Name: _____

Free practice exam · examtex.com/free-exams

Money and Banking — Practice Exam

Instructions: Part A: answer ALL 30 multiple-choice questions (2 points each). Each question has four options, A to D, of which exactly one is correct. Part B: answer ALL 4 questions (10 points each) and show your working. A calculator may be used. Time allowed: 120 minutes.

Time Limit: 120 minutes

Multiple Choice (30 questions)

[2 points] 1. A savings bond pays a single sum of 1,000 dollars in exactly three years and nothing before then. If the interest rate is 6 percent a year, compounded annually, its present value is closest to:

A. 820.00 dollars
B. 943.40 dollars
C. 839.62 dollars
D. 1,191.02 dollars

[2 points] 2. A three-year bond has a face value of 1,000 dollars and a 5 percent coupon, paid once a year. If the yield to maturity on comparable bonds is 7 percent, the bond's price is closest to:

A. 947.51 dollars
B. 1,000.00 dollars
C. 966.30 dollars
D. 816.30 dollars

[2 points] 3. A consol (a perpetuity) pays a coupon of 40 dollars a year forever. If the market interest rate rises from 4 percent to 5 percent, the consol's price:

A. rises from 800 to 1,000 dollars
B. falls from 1,000 to 990 dollars
C. stays at 1,000 dollars, as the coupon is fixed
D. falls from 1,000 to 800 dollars

[2 points] 4. Market interest rates on all bonds rise by one percentage point. Which of the following holdings suffers the LARGEST percentage fall in price?

A. A two-year bond with an 8 percent coupon
B. A 20-year zero-coupon bond
C. A 20-year bond with an 8 percent coupon
D. A one-year Treasury bill

[2 points] 5. You buy a newly issued 10-year bond with a 6 percent annual coupon at its face value of 1,000 dollars. One year later interest rates have risen; you collect the first coupon and sell the bond for 920 dollars. Your rate of return for the year is:

A. 6.0 percent
B. -2.0 percent
C. -8.0 percent
D. 6.5 percent

[2 points] 6. A one-year bond has a nominal yield of 7 percent, and investors expect inflation of 4 percent over the year. Using the exact Fisher relation, $(1 + i) = (1 + r)(1 + \pi^e)$, the expected real interest rate is closest to:

A. 3.00 percent
B. 11.28 percent
C. 1.75 percent
D. 2.88 percent

[2 points] 7. In the supply-and-demand analysis of the bond market, what happens when expected inflation rises, other things equal?

A. Bond demand falls and bond supply rises, so prices fall and interest rates rise
B. Bond demand rises and bond supply falls, so bond prices rise and interest rates fall
C. Bond demand falls but supply is unchanged, so prices and interest rates both fall
D. Bond supply rises but demand is unchanged, so prices rise and interest rates fall

[2 points] 8. Interest on US municipal bonds is exempt from federal income tax. A taxable corporate bond with the same default risk and liquidity yields 6 percent, and an investor's marginal tax rate is 30 percent. The municipal bond yield that would leave her indifferent between the two is:

A. 6.0 percent
B. 7.8 percent
C. 4.2 percent
D. 1.8 percent

[2 points] 9. During a financial panic, investors fear that corporate borrowers will default, and they sell corporate bonds to buy US Treasury bonds. Other things equal, the risk premium on corporate bonds:

A. falls, because the yield on Treasury bonds falls
B. does not change, since both yields move by the same amount
C. rises: corporate yields go up and Treasury yields go down
D. falls, because buyers bid corporate bond prices up

[2 points] 10. The one-year interest rate is 3 percent today, and investors expect one-year rates of 4, 6 and 7 percent in each of the following three years. According to the expectations theory, the yield on a four-year bond today is approximately:

A. 5.0 percent
B. 7.0 percent
C. 20.0 percent
D. 3.0 percent

[2 points] 11. The one-year interest rate is 3 percent, and investors expect one-year rates of 4 percent next year and 5 percent the year after. A three-year bond yields 5 percent. According to the liquidity premium theory, the term (liquidity) premium on the three-year bond is:

A. 0.0 percentage points
B. 2.0 percentage points
C. 4.0 percentage points
D. 1.0 percentage point

[2 points] 12. According to the liquidity premium theory, a FLAT yield curve, with long-term yields about equal to short-term yields, indicates that the market expects short-term interest rates to:

A. stay about the same
B. fall moderately
C. rise moderately
D. fall sharply

[2 points] 13. Which of the following can the expectations theory of the term structure explain but the segmented markets theory CANNOT?

A. Rates on bonds of different maturities move together over time
B. Yield curves slope upward far more often than they slope downward
C. Long-term yields are more volatile than short-term yields
D. Investors treat each maturity as a separate, unrelated market

[2 points] 14. Which item is an ASSET on a commercial bank's balance sheet and a LIABILITY on the Federal Reserve's balance sheet?

A. Checkable deposits held by the public
B. Discount loans from the Fed to the bank
C. Reserve balances at the Fed
D. US Treasury securities

[2 points] 15. Two banks each earn a return on assets (ROA) of 1.0 percent. Bank X has capital equal to 10 percent of its assets and Bank Y has capital equal to 5 percent of its assets. Bank Y's return on equity (ROE) is:

A. 5 percent
B. 10 percent
C. 1 percent
D. 20 percent

[2 points] 16. A bank's balance sheet shows reserves of 50 million dollars, loans and securities of 950 million, deposits of 900 million and bank capital of 100 million. Depositors then withdraw 60 million dollars. Which statement is correct?

A. Its bank capital falls by 60 million dollars, to 40 million
B. It must raise at least 10 million by borrowing or selling assets
C. It is insolvent, because the withdrawal is larger than its reserves
D. Its loans automatically fall by 60 million so the balance sheet still balances

[2 points] 17. Why can a rumour start a run even on a bank that is solvent?

A. Because banks must by law hold reserves equal to the whole of their deposits
B. Because deposit insurance encourages insured depositors to withdraw first
C. Because a bank's loans can be sold quickly at full value in an emergency
D. Because deposits are paid first come, first served, but loans are illiquid

[2 points] 18. A lender cannot tell safe borrowers from risky ones, so it charges every borrower an interest rate set for the average risk. The safest borrowers find the rate too high and stop borrowing, which leaves the lender with a riskier pool. This is an example of:

A. adverse selection
B. moral hazard
C. the free-rider problem
D. a principal-agent problem

[2 points] 19. After receiving a bank loan to modernise its factory, a firm's managers would like to put the money into a much riskier venture instead. Which loan feature most directly limits this problem?

A. Charging every borrower a higher rate of interest to cover the extra risk
B. A detailed credit check on the firm before the loan is approved
C. Restrictive covenants on the use of the funds, with monitoring
D. Government insurance on the deposits that funded the loan

[2 points] 20. In a textbook banking system with a required reserve ratio of 5 percent, banks hold no excess reserves and the public holds no extra currency. The central bank buys 10 million dollars of securities from a bank. The maximum increase in checkable deposits in the banking system is:

A. 10 million dollars
B. 200 million dollars
C. 50 million dollars
D. 190 million dollars

[2 points] 21. Which of the following makes the actual expansion of deposits SMALLER than the simple deposit multiplier predicts?

A. The public holds part of each new loan as currency
B. Banks lend out every dollar of their excess reserves
C. The required reserve ratio is cut
D. Every borrower redeposits the full loan in a bank

[2 points] 22. In March 2020 the Federal Reserve set reserve requirement ratios to zero. Which statement best describes how the Fed steered short-term interest rates after that change?

A. The money supply became unlimited, as the multiplier 1/rr is undefined
B. Banks stopped holding reserves, since none were required any longer
C. It lost control of the federal funds rate, since reserves no longer bind
D. It set administered rates, mainly interest on reserve balances

[2 points] 23. Under the Fed's ample-reserves framework, banks earn the interest rate on reserve balances (IORB) on money left at the Fed. Why does this keep the federal funds rate from falling far below IORB?

A. The Fed buys or sells securities every day to hold the rate exactly at IORB
B. Banks are legally required to lend reserves to each other at the IORB rate
C. No bank will lend reserves for much less than it earns at the Fed
D. Reserve requirements force banks to keep borrowing until the rate reaches IORB

[2 points] 24. What is the main purpose of the Federal Reserve's overnight reverse repurchase agreement (ON RRP) facility?

A. To lend reserves to banks overnight against collateral, at a penalty rate
B. To set a floor rate for nonbank lenders such as money market funds
C. To retire Treasury securities from the market permanently
D. To set the reserve requirement that applies to money market funds

[2 points] 25. The Fed buys 100 billion dollars of long-term Treasury securities from dealers as part of quantitative easing. Other things equal, which change appears on the Fed's balance sheet?

A. Securities rise by 100 billion and currency in circulation rises by 100 billion
B. Securities rise by 100 billion and reserve balances fall by 100 billion
C. Securities fall by 100 billion and reserve balances rise by 100 billion
D. Securities rise by 100 billion and reserve balances rise by 100 billion

[2 points] 26. A central bank follows the Taylor rule $i = r^* + \pi + 0.5(\pi - \pi^*) + 0.5(\text{output gap})$, with a neutral real rate r^* of 2 percent and an inflation target π^* of 2 percent. Inflation is 4 percent and output is 1 percent BELOW potential. The rule's recommended nominal policy rate is:

A. 6.5 percent
B. 7.5 percent
C. 4.5 percent
D. 2.5 percent

[2 points] 27. According to the Taylor principle, when inflation rises by 1 percentage point, a central bank should raise its nominal policy rate by:

A. exactly 1 percentage point, so the real policy rate is unchanged
B. less than 1 percentage point, to avoid causing a recession
C. more than 1 percentage point, so the real policy rate rises
D. 0.5 percentage point, the weight on the inflation gap in the rule

[2 points] 28. In a debt deflation, an unexpected fall in the price level hurts the economy mainly because it:

A. lowers the real value of debts, which strengthens borrowers' balance sheets
B. raises the real burden of debts, cutting firms' net worth
C. raises real wages, but leaves firms' balance sheets unchanged
D. has no real effect, because debt contracts are fixed in nominal terms

[2 points] 29. Which best describes where the most damaging runs of the 2007-2009 financial crisis took place?

A. In short-term wholesale funding: repo, commercial paper and money market funds
B. In insured retail deposits, with queues outside commercial banks as in the 1930s
C. At the Federal Reserve's discount window, which ran out of reserves to lend
D. In the market for US Treasury bills, whose yields rose sharply as investors fled

[2 points] 30. The one-year interest rate is 5 percent on dollar deposits and 2 percent on euro deposits. If uncovered interest parity holds, over the next year the market expects the dollar to:

A. appreciate against the euro by about 3 percent
B. stay unchanged, because capital flows equalise the two rates
C. depreciate against the euro by about 7 percent
D. depreciate against the euro by about 3 percent

Short Answer (4 questions)

[10 points] 31. Bond prices, yields and real returns. Harlow Ltd issues a four-year bond with a face value of 1,000 dollars and a 6 percent coupon, paid once a year at the end of each year. On the issue date the yield to maturity on comparable bonds is 6 percent.

[2 points] (a) Find the bond's price on the issue date and explain why it equals the face value.

[3 points] (b) Immediately after issue, yields on comparable bonds rise to 8 percent. Calculate the bond's new price and the percentage change in its price.

[2 points] (c) A one-year bond with a 6 percent coupon, also issued at par, sees the same rise in yields from 6 to 8 percent. Calculate its percentage price change, and use your answers to (b) and (c) to explain interest-rate risk.

[3 points] (d) An investor buys the four-year bond at the price you found in (b) and expects inflation of 3 percent a year. (i) Show that if yields stay at 8 percent, her rate of return over the first year is 8 percent. (ii) Using the exact Fisher relation, find her expected real return. (iii) Inflation over the year turns out to be 5 percent. What real return did she actually earn, and who gained from the unexpected inflation?

[10 points] 32. The term structure of interest rates. All rates are annual. Use the averaging approximation: the n-year rate equals the average of the expected one-year rates over the n years, plus a term premium l_n under the liquidity premium theory.

[3 points] (a) The one-year rate today is 2 percent, and investors expect one-year rates of 3, 4 and 5 percent in each of the next three years. Under the expectations theory, calculate the yields on one-, two-, three- and four-year bonds today and describe the shape of the yield curve.

[2 points] (b) Now suppose investors require term premiums of 0, 0.25, 0.5 and 0.75 percentage points on one-, two-, three- and four-year bonds. Recalculate the four yields under the liquidity premium theory and explain why the premium rises with maturity.

[3 points] (c) On a later date the one-year rate is 4.0 percent, the two-year rate is 3.6 percent and the three-year rate is 3.4 percent. Term premiums are 0.2 percentage points on the two-year bond and 0.4 on the three-year bond. Find the one-year rates the market expects next year and the year after, and say what they imply about expected monetary policy. What would the pure expectations theory have implied for next year's rate?

[2 points] (d) The yield curve in (c) is inverted. Explain why economists treat an inverted yield curve as a warning of recession, and give one reason why the signal can mislead.

[10 points] 33. Bank balance sheets, capital and runs. Riverside Bank has the following balance sheet, in millions of dollars. Assets: reserves 30, securities 120, loans 350. Liabilities and bank capital: deposits 420, borrowings 40, bank capital 40. Last year its net income after taxes was 5 million dollars.

[2 points] (a) Calculate the bank's capital-to-assets ratio, its equity multiplier, its return on assets (ROA) and its return on equity (ROE).

[3 points] (b) Borrowers default and the bank writes off 15 million dollars of loans. Show the change on the balance sheet and calculate the new capital ratio. If regulators require a ratio of at least 6 percent, how much new capital must the bank raise (assume it uses the new capital to repay deposits, so total assets stay the same), or by how much must it shrink its assets, to comply? Why does the second option matter for the wider economy?

[3 points] (c) Return to the original balance sheet. Depositors withdraw 50 million dollars. The bank has no reserve requirement, but its own policy is to hold reserves of at least 5 percent of deposits. Calculate how much the bank must raise to restore its policy, show its balance sheet if it does so by selling securities, and compare this with other ways of raising the funds.

[2 points] (d) Explain how a run could make this bank fail even though it is solvent, and how deposit insurance and a lender of last resort reduce this risk. Name one cost of these safety-net policies.

[10 points] 34. Money creation and monetary policy. Parts (a) and (b) use the textbook model of deposit creation; parts (c) and (d) concern how a central bank with ample reserves sets its policy rate.

[2 points] (a) In a banking system with a required reserve ratio of 10 percent, banks hold no excess reserves and the public holds a fixed amount of currency. The central bank buys 20 million dollars of government securities from a bank. Show the first change on that bank's balance sheet and calculate the maximum increase in checkable deposits in the banking system.

[2 points] (b) Give two reasons why the actual increase in deposits is usually smaller than in (a), and explain why the simple multiplier does not describe how US banks create deposits after the Federal Reserve set reserve requirements to zero in March 2020.

[3 points] (c) A central bank uses the Taylor rule $i = r^* + \pi + 0.5(\pi - 2) + 0.5(\text{output gap})$, with all terms in percent. Inflation is 3.5 percent and output is 1 percent ABOVE potential. (i) With $r^* = 1$, calculate the recommended policy rate. (ii) Recalculate it with $r^* = 2$. (iii) The policy rate's target range is 4.25 to 4.50 percent. What does the rule suggest, and why might policymakers not follow it mechanically?

[3 points] (d) Suppose the central bank is the Federal Reserve and the FOMC decides to raise its target range for the federal funds rate by 0.25 percentage points. Explain how the Fed moves the federal funds rate into the new range under its ample-reserves framework. Which rates does the Fed change directly, and who earns each one? How does this differ from changing the size of its balance sheet through quantitative easing or tightening?

Make one like this from your own notes.

Scan the code or type the address below: upload your lecture notes, slides or a past paper and get a practice exam with an answer key in about a minute. Free, no card.

examtex.com/create