Week 9: Loan contract, market risk

We dealt with risk-sharing contracts under full information and began the discussion of contract formation under asymmetric information with costly monitoring, so we proceed from there and I introduced the first of two small models dealing with denial of renewal, which were commented upon in the handout for last week.

We proceed to a particular case where the contract looks very different, namely that of moral hazard, where the effort of the borrower is essential for the success of the investment. Here the optimal contract takes a form which is quite surprising since nothing is paid when the investment is really successful. We go through the proof but you need not memorize it.

The next section deals with collateral. We shall return to collateral later, at this point our focus is on incentives to repay, and here collateral has the a rather intuitive function since it is lost if the loan is not repaid. Looking somewhat closer at the situation, the situation is less simple, even if in principle the same conclusion holds. Take care to notice that this collateral may play several different roles in the lender-borrower relationship.

If time allows – as it probably does since we have two lectures – I add a few comments to the Stiglitz model of microfinance (which nevertheless is not in the curriculum, so no exam question in it!).

Having finished with the loan contract – and this will take some time, since it is an important topic – we switch to the chapter on market risk, which is the risk connected with value of assets or liabilities having a price in the market (so in principle, interest risk is also market risk, but it is always treated separately). This is a rather long chapter, but read only the sections 1 and 5, not because the rest is unimportant, it is actively used in practice, but we cannot cover everything, and it would fit better for practical exercises than for lecturing.

We begin with a short discussion of the pricing of assets, much of it probably known already, including the capital-asset pricing model (CAPM) and possibly also the Black-Scholes formula for pricing of options. You are not supposed to memorize the formula, and we are not going into its derivation (it is derived in an appendix to the chapter, in case you should be interested), but it is useful to have some understanding of what is going on, and we use the B-S formula several times later, in very different contexts. In the CAPM, we take only what is relevant to us, namely the so-called two-fund separation – all investors hold portfolios of risky assets which are proportional. This is reasonably easy to derive, so previous knowledge of CAPM is unnecessary. We then put it to some use, namely investigating the relevance of capital ratios.

After this introduction, we run quickly through the methods that are actually
used on assessing market risk. You may skip this section or read it superficially, we shall not need it later. Finally we consider regulation of market risk through capital requirements, using the capital asset pricing model from the beginning of the chapter. It is seen that capital ratios matter but that not all problems are solved using them in regulation.

We read: Chapter 5, remaining sections (except section 5), Chapter 4, sections 1 and 5.