Lecture 15:
Deposit insurance

We begin with the story about financial contagion which is somewhat misplaced in the book, since the HHH-model was a natural continuation of the interbank market story. As it was mentioned in the discussion of bank runs, one of the ways of avoiding bank panics is to have a system of *deposit insurance* – since the deposits are insured, there is no need to worry for depositors about whether they can get their money back, and therefore there will be no runs on the bank.

This would solve the problem of bank runs, if it there were no side effects, but there are, and this is what Chapter 15 is about. Here is an overview of the chapter:

(i) The cost of deposit insurance, what should be the premium, sections 15.1-2.

(ii) Deposit insurance makes the banks care less about risks, section15.2-3.

(iii) Finer details about the insurance premium, section 15.3

(iv) Who should pay the premium? section 15.4.

In the discussion of (i), the natural point of departure would be that the cost of insurance is the average loss, known in insurance theory as the fair premium. This however turns out not to be a very useful approach, as we shall see in (ii). Therefore we change focus and look at principles for pricing, in particular the Merton approach, seeing the deposit insurance as a put option – the bank can "sell" its assets (loans) at some date T at the price $De^{r_D}T$ (value of deposits plus interest payment on deposits). This makes it possible to use option pricing to assess the value of the insurance, and in this way one gets a proposal for what should be paid. The idea is more important than the formula, since anyway the BS formula depends on its assumptions, in particular that the assets follow a geometric Brownian motion, which is not a good description of reality.

The problem with the fair premium is outlined in section 15.2. The section has two parts: In the first part, ending on mid page 301 around, illustrates the moral hazard problem in a very simple setup – the bank will prefer the most risky engagement since expected profit is maximal here. Intuitively, when the risk is covered by the insurance and all engagements have the same average payoff, then the bank will prefer the risky engagement since average repayment of debt is small since the insurance pays in many cases. The second part is slightly more tricky: Here we take into account that premium is fair, determined by expected loss, but that deposits depend on the riskiness of the bank's assets. Using fairness together with the assumption that for each choice of p the bank chooses the amount of deposits so that it maximizes profits, we get a contradiction). This means that fair pricing and profit maximization of banks given that depositors cannot observe p are incompatible principles.

So far we have treated simple consequences of deposit insurance. In the rest of the chapter we consider some more sophisticated models involving deposit insurance. The model in Section 15.3 deals with the problems arising when the investments of banks are correlated (so that if the investments fail for one bank, it will also fail for the other bank). This is of interest when we consider the pricing of deposit insurance in more detail: The price for insuring a bank should depend also on its value when it experiences a failure, since the assets might be sold at some price rather than in our very simple models disappear altogether. When there is another bank around, this bank may buy out the assets, and assuming that banks are better at monitoring investment than the general public, the price obtained will be higher than if there is no such bank. When this is taken into account, then one obtains that the insurance premium should depend not only on deposits (and their size) but also on assets, and not only their riskiness, but certainly also on whether they are correlated or not.

This takes us to the final section which looks at deposit insurance from a very different angle. It is not in the curriculum, but it is intellectually stimulating, so I shall spend a litte time on it at the lecture. Here is a summary of what happens in the section:

If banks are better at preventing losses than individual investors (this may be explained by the monitoring approach to banking, but it could also be due to deposit insurance), and if society wants as many and as successful investments as possible, then those not using banks (and losing more on investments) should be encouraged to use banks instead, and this could be done by taxing non-bank investors, that is financing the specific cost of the banks by general taxes. This means that the cost of deposit insurance should be carried not only by banks and their costumers, but also by the general public.

In the model, taxes obtained from banks, depositors and non-depositors are used for investment, so that they are put into the bank system, and the repayment on these investment are among by the private depositors. Since the use of banks (provided that they do not fall into moral hazard) is better than not using them, deposits are rationed, and the arrangement amounts to forcing some depositors out while securing the remaining depositors a better outcome (losses are covered by the public investments). In other words, it is a somewhat strange form of deposit insurance, and its main advantage is that it does allow for banking activity on a larger scale than before (also meaning that more depositors can be served).

The model may seem far-fetched in a discussion of deposit insurance, since it ends up with a tax paid by those who never get into touch with the bank, but it shows that much more is involved than just financing the expected loss. Also it shows that there is nothing wrong with a situation where the general public pays the losses of the banks, it may even be preferable from a welfare point of view.

We read: Chapter 15