

NANYANG TECHNOLOGICAL UNIVERSITY

SCHOOL OF SOCIAL SCIENCES

SEMESTER 1 AY25-26

HE1002 MACROECONOMICS I

PROBLEM SET 8

8-1

For each scenario, indicate whether it is an example of moral hazard or adverse selection.

- a. You decide to buy a new car instead of a used car because you are worried about the quality of the used car.
- b. You sell your condominium because you fear there will be a large special assessment next year. There has been no official notice of an upcoming assessment.
- c. The owner of a company has just secured a new line of credit from the bank. He decides to change his business plan and open a second office in a foreign country.
- d. A firm that has purchased a large insurance policy becomes careless about setting the security alarm.
- e. A number of households find themselves owing more on their mortgages than their houses are currently worth. Some of them decide to abandon the house and walk away.
- f. The owners of a company suspect there will be more competition from foreign producers in upcoming years. They have just issued new shares of stock in their company.

8-2

The chapter discusses three main functions of a banking system. Classify each of the following by the function it best represents.

- a. Wyatt can get cash out of the ATM at any time of day or night.
- b. Instead of lending all her savings out to one borrower, Xander's bank makes the money in her savings account available to a variety of firms, with different characteristics and risk profiles, wishing to invest.
- c. When Yao's car suddenly breaks down, she can quickly withdraw funds from her savings account to pay the mechanic and rent a car.
- d. Zirwat can get start-up funds for her new hair salon from a bank, instead of having to find people in her neighborhood willing to lend their extra money.

8-3

After graduating, you take an unusual job: consulting with the queen of a small, newly populated island in the middle of the sea. You've provided advice to her on matters related to government and the economy, and while she has taken your advice most of the time, she has so far turned down your suggestion to have a banking system. She claims that banks will make the economy more complicated and do little to make the lives of her subjects easier. Over the past several months, though, the queen has discussed with you several issues that have arisen in the newly formed economy. For each of the three quotes from the queen below, refer to one of the three functions of banks discussed in this chapter to explain how a banking system could help with the issue described.

- a. "When my subjects have money left over after spending, they want to keep it somewhere safe and earn some interest on it. But that's hard for most of them because they have no way of finding out who wants to borrow and whether it would be a good idea to lend to them."
- b. "My subjects are lucky that we have very little crime, so they can safely keep their extra money inside their houses and take only what cash they need for a day's spending. However, many of them have complained that if an emergency occurs when they're all the way on the other side of the island, they can't access their funds."
- c. "Some of my subjects who are in the know about good borrowers have been making loans and earning interest. But lately there have been a couple of borrowers who defaulted on loans, and when they did, the lenders were totally out of luck. All that money just disappeared! And those bad experiences have made other potential lenders afraid, so that now borrowing and lending have dried up almost completely. If only there were some easy way for them to divide their savings among several different borrowers, they might feel safe enough to start lending again!"

8-4

Categorize each of the following as a type of savings or investment in the economic sense.

- a. You buy 100 shares of Apple Computer stock.
- b. You place part of your income in a mutual fund.
- c. A delivery service buys 1,000 new trucks.
- d. You put \$1,000 in a certificate of deposit by giving money to the bank in exchange for a set amount of return.

8-5

Use the following words to fill in the blanks in the statements below about the market for loanable funds. *Choose from:* demanded, supplied; left, right; higher, lower.

- a. A change that makes people want to save less will shift the quantity of loanable funds _____ to the _____. The resulting new equilibrium in the market for loanable funds would be a _____ interest rate and a _____ quantity of funds saved and invested.
- b. A change that makes people want to save more will shift the quantity of loanable funds _____ to the _____. The resulting new equilibrium in the market for loanable funds would be a _____ interest rate and a _____ quantity of funds saved and invested.

- c. A change that makes people want to invest more will shift the quantity of loanable funds _____ to the _____. The resulting new equilibrium in the market for loanable funds would be a _____ interest rate and a _____ quantity of funds saved and invested.
- d. A change that makes people want to invest less will shift the quantity of loanable funds _____ to the _____. The resulting new equilibrium in the market for loanable funds would be a _____ interest rate and a _____ quantity of funds saved and invested.

8-6

Consider the market for loanable funds. Graphically illustrate the impact on the equilibrium interest rate and the equilibrium quantity of funds saved and invested in each of the following scenarios.

- a. Due to slow growth in the economy, fewer workers are receiving pay increases and more workers are losing their jobs.
- b. The government decides to reduce the number of weeks a person is eligible for unemployment compensation.
- c. Numerous firms remain concerned about growth prospects in the economy.
- d. The government decides to reduce income tax rates, and this reduction leads to an increase in the size of the budget deficit.

8-7

You go to the bank and purchase a \$1,000 certificate of deposit (CD).

- a. Who is doing the borrowing? Who is doing the lending?
- b. Which is higher, the interest rate paid on the 6-month CD or the 2-year CD? Why?

8-8

What does the risk premium measure? During a recession, what is likely to happen to the risk premium?

8-9

You have a sum of funds sitting in a savings account earning a modest interest rate of 3 percent.

A good friend wants to borrow half of this sum, and he has agreed to pay you an interest rate of 5 percent. Should you lend your friend the money? Why or why not?

8-10

In your spare time, you help out with a magazine for high schoolers that focuses on current events related to economics and politics. While the magazine aims to be readable and entertaining, it also wants to use terminology correctly. Knowing that you've taken an economics class, the editor turns to you to look over a paragraph in a story focusing on the roles of saving and investment after the recent crisis in the housing market. Go through the following paragraph and correct any errors in economic vocabulary, including an explanation for the editor about why the original was incorrect.

"When Americans invest by buying securities such as stocks and bonds or putting money in a bank, they provide funds for firms wishing to engage in diversification by buying assets used to produce goods and services. Households with extra money left over after buying things they want or need consume by purchasing securities or putting their funds in savings accounts, and banks help transfer those funds to firms. By matching and working with these borrowers and lenders, banks act as a source of liquidity."

8-11

In each of following examples, name the financial product being described.

- a. A family borrows money to pay for a house.
- b. A new tech start-up offers investors the ability to purchase a small part of the company to raise needed capital.
- c. The U.S. government offers to pay investors a 3 percent return rate next year if they finance its debt today.

8-12

Evaluate each of the following statements and say whether it describes a loan, a bond, and/or a stock.

- a. It implies ownership in the issuing firm.
- b. Small businesses use these to raise funds for investment.
- c. This is also known as equity financing.
- d. We can think of this as a more liquid version of a loan.
- e. It pays some form of interest, and principal is paid at maturity.

8-13

Match each of the following players in the financial system with the financial product(s) they are most associated with.

a. Commercial banks.	i. Stocks.
b. Savers.	ii. Bonds.
c. Investment banks.	iii. Loans.

8-14

Rank the following actors in financial markets by the level of liquidity they are providing.

- a. Entrepreneurs offering equity in their businesses.
- b. The Federal Reserve offering banks the chance to borrow short-term money through the discount window.
- c. Investment banks offering shares in mutual funds, which penalize you if you withdraw your money within 30 days.
- d. A bank offering you a no-minimum reserve requirement checking account.

8-15

Rank the following assets based on their expected return. Then repeat the exercise, this time ranking the assets based on their expected risk.

- a. Real estate.
- b. Commodities.
- c. U.S. equities (stocks).
- d. Cash.
- e. U.S. fixed-income bonds.

8-16

Evaluate whether the following statements are true or false.

- a. Risk is measured by looking at the expected value (average) of an asset's returns over time.
- b. Market risk can be minimized with a well-diversified portfolio.
- c. Idiosyncratic risk is unique to a particular asset, rather than to the market as a whole.
- d. A portfolio of well-diversified assets will often be less risky for the same level of return when compared to an individual asset.

8-17

"Listen," your buddy says. "Have you ever noticed that you can get the same type and size of tire for \$30 cheaper in the next county over? I've got a way to make profits for years—we'll buy the tires where they're cheaper and bring them back here to sell." What is the term for the transaction your friend wants to make? Would the efficient-market hypothesis predict it will be as profitable as he says? Explain.

8-18

In each of the following examples say whether the market is behaving within the principles of the efficient-market hypothesis.

- a. The day after unrest in the Middle East, the source of supply for much of the world's oil, the price of oil falls.
- b. Investors find very few opportunities for arbitrage in the foreign exchange market.
- c. The Dow Jones Industrial Average, a major stock market index, changes in value by 5 percent for an entire week, even though very little economic news is released.

8-19

In 2021, U.S. government spending was \$6.8 trillion, tax revenue was \$4.1 trillion, GDP was \$23.31 trillion, and total consumer spending was \$15.9 trillion. If the economy has no exports or imports, what was the national savings in 2021? How much was public savings? How much was private savings?

8-20

A country's government has been running a deficit for the past few years. Suppose this country decides to increase its government spending.

- a. Compare the impact of the increase in government spending in a closed economy and an open economy.
- b. Are you more likely to observe crowding out in a closed economy or an open economy? Explain.

8-21

Consider the U.S. market for loanable funds in a closed-economy model. Answer the following questions about each scenario.

- a. The government starts offering a national savings bond to increase private savings, which pays a higher return than many other options available on the market. Which way will the supply of loanable-funds curve shift? Will the interest rate increase or decrease? Will there be more or less borrowing?
- b. Suppose the economy is now open. Due to rapid economic expansion in China, the Chinese government decides to invest in U.S. Treasury notes with some of its surplus. Which way will the supply curve shift?
- c. A new computer software program is introduced into the market, which offers businesses that purchase it promising returns on their investment. Which curve will shift? Which way will it shift?
- d. The government reduces the capital gains tax, which taxes earnings on assets in the stock market. Which curve will shift? Which way will it shift?