

Exam in SØK2010 Banking (Fall 2020)

Make the assumptions you find necessary. The weighting of the problems is only indicative.

Problem 1 — Deposit multiplier (25%)

Assume banks are required to keep 10% of deposits as reserves. The central bank buys government bonds in the secondary market for 100.

a) How does the central bank's purchase of government bonds affect total money supply?

Firms and households keep $\frac{1}{6}$ th of the money they receive as cash.

b) Given this new information about firm and household behavior, how will the central bank's bond purchase affect total money supply?

Problem 2 — Pension Insurance (25%)

a) What is a defined benefit based pension plan?

b) What is a contribution based pension plan?

Problem 3 — Bank run (25%)

a) What is a bank run?

b) Why is a bank run an “all or nothing” problem?

c) How can regulatory authorities help prevent bank runs?

Problem 4 — Bank management (25%)

Consider the attached balance sheet and the income statement for XYZ-bank.

a) Calculate the bank's return on equity (ROE).

b) Show that if you multiply the return on assets (ROA) by the equity multiplier (EM), you obtain the ROE.

c) Show that if you multiply the profit margin (PM) by the asset utilization (AU), you obtain the ROA.

Balance sheet XYZ-bank

Cash and due from depository institutions	100
Investment securities	200
Net loans and leases	650
Other assets	50
Total assets	<u>1000</u>
Deposits	700
Other liabilities	200
Equity	100
Total liabilities and equity	<u>1000</u>

Income statement XYZ-bank

Interest and fees	15
Interest on investment securities	3
Non interest income	7
Total income	<u>25</u>
Interest expences	13
Non interest expences	7
Total expences	<u>20</u>
Net income	<u>5</u>