RPRD 802
Fall 2016

Exercise Sheet 3:

1. Consider the Plantin and Rochet (2007) Chapters 1-3.
   (a) Explain the conventional Ruin Theory that is used to calculate insurance risk. How is it related to VaR?
   (b) What are the limits of Ruin theory as a guide to Risk Management and Regulation? Explain.
   (c) What role does the Modigliani-Miller Theory play in considering insurance risks?
   (d) Why may it take years to reveal when an insurance company has inadequate reserves?

2. It is commonly claimed that the Financial Crisis was a Black Swan that was impossible to predict.
   (a) Given the warnings by several prominent regulators and academics leading up to the Crisis, show that most of its characteristics were predicted.
   (b) Was the **severity** predictable given the state of empirical knowledge in 2006 and early 2007? Why? This requires reflecting on Hellwig (2008) Section 4.11.

3. In the basic Crean-Milne model with risk, assume that there are two types of banks; and two industries – one a SIRS and one that is not a SIRS.
   (a) Will MM apply?
   (b) Assume that bank one is exposed to the SIRS industry; and bank two is only exposed to the non-SIRS industry. The banks do not use an interbank market. Track the exposures to a down state in the SIRS industry through both banks' equity and bond holders. Does the financial structure of the SIRS industry and banks matter to the welfare of the economy? Who are the ultimate holders of the SIRS' risk?
   (c) Now assume that bank two has interbank exposure to the SIR's exposed bank one. Track the SIRS losses through the system and the implications for asset prices and interest rates.
   (d) If you were asked by OSFI to choose capital ratios for a bank, then how would you consider direct and indirect exposures to SIRS in recommending "adequate capital"?