



Problem sets 2: Keynesian business cycles

EE312: Intermediate macroeconomics

Semester 1/2019

Instructor: Assist.Prof. Dr. Kittichai Saelee

Due on Sept 20th, 2019 in class (before 11.15 am)

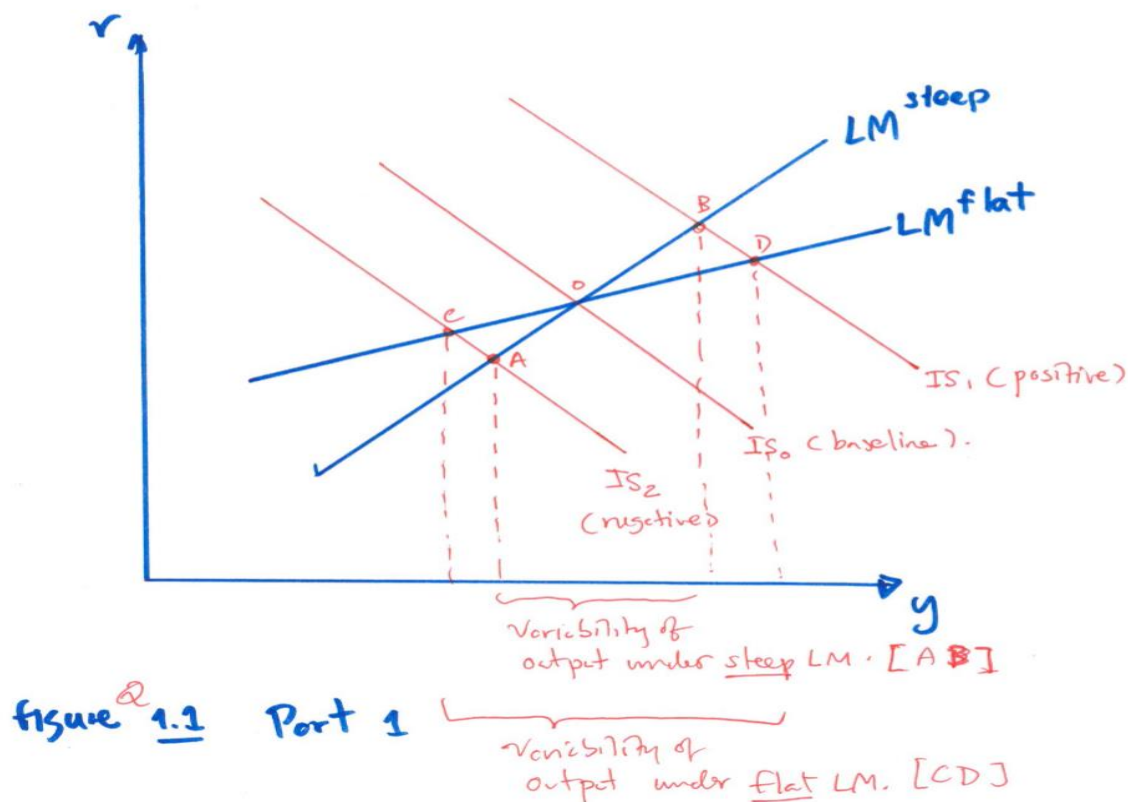
Instruction

1. There are three parts. Part I is true/false questions. Part II has one question that requires longer answer. Part III is an essay-based question. Attempt all!
2. In part I, make it precise. The most effective way to answer True/false question is to strike to the point, and find a rebuttal case if you believe that it is incorrect. (As you may guess, the most likely answer should be either false or uncertain.)
3. In part II, the question is divided into several parts. Answer the question sequentially.
4. In part III, you have to clearly, as well as step-by-step, explain the transmission mechanism of shocks.

Part I:

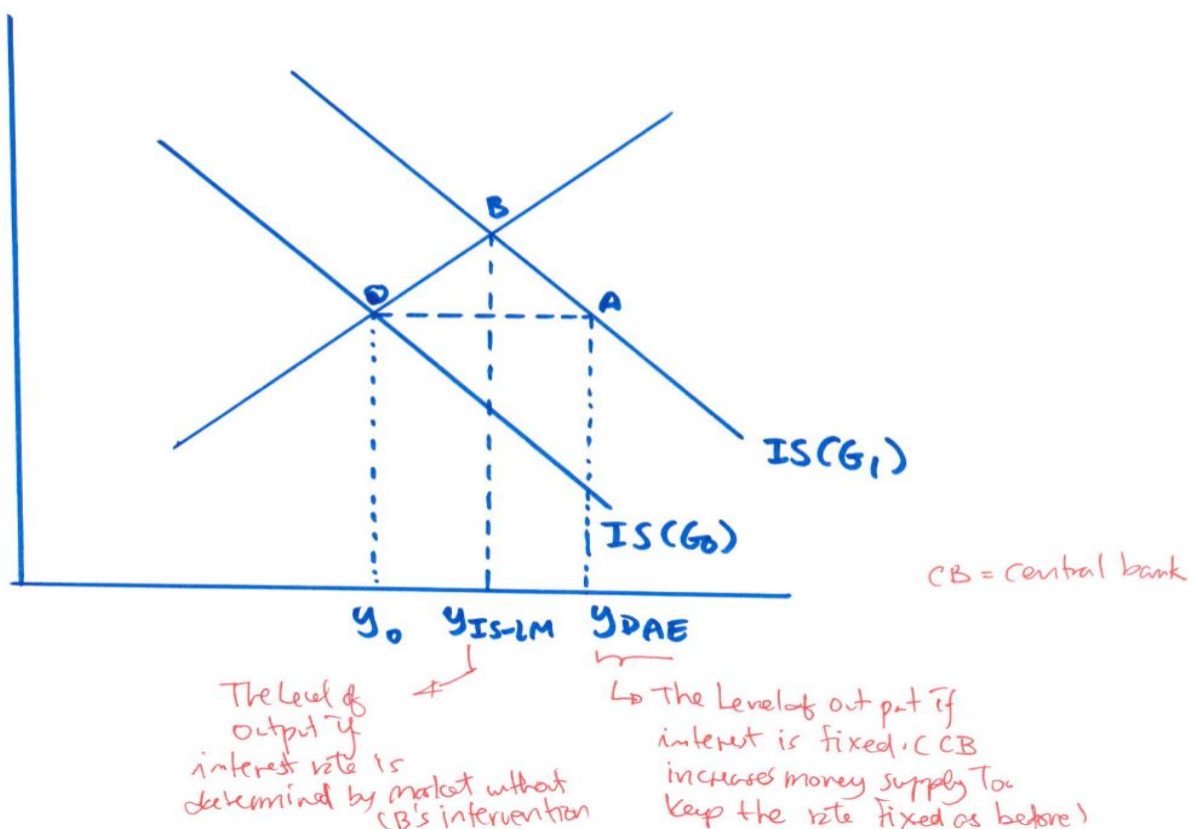
- 1.1 IS (random) shocks can generate a bigger volatility in real GDP under elastic money demand than under inelastic money demand.

Recall that the direct impact of IS shocks on real GDP operates through the channel so called DAE multiplier effects. Under the IS-LM model, the multiplier effect is partially weakened by the crowding-out or crowding-in effect, each of which occurs under the positive and negative IS shock, respectively. The key is how much interest rate responds to the IS shocks. Under the elastic money demand, the LM curve is flat. The implication for flat LM curve is that equilibrium interest rate implied by money market will be less sensitive to the change in income. As a result, for given IS shocks, the feedback effect generated by the change in the interest rate will be small; given other things, consumption and investment will not change a lot. From the below figure, one can see that the variability of real GDP is **larger** when the LM curve is flat than when the LM curve is steep. (The graphical illustration assumes that the economy can be subjected two possible (random) situation; one is the positive IS shocks, and the other is negative IS shock.)



- 1.2 The effect of fiscal policy is the strongest when monetary authority chooses to accommodate the government policy by fixing the interest rate.

This is **TRUE**. As explained in 1.1 above, the effect of fiscal policy (an example of IS shock) is partially impaired because of the crowding-out effect, i.e. the feedback effect of change in the interest rate on private spending. If the central bank chooses to keep the interest rate fix, the effect of fiscal policy will be the strongest as the crowding-out effect is zero.



- 1.3 Given the positive co-movement between price and output in the data, Thai business cycle should be dominantly driven by the supply shocks.

*The answer is **NO**. First, note that the pattern of co-movement differs under two different versions of shocks. Under the supply shocks, inflation and output should be **negatively** co-move. That is, with negative supply shocks, inflation increases while output decrease. Opposite to the supply shocks, inflation and output should be **positively** co-move. That is, with positive demand shocks, inflation increases along with the increase in output. Both supply and demand shocks are responsible for the business cycles fluctuations.*

From time to time, the economy has been randomly hit by different types of shocks. For example, during the flooding 2011, the hit could be viewed as an example of negative supply shocks. When the economy entered into 2012, we were hit by positive demand shock that is attributed to the first-car tax exemption policy, i.e. the big fiscal stimulus package. The conclusion that Thai business cycle is “solely” responsible by demand shocks might be too strong. In fact, both shocks account for the cycle; however, demand shocks appear to have played more important role than supply shocks. That’s why we have predominantly observed the positive co-movement in the data.

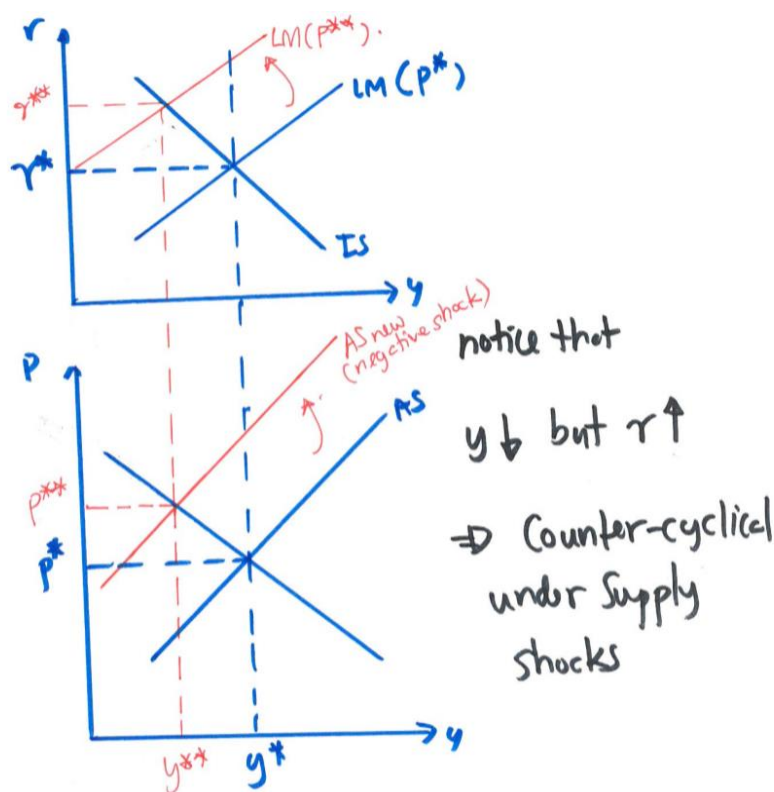
1.4 Interest rate is a countered-cyclical variable under demand shocks.

The answer is **UNCERTAIN**. This depends upon the type of demand shocks, i.e. whether the shock stems from the shocks on IS curve or the shocks on LM curve.

Consider a positive demand shock derived from the positive shock on IS curve, such as an increase in government spending. This positive demand shock will generate an expansionary effect of real GDP, with an increase in the interest rate. So, in this case, the interest rate will behave as a pro-cyclical variable.

Now consider instead a positive demand shock derived from the positive shock on LM, such as an increase in money supply or a decrease in money holding. This positive demand shock will generate an expansionary effect of real GDP; however, the interest rate will fall. So, in this case, the interest rate will behave as a counter-cyclical variable.

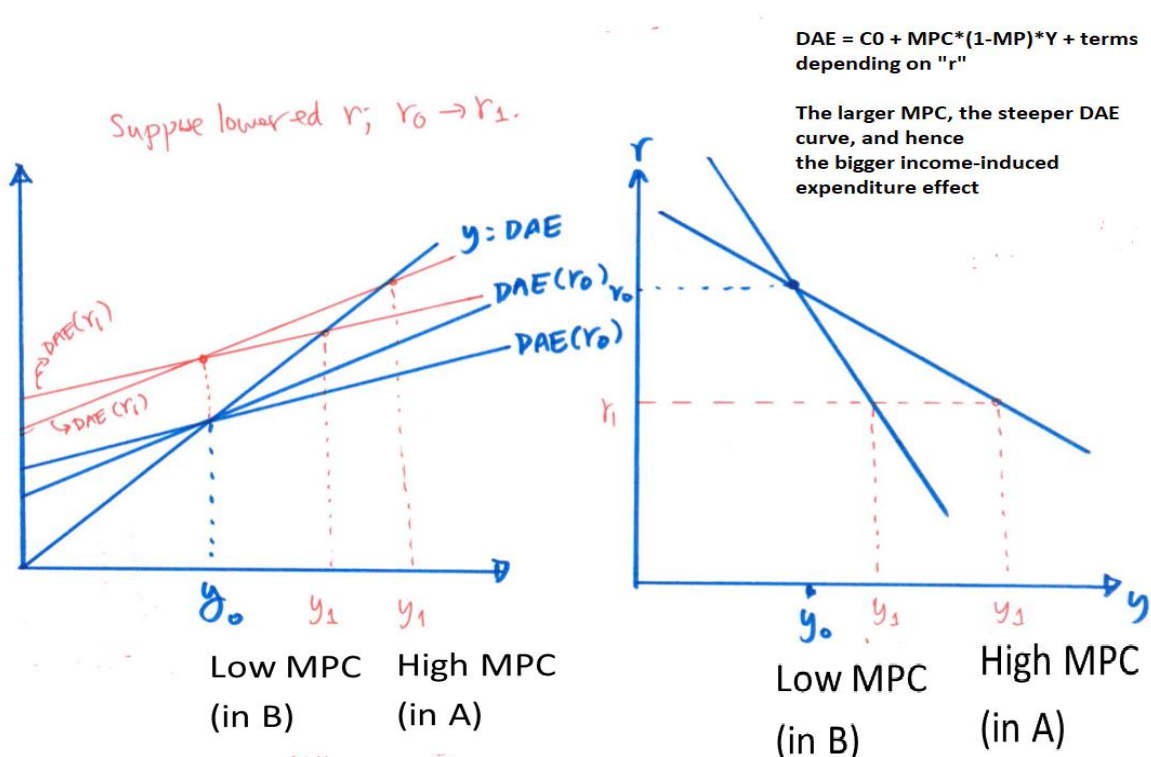
As both IS shocks and LM shocks are grouped as demand shocks, the statement is then considered to be incorrect; whether the interest rate will be countered-cyclical or pro-cyclical depends on the type of shocks that generate the demand disturbances.



Part 2: Consider a two country model, namely A and B. Suppose for now that both are closed economy; that is, both A and B do not have exports and imports. The general economic structure of the two countries are identical, expect that the tax system of the two are different. **The marginal propensity to consumer (MPC) of the households in country A is higher than the MPC of those in country B.** Consider the following problems.

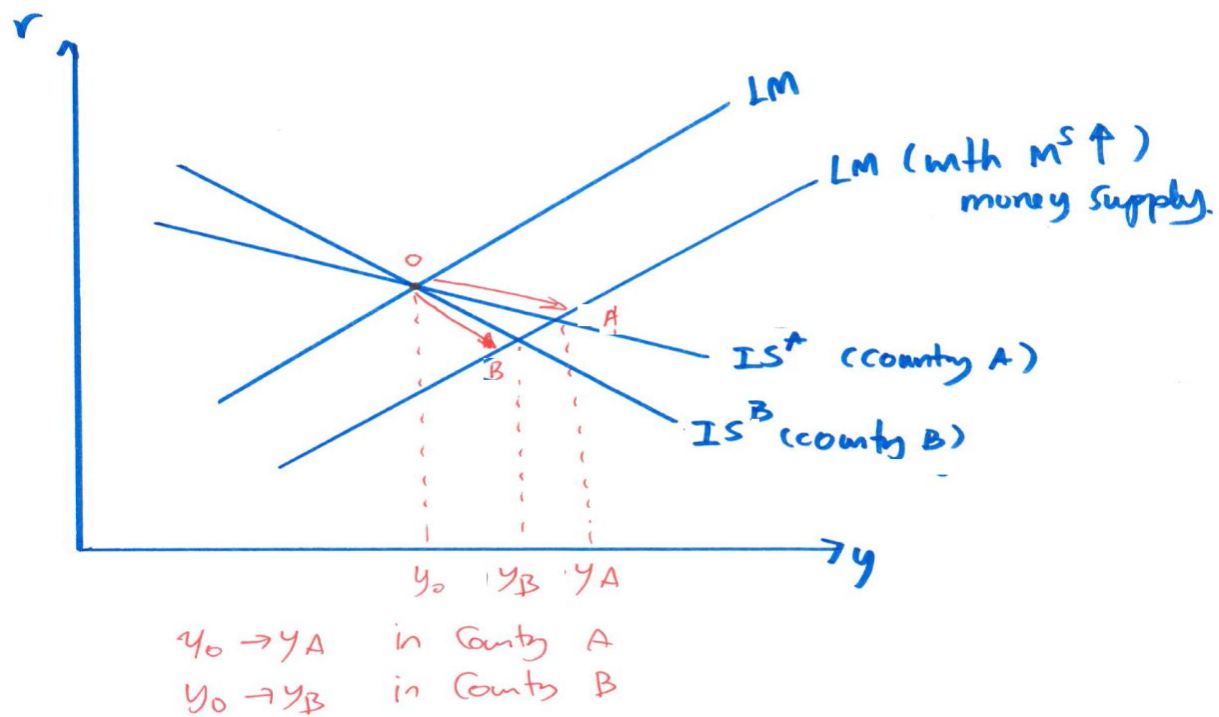
2.1) Using the IS-LM diagram, how can we capture the difference between the MPC of the two countries?

Difference in the MPC in the two countries can be graphically captured by the difference in the slope of IS curve. Recall that IS curve can be flat when the effect generated by income-induced expenditure (namely, the multiplier effect) is large. Given the higher MPC and other things being equal, country A is likely to have larger size of multiplier than country B. As a result, the IS curve in country A should be flatter than that in country B.



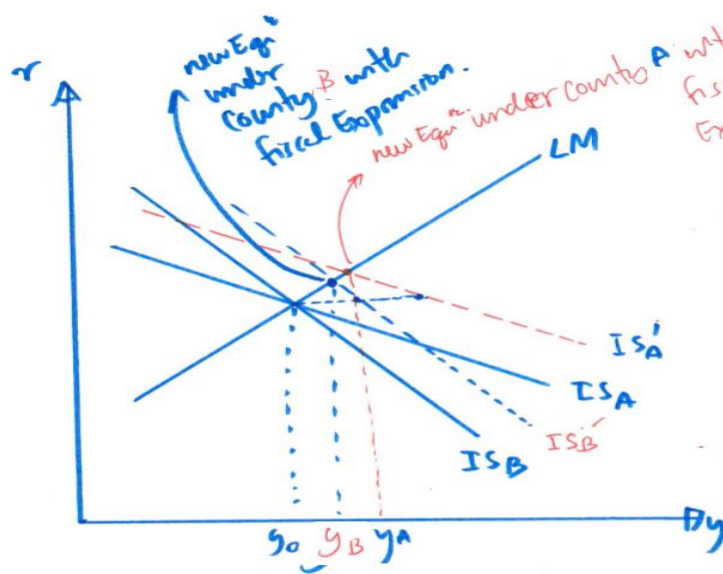
- 2.2) Based on your answer in (2.1), do you find monetary policy more effective in country A than in country B? Use the IS-LM diagram to show your analysis. Explain your answer.

Recall that the flat IS curve implies the larger sensitivity of output to the interest rate; a marginal decrease in the interest rate can increase output a lot. As a result, monetary policy, which affects output through the change in interest rate (and hence private spending), should be more effective under the flat IS curve than under the steep one. Monetary policy is therefore more effective in country A than in country B.



- 2.3) Based on your answer in (2.1), do you find fiscal policy more effective in country A than in country B? Use the IS-LM diagram to show your analysis. Explain your answer

In lights of the answer given by 2.1, fiscal multiplier in country A should be larger. The figure below compares the effect of fiscal policy when the economy differs with respect to the degree of the sensitivity of income-induced expenditure. multiplier. With the higher sensitivity of income-induced expenditure, fiscal policy generates larger size of horizontal shift in the IS curve, i.e. larger DAE fiscal multiplier. Therefore, fiscal impact is then larger in country A where IS curve is flat due to the bigger MPC.

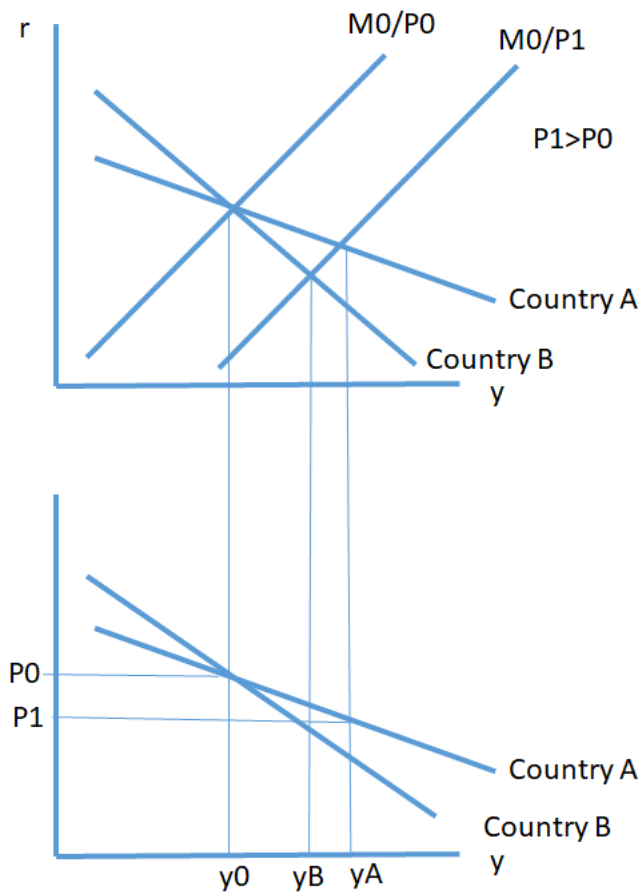


The IS curve in A will shift ~~to~~ more (larger horizontal shift) because of large DAE multiplier.

The result would be reversed by the difference in the slope of IS due to the sensitivity of private spending to interest rate; the flatter IS, the lower impact of fiscal expansion.

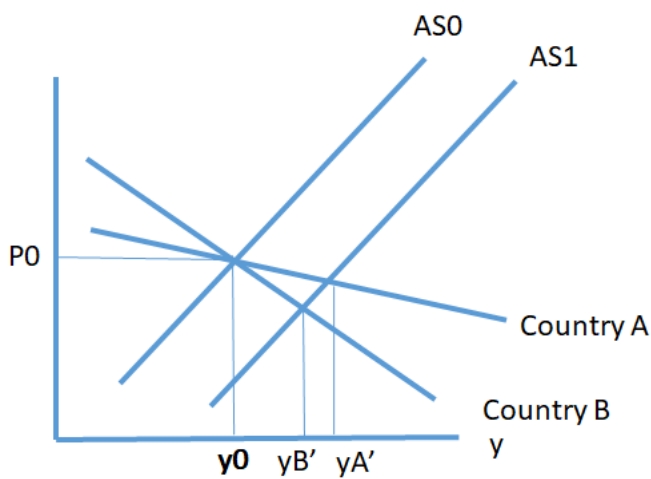
- 2.4) Based on your answer in (2.2) and (2.3), do you think the AD curve of country A is flatter or steeper than that of country B? Why? Explain your answer.

The AD curve in country A should be flatter. Recall that AD curve is derived from the IS-LM equilibrium. Change in price can cause a change in the interest rate, and thus affect the private spending. In country A, the size of income-induced expenditure is larger because of the bigger value of MPC. Therefore, the effect of price change could produce larger impact of private expenditure, and hence equilibrium output. Given this reason, the aggregate demand should be more sensitive to price in country A; the AD curve in country A is flat then.



- 2.5) Based on your answer in (2.4), do you think the effect of supply shocks will be more pronounced in country A than in country B? Explain your answer.

With the flat AD curve in country A, the effect of supply shocks should be more pronounced. Consider, for example, a positive technology shock that generates an increase in supply. As supply increases, price will be falling. With the flat AD curve, aggregate quantity demanded increases a lot, and hence causing a larger increase in the equilibrium output.



Part 3 Within the variable price and fixed (constant) wage version of the Keynesian model, analyze the effects of a loss of confidence in risky stocks and bonds such as occurred in the 2007–09 financial crisis. What would be likely outcome on key macroeconomic variables such as, output, interest rates, private spending, unemployment, and overall prices? Explain your answer.

(**Hint:** your answer should be linked to the 4 main diagrams in class.)