

**Problem Set 3 corrected**

Due in lecture on Wednesday, December 8<sup>th</sup>.

1. Suppose the bank you own has the following balance sheet, in millions:

Assets		Liabilities	
Reserves	\$1600	Deposits	\$10000
Loans	\$10400	Bank Capital	\$2000

If the bank suffers a deposit outflow of \$1 billion with a required reserve ratio on deposits of 10%, what actions must you take to keep you bank from failing?

2. Consider these two banks, which are the same size in terms of assets. Suppose further that the return on assets (ROA) is 2%.

High Capital Bank			Low Capital Bank		
Assets		Liabilities	Assets		Liabilities
Reserves	\$10	Deposits	\$90	Reserves	\$10
Loans	\$90	Bank Capital	\$10	Loans	\$90
				Bank Capital	\$4

2.1 Calculate the ROE for each bank.

2.2 What is the advantage of being a high capital bank?

2.3 Is either of the banks more susceptible to liquidity problems?

3. Consider the case of a manager of a bank that is attempting to reduce the risk associated with interest rate changes. The bank has \$30 million of fixed-rate assets, \$20 million of rate-sensitive assets, \$10 million of fixed-rate liabilities, and \$40 million of rate-sensitive liabilities. If the bank manager conducts a gap analysis for the bank, show what would happen to bank profits if interest rates rise by 2 percentage points. What actions could the bank manager take to reduce the bank's interest rate risk, if he/she so decided?

4. Consider the balance sheet of the Fed.

4.1 If the return on loans and Treasury securities rise, what will happen to the money supply, holding all else constant. Explain the mechanism for this effect.

4.2 What could the Fed do in order to control the money supply?

5. The Taylor rule. Collect monthly data on the Fed funds rate, inflation, real GDP and potential GDP, and unemployment, over the 1987Q1-2010Q2 period. Potential GDP can be retrieved from here: <http://www.cbo.gov/ftpdocs/117xx/doc11705/KeyAssumptionsPotentialGDP.xls> .

5.1 Estimate the Taylor rule, using the output gap.

5.2 Estimate the Taylor rule, using the unemployment gap.

5.3 Compare the results assuming the coefficients on the Taylor rule (using the output gap) are 0.5, 0.5