Econ 202: Intermediate Macroeconomics
Problem Set 5: IS-LM with more complex financial markets
Spring 2019

This assignment is due in **hard copy** at the **beginning** of class on **Tuesday April 2**
Remember that the process of how you arrive at an answer is as important as the answer itself. Therefore, full credit will require you to show all steps and work, clearly label all graphs, and fully explain any answers that ask for an explanation.

Question 1: Real versus nominal interest rates.

a. If the nominal policy rate (i) is 2.41% and expected inflation is equal to 1.5%, what is the real interest rate (r)?
b. If expected inflation increases to 2%, does the real cost of borrowing increase or decrease? Explain why.

Question 2: Practice with different types of interest rates

Fill in the table below:

	Nominal policy rate	Expected inflation	Real policy interest rate	Risk premium	Nominal borrowing interest rate	Real borrowing interest rate
A	3	0		0		
B	5		2	1		
C	0	2		4		
D				2	6	3

Question 3: The IS-LM view of the world with more complex financial markets

Consider an economy described by Figure 6-6 in the text.

a. What are the units on the vertical axis of Figure 6-6?
b. If the nominal policy interest rate is 6%, and expected inflation rate is 4%, what is the value for the vertical intercept of the LM curve?
c. Suppose the nominal policy rate is 6%. If expected inflation decreases from 4% to 2%, what must the central bank do to the nominal policy rate to keep the LM curve from shifting?
d. If the expected inflation rate decreases from 4% to 2%, does the IS curve shift? If so, why?
e. If the expected inflation rate decreases from 4% to 2%, does the LM curve shift? If so, why?
f. If the risk premium increases from 6% to 8%, does the LM curve shift? If so, why?
g. If the risk premium increases from 6% to 8%, does the IS curve shift? If so, why?

Question 4: Analyzing financial shocks in the IS-LM model

Business cycle contractions (recessions) generally come with a decrease in borrowers' credit worthiness (increased probability of default), and an increase in lenders' risk aversion as lenders become increasingly pessimistic about the future.

Use the graphical IS-LM model to analyze the effects of these changes during a business cycle contraction on equilibrium output.

Question 5: A monetary policy response to an increase in the risk premium.

Say that, initially, the real interest rate (r) is 2%, and the risk premium (x) is 1%. Suddenly, there is an increase in the default risk of borrowers, and the risk premium increases by 4%.

a. Show the effect of this increase in the risk premium on the level of output using the IS-LM model. Explain why output falls.
b. Say that the central bank wants to bring output back to its initial level. What real interest rate is needed to do so?
c. Say that there is a zero lower bound on nominal interest rates (i.e. i cannot fall below zero). Can the central bank achieve this real interest rate when expected inflation is 2%? What about if expected inflation is 0%?