Queen Mary
University of London

May Examination Period 2025

ECN243 Introduction to Banking *Duration: 2 hours*

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Answer 2 Questions from Section A and All Questions from Section B

If you answer more questions than specified, only the first answers (up to the specified number) will be marked. Cross out any answers that you do not wish to be marked.

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Examiner: Thomai Filippeli

PART A: Answer <u>TWO</u> Questions

Question 1

A. Briefly explain how the moral hazard problem can affect equity finance. What could be the solution to this problem?

[10 marks]

B. Briefly explain how the moral hazard problem can affect debt finance. What could be the solution to this problem?

[10 marks]

Question 2

A. Suppose that the manager of a small company, who is also the owner, applies for a loan. Explain how being both the owner and manager can help mitigate a moral hazard problem, but why another form of moral hazard may still arise if the loan is granted.

(5 marks)

B. Banks maintain capital to reduce the risk of insolvency. Discuss whether holding higher levels of capital is always beneficial and specify from whose perspective (e.g., the bank, its shareholders, or society as a whole).

(5 marks)

C. Explain why the "Too Big to Fail" policy creates larger banks and reduces competition.

(10 marks)

Question 3

A. Transparency is a key element of the monetary policy framework. Explain how transparency helps eliminate the problems that are created by central bank independence.

[10 marks]

B. According to many studies, in industrialized countries there is strong evidence of a negative relationship between central bank independence and inflation. Explain what the three limitations to this finding are.

[10 marks]

PART B: Answer ALL Questions

Question 4

Suppose you are the sole shareholder of a bank with deposits of £1,200,000 and assets of £1,000,000. There is no reserve requirement. Your liability in the bank is limited by law to your investment (if it fails, you needn't make up losses to depositors). You are risk neutral. For simplicity assume that the deposits do not pay any interest.

A. What is the net worth of the bank?

[3 marks]

B. Suppose you may reinvest bank's assets into one but only one of the following projects before the examiners audit your books:

   Project A: pays a certain return of 7 percent

   Project B: has a 50 percent chance of a 21 percent net return and a 50 percent chance of a net return of -21 percent, or

   Project C: has a 10 percent chance of doubling your assets and a 90 percent chance of losing everything.

   Rank the three projects according to which will benefit you personally.

[8 marks]

C. How would your ranking change if the assets of the bank were £1,200,000?

[5 marks]

D. How would your ranking change if the assets of the bank were £2,000,000?

[4 marks]

E. If you have the chance to abscond with £100,000 at the cost of losing ownership in the bank, would you do it (setting aside questions of morality)? How does your answer depend on the net worth of the bank?

[5 marks]

F. If banks are covered by government deposit insurance, why should the government take an active role in closing down failed banks as soon as they can be discovered? Answer with references to the examples in this question.

[5 marks]

Question 5

A. A bank is near insolvency – its assets are worth £1,000 million, only a fraction more than its debt liabilities of £999.5 million. As a result, the true value of its equity is small. The bank can take £100 million more deposits from the public in return for a promise to pay a 6% return. The bank considers two possible uses to which the new deposits can be put. The safe option is to lend at a rate of 8%. There is a 95% chance that such a loan will be repaid in full. There is a 5% chance that for each dollar loaned the bank will simply get its money back (no interest). The alternative loan is very risky. There is a 60% chance that the bank can make the risky loan at an interest rate of 40% and be paid back in full (receiving £1.40 for each £1). There is a 40% chance that it will be repaid nothing. For simplicity assume that the deposits do not pay any interest.

   i. Which loan has the higher expected return? Explain your answer.

   ii. Which loan would the shareholders, who have limited liability prefer the bank to make? Explain your answer.

[15 marks]

B. Suppose you are the manager of a bank whose $100 billion of assets have an average duration of four years and whose $90 billions of liabilities have an average duration of six years. Conduct a duration analysis for the bank and show what will happen to the net worth of the bank if interest rates rise by 2 percentage points. What actions could you take to reduce the bank's interest rate risk?

(5 marks)

C. Rock Bank holds no excess reserves but complies with the reserve requirement. The required reserves ratio is 8%, and reserves are currently $32 million. Determine the amount of deposits, the reserve shortage created by a deposit outflow of $6 million, and the cost of the reserve shortage if Rock Bank borrows in the federal funds market (assume the federal funds rate is 0.32%).

(5 marks)

D. Excess reserves act as insurance against deposit outflows. Suppose that on a yearly basis Malcom Bank holds $12 million in excess reserves and $88 million in required reserves. Suppose that Malcom Bank can earn 3.5% on its loans and that the interest paid on (total) reserves is 0.2%. What would be the cost of this insurance policy?

(5 marks)

End of Examination/ Thomai Filippeli