Week 7

Why banks, continued; types of financial intermediation; risk management

We stopped in the middle of Chapter 1 last week, fortunately what remains is not too complicated. We begin with the story about delegated monitoring, where the main point is to make sure that the saved cost of monitoring should not be eaten up by the cost of defaults occurring in the bank. Then we look briefly at the moral hazard story, which we shall use repeatedly later on. Finally, we consider banks as coalitions of borrowers. The point is that the cost of participating in the risk when the project is good can be reduced if the risks are pooled. It takes some time to get there, so we shouldn’t lose sight of it while getting through the formalism – it may look technical but is actually quite simple, since risk is reduced to a question of mean and variance. Thus, if borrowers go together, they reduce the variance and therefore they get the loans at a lower cost.

We then move on to Chapter 2, which is more easily read, and we leave some of it to the reader (whenever this happens – as it will from time to another – it means that what is in the text should be read, but that it will not be needed explicitly at the exam). The introductory part stresses that there are many types of financial intermediators, and some of those that we do not consider may actually be quite important. Following that, we turn to some aspects of financial intermediation which has received increased attention in later years, namely relationship banking, the interaction between a bank and its borrowers may give the bank more information about this borrower than other banks would have, dealt with in section 4, and shadow banking, a phenomenon which has been established recently as a topic of research. We use some time on the Freixas model (2.4.3), but at this moment we deal only briefly with shadow banking, since we return to it in later chapters.

Having done this – and by now we are somewhere in the Thursday lecture – we begin our discussion of risk management, based on Chapter 3.

The first step is a classification of risks, which is useful not only for pedagogical purposes but also since the regulations of banks and the reserve requirements differ according to type of risk. We shall deal with the different types of risk in due course. Then we move to a general model of risk management; notice that the word “model” has a slightly different meaning here than when we deal with microeconomics of banks, since in risk management, a model is a framework for numerical computations of useful indicators of risk.

The description of the model looks perhaps slightly more formidable than what is needed. The main point is that we want to express future losses (which is what we should try to avoid) as a function of certain risk factors, which are chosen depending on the type of risk we are studying. The main point of being formal at this early point is to get a unified approach to
risk measurement (“identify risk factors, construct the loss function, find loss distribution”) which can be used as a guide when dealing with each of the specific risk types.

For use in day-to-day risk management, one needs a simple, yet trustworthy measure of risk. In section 2, several risk measures are mentioned, the important one is VaR, which is the one used in practice, although it may not be the best possible. The details about scenario-based risk measures can be skipped. The somewhat more complicated measure called expected shortfall is good to know, but the computations are not necessary.

This is probably as far as we get, but if (surprisingly) time allows, we move on to treat the first type of risk, namely interest rate risk. The natural background for a discussion of interest risk is asset and liability management. Changes in the interest rate play a crucial role for the profitableness of asset management, and it is therefore important to have tools for monitoring and controlling this risk. Banks have a different exposure depending on whether they are net borrowers or net lenders. A first simple measure of exposure is the duration of an asset or a liability, giving rise to the technique of duration matching.

On the face of it, duration is just another formula, slightly different from that of present value, but it has an interesting application. First of all, it measures the sensitivity of the portfolio to interest rate changes which already is something. But secondly, it can be used to provide a simple tool for immunization against interest rate fluctuation, the so-called duration matching. If the durations of the asset of liability sides balance, when computed in the proper way, then the bank cannot be hurt by movements of the interest rate. Unfortunately, the criterion, though useful as a first test, is insufficient, since it works only when all interest rate structure moves up and down by a given amount (“flat interest rate structure”) and only for small changes. More sophisticated risk management will involve other and less simple methods (simulations etc.).

The last section in Chapter 3 (which we do not read) deals with what is called coherent risk measures, and it is there to show that although risk management is a field with many practical applications, there is also theoretical research. You may (or may not) have a quick glance at it, it looks very abstract but it is a field where interesting research is going on.

We read: Chapter 2 (to be read leisurely), Chapter 3 except Section 4.