Self-Test 9 (KEY)

Banking & The Monetary System

The tasks in this self-test are designed to be solvable by any student who has mastered the material. The answers provided are written instructionally to walk you through the problem-solving process for each task. A well-prepared student should score between 9 and 11 out of 12 without assistance from AI or others. A 12 out of 12 — without help — requires outlier performance or sheer luck. This self-test is optional, and your result will not count towards your grade. Direct any questions to your section's TA.

1. Which of the following most closely resembles fiat money?
   - **A. Monopoly money within the game.**
   - B. A gold coin during a period of hyperinflation.
   - C. A government bond.
   - D. Cigarettes when used for exchange within a prison.

   A) Like fiat money, Monopoly money has no intrinsic value. It is accepted purely by decree (the rules of the game).
   B) A gold coin retains intrinsic value from its gold content.
   C) A government bond is a financial instrument, not a medium of exchange.
   D) Cigarettes have intrinsic value since they can be consumed. This makes them closer to commodity money than fiat money.

2. Which of the following best describes what happens when a commercial bank issues a $1,000 loan to a customer?
   - A. The bank prints $1,000 in new physical currency and deposits it in the customer's account.
   - B. The bank transfers $1,000 from its existing reserves to the customer's account, reducing its own liquidity by the same amount.
   - **C. The bank creates a $1,000 asset (the repayment claim) and a $1,000 liability (the deposit in the customer's account), effectively issuing new M1 money.**
   - D. The bank borrows $1,000 from the central bank at the policy rate and on-lends it to the customer at a higher rate.

   When a bank issues a loan, it does not transfer existing money. It creates new money through an accounting process: the loan is recorded as an asset and the deposit as a liability. The two cancel each other out, leaving the bank's net position unchanged. However, the customer's deposit is new M1 money that did not exist before.

3. Sallie bought dinner for her friend, paying $87 to the restaurant with her OCBC debit card. The restaurant owner received the money in her DBS account and used it immediately to pay a supplier who banks with UOB. Which of the following is most likely to happen?
   - A. $87 of physical cash will be transferred from OCBC to DBS and then to UOB.
   - B. $87 of physical cash will be transferred from OCBC to UOB.
   - **C. $87 of reserves will be transferred from OCBC to UOB.**
   - D. $87 of bank money will be transferred from OCBC to DBS and then to UOB.

   Payments between banks are settled with reserves, not with physical cash or bank money. In principle, this takes two settlements. When Sallie pays the restaurant, OCBC's reserve account is debited and DBS is credited by $87. When the restaurant owner pays the supplier, DBS's reserve

account is debited and UOB's is credited by $87. In practice, a clearing house records both payments and nets what each bank owes against what it is owed. DBS receives $87 and pays out $87, so its net balance is zero. Only the net balance is settled in reserves: OCBC transfers $87 of reserves to UOB. Bank money cannot do this job, because it is a claim on one specific bank and only settles payments within that bank.

4. Which of the following is M1 money?
    A. A money market deposit at a local bank.
    B. $50,000 worth of bitcoin.
    C. A $50 gift card for Starbucks.
    D. A $50 bill that was completely carbonized in a house fire.
    E. None of the above.

    A) Money market deposits are part of M2, not M1.
    B) Bitcoin is not generally accepted as a medium of exchange, and it is not included in any official money supply measure.
    C) A gift card is simply a prepayment for goods and services. Only the money paid for the card is counted in M1.
    D) A destroyed bill cannot function as a medium of exchange, so it is not money in circulation.

5. A credit card allows its holder to make purchases up to a specific credit limit. The bank pays the vendor at the time of the purchase allowing the credit card holder to pay off the bank at a later stage. Which of the following will increase M1?
    A. A bank issues a new credit card to a customer.
    B. A bank increases the credit limit on a customer's credit card.
    C. A customer makes a purchase using their credit card.
    D. A customer pays off their credit card bill at the end of the month.
    E. None of the above.

    A) Issuing a credit card creates a borrowing facility, not money.
    B) Increasing a credit limit extends borrowing capacity but does not create money.
    C) The bank pays the vendor by recording a claim on the cardholder and crediting the vendor's deposit. As with any loan, this creates a deposit that did not exist before, so M1 increases.
    D) Paying the bill reduces the cardholder's deposit and cancels the bank's claim, so the deposit is destroyed and M1 decreases.

6. Which of the following would shift money demand to the right?
    A. Commercial banks provide more loans.
    B. Unexpected inflation.
    C. A decrease in GDP.
    D. An increase in unemployment.

    A) More loans increase money supply, not money demand.
    B) Higher prices mean people need more money to conduct the same transactions. Money demand shifts right.
    C) Lower GDP means fewer transactions and less need to hold money. Money demand shifts left.
    D) Higher unemployment reduces income and spending, reducing the demand for money.

7. In which of the following cases might a central bank conduct open market purchases?
    A. When reserves are ample, but the central bank expects that lowering interest rates will trigger enough lending to make them scarce.
    B. When reserves are scarce and the central bank intends to lower interest rates.
    C. **Both of the above.**
    D. None of the above.

    A) With ample reserves, the central bank lowers the rate through the IORB, not through open market purchases. However, a significant cut can trigger rapid credit expansion that makes reserves scarce, as in the Bank X example of Practice Set 9. Preemptive open market purchases keep reserves ample.

    B) When reserves are scarce, open market purchases inject reserves into the banking system, increasing liquidity and pushing interest rates down.

8. Which of the following best describes how a central bank sets the interest rate when commercial banks have scarce reserves?
    A. It directly orders commercial banks to charge the interest rate.
    B. It sets the required reserve ratio to adjust excess reserves, driving interest rate toward its target.
    C. **It conducts open market operations to adjust reserves, driving interest rate toward its target.**
    D. It prints money and ships it directly to commercial banks.
    E. It pays interest on reserves, setting a floor below which the interest rate will not fall.

    A) A central bank does not directly define the rates banks charge.

    B) Banks do not lend according to a reserve ratio.

    C) In the scarce reserves regime, the central bank conducts open market operations to manage the supply of reserves. By buying/selling government securities it injects/removes reserves, pushing the interbank rate down/up.

    D) Delivering cash does not steer the interest rate.

    E) Paying interest on reserves is the tool of the ample reserves regime, not the scarce one.

9. Which of the following best describes how a central bank sets the interest rate when commercial banks have ample reserves?
    A. It directly orders commercial banks to charge the interest rate.
    B. It sets the required reserve ratio to adjust excess reserves, driving interest rate toward its target.
    C. It conducts open market operations to adjust reserves, driving interest rate toward its target.
    D. It prints money and ships it directly to commercial banks.
    E. **It pays interest on reserves, setting a floor below which the interest rate will not fall.**

    A) A central bank does not directly define the rates banks charge.

    B) Banks do not lend according to a reserve ratio.

    C) Open market operations steer the rate only when reserves are scarce.

    D) Delivering cash does not steer the interest rate.

    E) When reserves are ample, the central bank pays interest on reserves (the IORB). Banks will not lend at or below the IORB, because they can earn it with no risk at the central bank. The IORB is therefore a floor for lending rates, and by adjusting it the central bank moves interest rates toward its target.

10. Which of the following will be most negatively affected by an unexpected rise in inflation?
    A. An individual who invests their savings in the stock market.
    B. **A retiree living on a fixed pension.**
    C. A freelance plumber.
    D. A household that borrowed at a fixed interest rate to buy a home.

    A) Stock market returns may partially offset inflation since equities represent real assets whose value can rise with prices.

    B) A fixed pension provides a constant nominal income. As prices rise, its real value erodes, directly reducing the retiree's purchasing power.

    C) A freelance plumber can immediately adjust their prices in response to inflation, preserving their real income.

    D) This household benefits from unexpected inflation since their real debt burden falls as the value of money decreases.

11. Beth lends $10,000 to Sharon, who agrees to return $10,600 in one year. At the time of the agreement, inflation was expected to be around 2%. Which of the following is accurate if inflation turns out to be 4%?
    A. Both Beth and Sharon will be better off due to the unanticipated inflation.
    B. Beth will be better off but Sharon will be worse off due to the unanticipated inflation.
    C. **Beth will be worse off but Sharon will be better off due to the unanticipated inflation.**
    D. Both Beth and Sharon will be worse off due to the unanticipated inflation.

    The nominal interest rate is 6%. Beth expected a real return of 6% − 2% = 4%, but with actual inflation of 4%, her real return falls to 2%. Sharon expected to pay 4% in real terms but pays only 2%. Unanticipated inflation redistributes wealth from lenders to borrowers.

12. An economy has a nominal GDP growth rate of 3% and an inflation rate of 6%. Which of the following is most likely?
    A. Real GDP has increased.
    B. The unemployment rate has decreased.
    C. **The economy has produced fewer goods and services.**
    D. The purchasing power of citizens has increased.

    A) Real GDP growth = nominal GDP growth − inflation = 3% − 6% = −3%. Real GDP has decreased.

    B) Since real GDP has decreased, fewer goods have been produced, meaning fewer workers were employed. Unemployment rises.

    C) Negative real GDP growth of −3% means the economy's actual output has contracted.

    D) Prices have risen faster than nominal income. Purchasing power has fallen.

Good afternoon! Once, I had written in a blue box like this one: "if you half-ass university, most likely you will half-ass your career later". A student emailed me the following reply: "Bill Gates, Steve Jobs, Mark Zuckerberg and many others became successful without being good students. In fact, they did not even graduate from college. Work experience is what matters, not education." I answered to him in a later blue box: "Dear […], there are a few things you are missing: First, Bill Gates, Steve Jobs, Mark Zuckerberg and others are the 0.1% of dropouts who knew what they were doing and became successful on their own. The rest 99.9% of dropouts, would have achieved and earned much more in their life, had they stayed in college. Second, Bill Gates, Steve Jobs, Mark Zuckerberg and others never intended to be hired. They created their own paths, started their own companies, shaped new industries. This involved massive risks and if today we know their names, it is because those risks paid off. However, many other equally competent people took similar risks that unfortunately never paid off and thus, no one ever heard about their sad stories. Third, Gates, Jobs, Zuckerberg and others did not drop out of college because they could not keep up with their studies. They dropped out because their area of interest was new, very fast developing and the knowledge they would have acquired in college was objectively not useful to them in the pursuit of their goals. Fourth, Gates, Jobs, Zuckerberg and the others did not half-ass their studies because they needed a diploma to include in their CV. Instead, they understood that their priorities were different; they dropped out completely and pursued their plan full-time. Successful people either do something right or they do not do it at all. So, there is nothing wrong in graduating with a C. Just don't fool yourself that this makes you a Bill Gates, a Steve Jobs, or even… a Mark Zuckerberg." *Kosmas*

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Please report any typos, mistakes, or suggestions for improvement to kmarinakis@smu.edu.sg.