. 一家超市将一个定价为 100 元的商品调价为 120 元，但消费者每买一个该商品可获得该商场 20 元的返券。该返券可以在该超市购买任何商品，且可以转让。商场这一行为导致的后果是：

A. 经济中的货币总量上升，价格水平上升，消费者和超市都变得更富有
B. 经济中的货币总量不变，价格水平不变，消费者和超市都没有变得更富有
C. 经济中的货币总量上升，价格水平上升，消费者和超市都没有变得更富有
D. 经济中的货币总量不变，价格水平不变，消费者和超市其中一个变得更富有，另一个变得更不富有。

Answer: C

3. Textbook, Chapter 29, # 5

（提示：自学教材相应部分。）

5. a.

Happy Bank			
Assets		**Liabilities**	
Reserves	$100	Deposits	$800
Loans	$900	Bank Capital	$200

b. The leverage ratio = $1,000/$200 = 5.

c.

Happy Bank			
Assets		**Liabilities**	
Reserves	$100	Deposits	$800
Loans	$810	Bank Capital	$110

d. Assets decline by 9%. Bank capital declines by 45%. Bank capital is smaller than assets.

4. Textbook, Chapter 29, #8

8. a. If the required reserve ratio is 5%, then First National Bank's required reserves are $500,000 × 0.05 = $25,000. Because the bank's total reserves are $100,000, it has excess reserves of $75,000.

b. With a required reserve ratio of 5%, the money multiplier is 1/0.05 = 20. If First National Bank lends out its excess reserves of $75,000, the money supply will eventually increase by $75,000 × 20 = $1,500,000.

5. Textbook, Chapter 29, #10

10. a. With banks holding only required reserves of 10%, the money multiplier is 1/0.10 = 10. Because reserves are $100 billion, the money supply is 10 × $100 billion = $1,000 billion.

b. If the required reserve ratio is raised to 20%, the money multiplier declines to 1/0.20 = 5. With reserves of $100 billion, the money supply would decline to $500 billion, a decline of $500 billion. Reserves would be unchanged.

6. If the public decides to hold more currency and less money as deposits in banks, bank reserves
   a. increase and the money supply eventually increases.
   b. increase but the money supply does not change.
   c. decrease and the money supply eventually decreases.
   d. decrease but the money supply does not change.
   Answer: c

7. The economy of Elmendyn contains 2,000 $1 bills.

a. If people hold all money as currency, what is the quantity of money as measured by M0, M1 and M2? (Hint: M0 includes only currency, while M1 includes M0 and demand deposits, and M2 includes M1 and time deposits.)
M0=M1=M2=2,000.

b. If people hold all money as demand deposits and banks maintain 100 percent reserves, what is the quantity of money as measured by M0, M1 and M2?
M0=0, M1=M2=2,000.

c. If people hold equal amounts of currency and demand deposits and banks maintain 100 percent reserves, what is the quantity of money as measured by M0, M1 and M2?
M0=1000, M1=M2=2000.

d. If people hold all money as demand deposits and banks maintain a reserve ratio of 10 percent, what is the quantity of money as measured by M0, M1 and M2?
M0=0, M1=2,000/0.1=20,000=M2.

e. If people hold equal amounts of currency and demand deposits and banks maintain a reserve ratio of 10 percent, what is the quantity of money as measured by M0, M1 and M2? (2 point)

Suppose (in equilibrium) people hold $ x of currency and $$x$ of demand deposits.

The bank's T-account is:

Assets	Liabilities
Reserves \$0.1x Loans \$0.9x	Demand Deposits \$$x$

The amount of reserves plus the amount of currencies equals to money issued by central bank, i.e.: $0.1x+x=2{,}000$, or $x=2{,}000/1.1=1818$.

Then: M0=1818, M1=3636=M2.

f. If people hold equal amounts of currency, demand deposits, and time deposits, and banks maintain a reserve ratio of 100 percent, what is the quantity of money as measured by M0, M1 and M2?

M0=2000/3=667, M1=M0+2000*/3=1333, M2=2,000.

g. If people hold equal amounts of currency, demand deposits, and time deposits, and banks maintain a reserve ratio of 10 percent for all the deposits, what is the quantity of money as measured by M0, M1 and M2?

Suppose (in equilibrium) people hold \$$x$ of currency, \$$x$ of demand deposits and \$$x$ of time deposits.

The bank's T-account is:

Assets	Liabilities
Reserves \$0.1*2x=0.2x Loans \$1.8x	Demand Deposits \$$x$ Time Deposits \$$x$

The amount of reserves plus the amount of currencies equals to money issued by central bank, i.e.: $0.2x+x=2{,}000$, or $x=2{,}000/1.2=1667$.

Then: M0=1667, M1=2M0=3333, M2=3M0=5000.

h. If people hold amounts of currency, demand deposits, and time deposits with a ratio of 1: 3: 6, and banks maintain a reserve ratio of 10 percent for demand deposits, and a reserve of 5 percent for time deposits, what is the quantity of money as measured by M0, M1 and M2?

Suppose (in equilibrium) people hold \$$x$ of currency, \$3x of demand deposits and \$6x of time deposits.

The bank's T-account is:

Assets	Liabilities
Reserves \$0.1*3x+0.05*6x=0.6x Loans \$8.4x	Demand Deposits \$3x Time Deposits \$6x

The amount of reserves plus the amount of currencies equals to money issued by central bank, i.e.: $0.6x+x=2{,}000$, or $x=2{,}000/1.6=1250$.

Then: M0=1250, M1=4M0=5000, M2=10M0=12500.

For Chapter 30

8. Textbook, Chapter 30, #1

   a. Nominal GDP = $P \times Y$ = \$10,000 and Y = real GDP = \$5,000, so $P = (P \times Y)/Y$ = \$10,000/\$5,000 = 2.

Because $M \times V = P \times Y$, then $V = (P \times Y)/M = \$10{,}000/\$500 = 20$.

b. If M and V are unchanged and Y rises by 5%, then because $M \times V = P \times Y$, P must fall by 5%. As a result, nominal GDP is unchanged.

c. To keep the price level stable, the Fed must increase the money supply by 5%, matching the increase in real GDP. Then, because velocity is unchanged, the price level will be stable.

d. If the Fed wants inflation to be 10%, it will need to increase the money supply 15%. Thus $M \times V$ will rise 15%, causing $P \times Y$ to rise 15%, with a 10% increase in prices and a 5% rise in real GDP.

9. Textbook, Chapter 30, #2

2. a. If people need to hold less cash, the demand for money shifts to the left, because there will be less money demanded at any price level.

b. If the Fed does not respond to this event, the shift to the left of the demand for money combined with no change in the supply of money leads to a decline in the value of money (1/P), which means the price level rises, as shown in Figure 1.

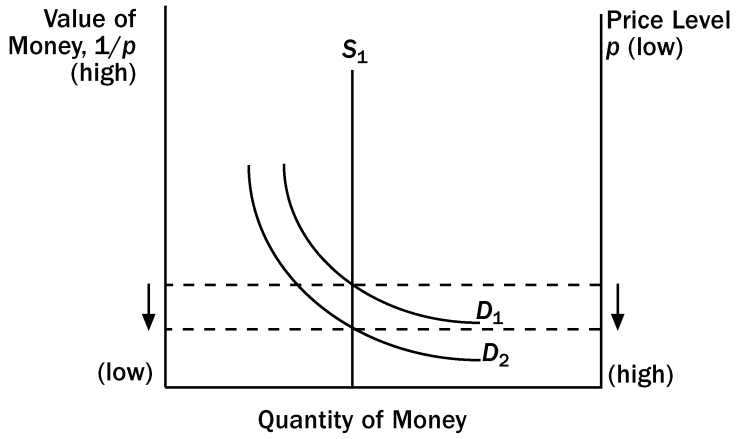

Figure 1

c. If the Fed wants to keep the price level stable, it should reduce the money supply from S_1 to S_2 in Figure 2. This would cause the supply of money to shift to the left by the same amount that the demand for money shifted, resulting in no change in the value of money and the price level.

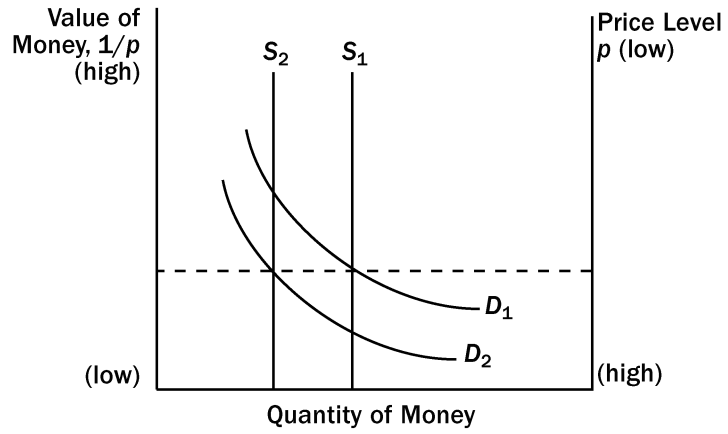

Figure 2

10. Textbook, Chapter 30, # 6

6. a. When the price of both goods doubles in a year, inflation is 100%. Let's set the market basket equal to one unit of each good. The cost of the market basket is initially \$4 and becomes \$8 in the second year. Thus, the rate of inflation is (\$8 – \$4)/\$4 × 100% = 100%. Because the prices of all goods rise by 100%, the farmers get a 100% increase in their incomes to go along with the 100% increase in prices, so neither is affected by the change in prices.

   b. If the price of beans rises to \$2 and the price of rice rises to \$4, then the cost of the market basket in the second year is \$6. This means that the inflation rate is (\$6 – \$4) / \$4 × 100% = 50%. Bob is better off because his dollar revenues doubled (increased 100%) while inflation was only 50%. Rita is worse off because inflation was 50% percent, so the prices of the goods she buys rose faster than the price of the goods (rice) she sells, which rose only 33%.

   c. If the price of beans rises to \$2 and the price of rice falls to \$1.50, then the cost of the market basket in the second year is \$3.50. This means that the inflation rate is (\$3.5 – \$4) / \$4 × 100% = -12.5%. Bob is better off because his dollar revenues doubled (increased 100%) while prices overall fell 12.5%. Rita is worse off because inflation was -12.5%, so the prices of the goods she buys didn't fall as fast as the price of the goods (rice) she sells, which fell 50%.

   d. The relative price of rice and beans matters more to Bob and Rita than the overall inflation rate. If the price of the good that a person produces rises more than inflation, he or she will be better off. If the price of the good a person produces rises less than inflation, he or she will be worse off.

11. Textbook, Chapter 30, #7

	(a)	(b)	(c)
(1) Nominal interest rate	10.0	6.0	4.0
(2) Inflation rate	5.0	2.0	1.0
(3) Before-tax real interest rate	5.0	4.0	3.0
(4) Reduction in nominal interest rate due to 40% tax	4.0	2.4	1.6
(5) After-tax nominal interest rate	6.0	3.6	2.4
(6) After-tax real interest rate	1.0	1.6	1.4

Row (3) is row (1) minus row (2). Row (4) is 0.40 × row (1). Row (5) is (1 – .40) × row (1), which equals row (1) minus row (4). Row (6) is row (5) minus row (2). Note that even though part (a) has the highest before-tax real interest rate, it has the lowest after-tax real interest rate. Note also that the after-tax real interest rate is much lower than the before-tax real interest rate.

12. Textbook, Chapter 30, #10

10. a. Unexpectedly high inflation helps the government by providing higher tax revenue and reducing the real value of outstanding government debt.

b. Unexpectedly high inflation helps a homeowner with a fixed-rate mortgage because he pays a fixed nominal interest rate that was based on expected inflation, and thus pays a lower real interest rate than was expected.

c. Unexpectedly high inflation hurts a union worker in the second year of a labor contract because the contract probably based the worker's nominal wage on the expected inflation rate. As a result, the worker receives a lower-than-expected real wage.

d. Unexpectedly high inflation hurts a college that has invested some of its endowment in government bonds because the higher inflation rate means the college is receiving a lower real interest rate than it had planned. (This assumes that the college did not purchase indexed Treasury bonds.)

13. Textbook, Chapter 30, #12

12. a. The statement that "Inflation hurts borrowers and helps lenders, because borrowers must pay a higher rate of interest," is false. Higher expected inflation means borrowers pay a higher nominal rate of interest, but it is the same real rate of interest, so borrowers are not worse off and lenders are not better off. Higher unexpected inflation, on the other hand, makes borrowers better off and lenders worse off.

b. The statement, "If prices change in a way that leaves the overall price level unchanged, then no one is made better or worse off," is false. Changes in

relative prices can make some people better off and others worse off, even though the overall price level does not change. See problem 7 for an illustration of this.

c. The statement, "Inflation does not reduce the purchasing power of most workers," is true. Most workers' incomes keep up with inflation reasonably well.

14. 假定一个经济当中一些人把原本打算消费的、以现金形式取得的收入放在床垫下面，永不使用。则这会使得经济在长期中价格水平_____，这些人____，其他人____。在更长的长期中，经济的产出_____，这些人_____，其他人_____。

A. 降低，变坏，变好。增加，变坏，变好
B. 不变，不变，不变。不变，不变，不变
C. 降低，变坏，变好。不变，不变，不变
D. 降低，变坏，变好。增加，可能变好或变坏，变好

Answer: D