Lecture 16:
Deposit Insurance, Lenders of Last Resort

So far we have treated simple consequences of deposit insurance. In the rest of Chapter 15 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.

The model is not too complicated, so try to get through it, in particular the first part on pp.302-303. It can be used also in other contexts, as indicated at p.303 bottom: If one bank is large and another small, then there is little chance that the small bank can take over all the assets of the large bank, so the deposit insurance per unit of deposit should be higher for the large than for the small bank, perhaps a somewhat unexpected conclusion. The part on pp.304-5 may be read less thoroughly, here the possibility then a bank is rescued by the government of the central bank is also taken into account (we shall have more to say on bailing out in the next chapter), but nothing basically new is obtained from this. The final subsection points out that insurance premiums could (and should?) be used as an instrument for regulating the bank's choice of assets, so the problem of determining how much should be paid for deposit insurance has indeed many different aspects.

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 intuition behind the formalism from (12) and onwards is as follows: Introducing taxation, we obtain a revenue which is used for investment using the banks. This government investment has as a consequence that not all households can use banks (they are constrained by capital ratios). Those actually using banks get their payoff plus the payoffs from the government investments, and this makes banks more attractive as compared to the previous situation. The exact value of the maximal k and the tax rate sustaining this k is less important and may be skipped.

The model may seem far-fetched in a discussion of deposit insurance, since it ends up with a tax paid by all 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.

Lenders of last resort: The first section in Chapter 16 carries on where we stopped in Chapter 15, since it also deals with deposit insurance most of the time. In the model considered, deposit insurance may have defects which can be overcome using another instrument, namely the *lender of last resort.* As usual, banks invest in a technology, this time it is risky, succeeding only with a probability q chosen by the investor, but such that expected repayment is constant. Otherwise the model is more or less the same as the Diamond-Dybvig model, and therefore the deposit contracts look more or less the same. Since households are risk averse and banks compete for depositors, they will choose the version with $q = 1$. Thus the choice of investment type is optimal, but of course the financial system is subject to bank runs.

When there is deposit insurance, the risk of bank runs is no longer there. But now the risk averse depositors look differently at their prospects, since losses are covered by the deposit insurance. If initially the investment satisfied $q = 1$, then a small downwards deviation in a single bank may be interesting for its depositors, since they isolated will benefit from the higher reward if the investment succeeds and will be covered by the insurance if it fails, and given that they are only one out of many banks they do not expect that the insurance premium will change. As a result the previous equilibrium with $q = 1$ is upset, and the financial sector will choose more risky investments.

Read the first part (pp.311-312) to get an understanding of the model. The problem with deposit insurance is described on p.313, it is ok to stick to the intuition as outlined above and to skip the derivation. The advantage of loans instead of insurance is straightforward and no formalism is needed.

We read: Chapter 15 (remainder), Chapter 16, Sec.1.