Eco 242 Eshragh Motahar

MACROECONOMIC THEORY AND POLICY

The Extended *IS-LM* Model

with risk premia and nominal versus real interest rates

Based on Blanchard, 7th edition, chapter 6

The Fisher Equation

$$r_t = i_t - \pi^e_{t+1} \quad \Leftrightarrow \quad i_t = r_t + \pi^e_{t+1}.$$

Risk and Risk Premia

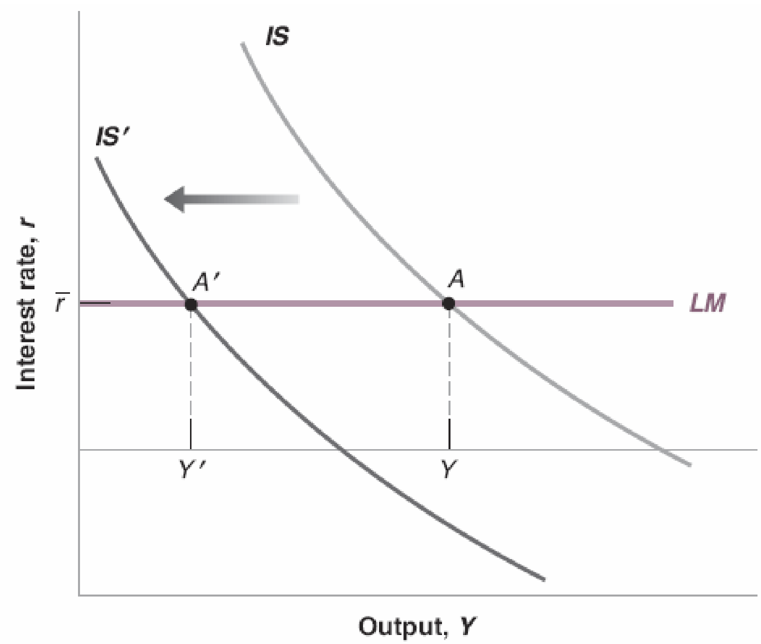
Let i be the nominal interest rate on a riskless bond, and $i + x$ be the nominal interest rate on a risky bond, which is a bond which has probability p of defaulting. Call x the risk premium. Then, to get the same expected return on the risky bonds as on the riskless bond, the following relation must hold:

$$(1+i) = (1-p)(1+i+x) + p(0).$$

Reorganizing the above gives:

$$x = \frac{(1+i)p}{(1-p)}.$$

An example: Let i = 3%, and p = 5%, then from the above formula we get, x = 5.42%.



Extending the IS-LM

IS relation:

$$Y = C(Y-T) + I(Y,\, i - \pi^e + x) + G + NX.$$

LM relation: $i = \bar{i}$.

However, "although the central bank formally chooses the nominal interest rate, it can choose it in such a way as to achieve the real interest rate it wants". (This ignores the issue of zero lower bound—to be discussed.)