

Economics 423

Fall 2019

Tutorial Exercise 7

These questions are based on the Crean-Milne paper.

Consider CM section 4.

1. (a) In Section 4.1.2 and 4.1.2.1 show the conditions determining the optimal size of the SIRS industry, production Q and the sale of output over the two successive dates. (b) Show how you can illustrate what some people call a “Black Swan” event. Given the model assumes that agents fully understand the consequences of the down state, then in what sense is that down state “unexpected”?
2. In Section 4.1.3 CM describe a SIRS industry where there is a decline in demand in time 1 and the possibility of a rebound in demand in time 3. Explain how the profit maximizing sales strategy for Q_1 and Q_2 will depend upon the probability of a rebound at time 3. In reality what evidence and analysis would you consider when making your evaluation of that probability?
3. Assume the model in Section 4.1.2 and 4.1.2.1 Assume that a representative SIRS firm j has levered its financing, so that it has financed its capital expenditure at time 0 with equity E_j and debt D_j so that $E_j + D_j = K_j$. Assume a bank is the sole lender to the firm. Given the model, what are the conditions that ensure that in the downside demand, the loan will be riskless and the equity value will be zero. Now if the firm is more highly levered use the model to show how you could compute loss given default (lgd) and the probability of default (pd). (Hint: read Section 4.1.1 and 4.1.2.1.)
4. Consider the analysis in section 4.3.5.3 where the SIRS industry has constraint on capacity. Now apply this analysis to a city where the authorities have imposed zoning laws that restrict the land for residential housing. There are rumours that the authorities may or may not relax the zoning laws. Given your bank is lending to a developer, how would you use the model in 4.3.5.3 to analyze credit risk. Does it make any sense to discuss lgd and pd. (Hint: does the past provide any indication of likelihood of the regulations changing?)