

Homework 5

Show all your work. Graphs should be clearly labeled. The total for the homework is 5 points. Start early. Homework is due in class on Wednesday, April 14 (or if you cannot make it to class, drop it off in the main office, Buchanan Tower 997, by the end of the class). No late homeworks are excepted.

Problem 1 (3 points)

Consider a balance sheet of a bank (see also Chapter 12 in Champ-Freeman, or Lecture 27), where H denotes total deposits, W – net worth, γ – reserve requirement. Suppose capital requirement (ratio of net worth to total assets) is 10%, and reserve requirement is 10%.

- How much does the bank invest in risk-bearing assets if $H = \$18$ million?
- Suppose bank's shareholders are considering to invest \$10 million of their risk-bearing portfolio into an asset that returns \$14 million with probability $\frac{1}{2}$ and \$6 million with probability $\frac{1}{2}$. Will shareholders decide to make this investment if they are risk-averse and require 5% risk premium? (HINT: recall that shareholders at most can lose the amount of net worth)
- What is the minimal capital requirement that would prevent such a risky investment?

Problem 2 (1 point)

How did the creation of the Bank of Canada in 1935 helped the Canadian economy? Provide and explain at least 2 reasons.

Problem 3 (1 point)

How did the introduction of LVTS help Canadian monetary policy?

A Bank's Balance Sheet

| Assets | | Liabilities | |
|-------------------------|----------------------|--------------------|---------|
| Reserves | γH | Deposits | H |
| Interest-bearing assets | $(1 - \gamma) H + W$ | Net worth | W |
| Total assets | $H + W$ | Total liabilities | $H + W$ |