Economics 435
Fall 2017
University of Wisconsin-Madison

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Social Sciences 7418

Problem Set 3

Due ***in lecture*** on ~~Wednesday~~ **Monday**, November ~~8th~~ **13th** (revised). Be sure to put your name on your problem set. Put "boxes" around your answers to the algebraic questions.

1. Consider a Bank that has the following balance sheet:

1.1 Suppose the bank has the following structure:

Assets		**Liabilities**	
Reserves	$50M	Checkable Deposits	$230M
Securities	$25M		
Govt Securities	$25M		
Loans	$150M	Bank Capital	$20M

Bank capital is the equity of the owners (shareholders) of the bank. ABS stands for asset backed securities.

Under the Basel II guidelines, government securities would have zero weight in assets; recalculate the capital ratio for this bank. Show your work. (Note also reserves carry zero weight in the calculation of risk weighted assets.)

1.2 Suppose the government securities are actually as risky as non-government securities. Calculate the true capital ratio.

2. Leverage, liquidity, and bank balance sheets

2.1 Consider two banks, H (high bank capital) and L (low bank capital).

High Bank Capital				**Low Bank Capital**			
Assets		Liabilities		Assets		Liabilities	
Reserves	$18M	Deposits	$180M	Reserves	$20M	Deposits	$192M
Loans	$142M	Bank Capital	$20M	Loans	$140M	Bank Capital	$8M
ABS	$40M			ABS	$40M		

Bank capital is the equity of the owners (shareholders) of the bank. ABS stands for asset backed securities.

Calculate the return on equity (ROE) for each bank, if the rate of return on loans is 4%, and 8% on ABS, and the interest rate on deposits is 1%.

2.2 Show what happens to each of the bank balance sheets when the asset backed securities lose 25% of their value.

2.3Now consider two banks, one which borrows a nothing short term, and one that borrows a lot on short term money markets.

Bank Deposit Based				**Money Market Based**			
Assets		Liabilities		Assets		Liabilities	
Reserves	$12M	Deposits	$120M	Reserves	$6M	Deposits	$60M
Loans	$148M	Short term	$60M	Loans borrowing	$154M	Short term borrowing	$120M
ABS	$40M	Bank Capital	$20M	ABS	$40M	Bank Capital	$20M

Calculate the return on equity (ROE) for each bank, if the rate of return on loans is 4%, and 8% on ABS, and the interest rate on deposits is 1%, and the interest rate on short term borrowing is 0.5%.

2.4 Show what each bank must do when short term money markets freeze, so that the banks cannot continue to borrow short term.

3. Suppose the demand for reserves is stable. Use a graph of the market for Bank Reserves to show how the Open Market Trading Desk would implement a decision by the FOMC to raise the target federal funds rate. You should assume that the discount and deposit rates are adjusted so that the spreads between them and the target federal funds rate are maintained.

4. Suppose, one morning, the Open Market Trading Desk drastically under-estimates the demand for reserves when deciding the quantity of reserves to supply to the market. Use the graph of the Market for Bank Reserves to show why the market federal funds rate will not exceed the discount rate regardless of how large the gap between estimated and actual reserve demand.

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