Monetary Policy at the Zero Lower Bound
ECON 4673
Dr. Keen

Answers

1. *How does the policy rate hitting a floor of zero lead to an upward-sloping aggregate demand curve?*

   When the nominal interest rate hits zero, a lower inflation rate leads to a higher real interest rate because the nominal interest rate cannot fall below at zero. The higher real interest rate than reduces investment and net exports which causes output to fall. The decline in output as inflation falls results in an upward sloping aggregate demand curve.

2. *Why does the self-correcting mechanism stop working when the policy rate hits the zero?*

   When output is below zero due to a negative aggregate demand shock, inflation falls as the economy moves downward along the short-run aggregate supply curve. If the nominal interest rate is zero, then the decline in inflation pushes up the real interest rate. That higher real interest rate depresses investment and net exports which leads to a further decline in output. A downward spiral then ensues inflation and output keep falling, so the self-correcting mechanism is not operational.

3. *What nonconventional monetary policies shift the aggregate demand curve, and how do they work?*

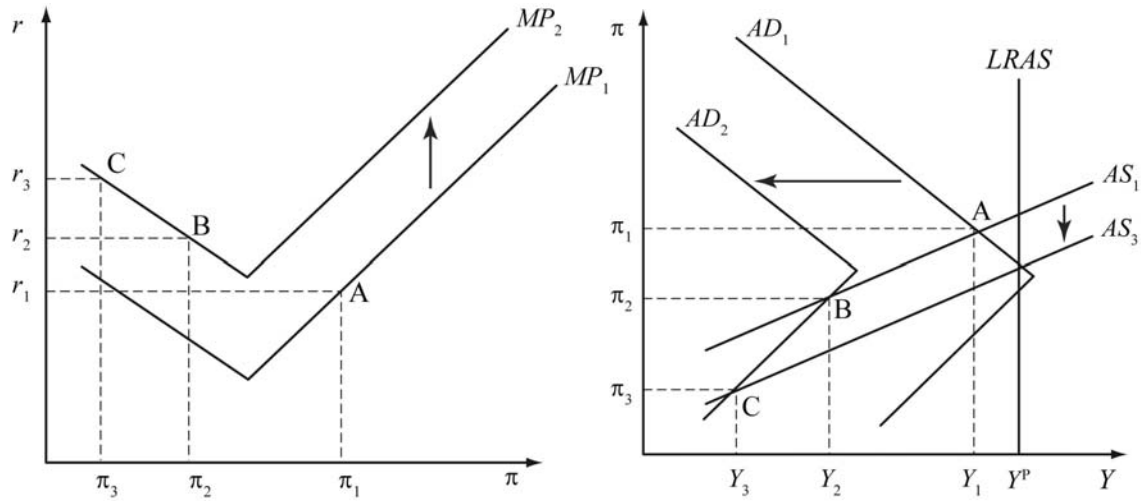
   All nonconventional monetary policy tools work by lowering the interest rate so as to stimulate investment which leads to a rightward shift in the aggregate demand curve. Liquidity provision helps to heal impaired financial markets, thereby lowering financial frictions, and hence, the real interest rate. Purchases of long-term bonds by the central bank, raise the price of these bonds, and therefore, lowers long-term interest rates, which pushes up investments. The central bank also can use forward guidance to manage expectations of future interest rates by committing to keep interest rates low for a long period of time. That commitment will lower long-term interest rates which will stimulate investment and output.

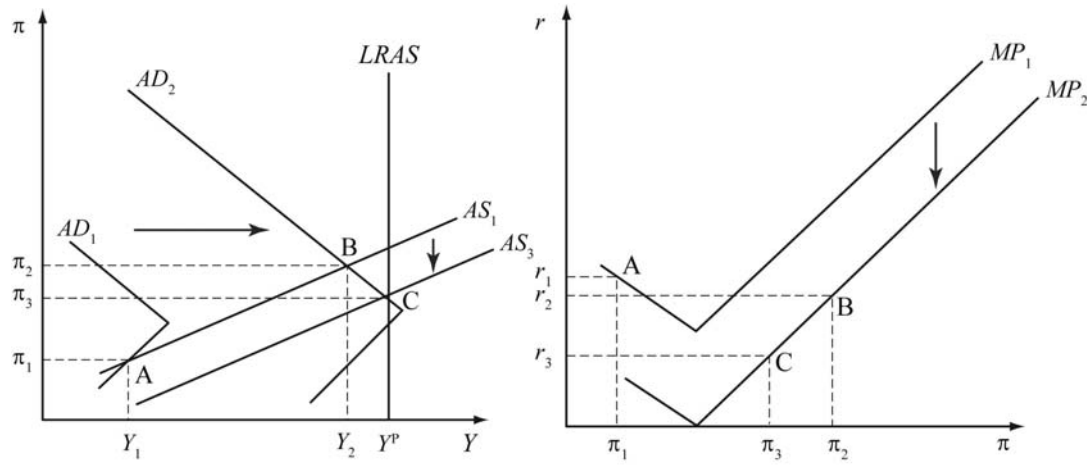
4. *Suppose that $\bar{f}$ is determined by two factors: financial panic and asset purchases.*

   a. *Using an MP curve and an AD/AS graph, show how a sufficiently large financial panic can pull the economy below the zero lower bound and into a destabilizing deflationary spiral.*

      A financial panic will increase $\bar{f}$, which will lead to a higher real interest rate on investments at any given inflation rate (i.e., the MP curve shifts up). A sufficiently large panic lowers output and shifts the aggregate demand curve to point B, where the self-correcting mechanism will lower inflation enough that the nominal interest rate will go to zero. At that point, the lower inflation will push up the real interest rate causing investment and output to fall further. The decline in inflation will also reduce inflation

expectations which will push down the short-run aggregate supply curve. This decline results in a deflationary spiral in which the economy will move toward point C.



b. *Use a MP graph and an AD/AS graph to show how a sufficient amount of large-scale asset purchases can reverse the effects of the financial panic depicted in part (a).*

A large enough asset purchase will reduce $\bar{i}$, reversing the effects of the panic, and lower the real interest rate on investments at any given inflation rate. This move shifts the MP curve downward and the AD curve rightward so that the economy moves from point A to a point B, where the economy is no longer at risk of a deflationary spiral. (The nominal interest rate is no longer at zero.) At point B, the self-correcting mechanism can move the economy to a stable long-run equilibrium, point C, since the nominal interest rate is above the inflection point on the aggregate demand curve.