

Lecture 20: Final lecture: Capital regulation

By now we have entered the last chapter of the book, we covered the Allen-Carletti-Marquez model in the last lecture, but we return briefly to it at the start, and then we move on. The Hakenes-Schnabel model, which comes next, also shows that plain intuition does not always give the right result, in this case it can be shown that increasing capital ratios may lead to a more risky financial sector. The model is basically a version of the Allen-Gale model, which we know from Chapter 11, but to get the result one needs some add-ins, which may not be very realistic, and anyway the result depends heavily on parameter assumptions. We do not go into details with this model.

We are now quickly approaching the end of our story. In the last lecture we ran through Basel I and II, now it is time for a (similar brief) treatment of Basel III and IV (the last one didn't exist yet when the book was published).

One can see a trend (or rather two different trends) in the Basel accords, one comprising I and II moving towards more sophisticated approaches to the concept of risk-weighted assets, and another one from the financial crisis and onwards with attempts to limit the possibilities of reducing the capital requirements by too creative ways of computing risk-weighted assets. In Basel II this is seen not only from the new additional capital reserves introduced, but in particular from the introduction of the leverage rule, which tries to cut through the complex internal measurements setting a lower bound on equity.

The time after Basel III saw the introduction of further rules of this type, thus an additional capital reserve became mandatory for systemically important banks, and with Basel IV we have a partial return to the way of measuring risk-weighted assets in Basel I, namely the so-called *floor*: The size of risk-weighted assets used for computing capital requirements cannot be smaller than 72,5% of its value if computed using the standardized approach. In other words, there is a limit to how much the equity requirements can be reduced by careful use of internal methods.

This development over the last years can be seen as a general agreement that the banks were allowed too much freedom in the determination of their capital requirements, and the new rules are designed to reduce possible misuse. There are other ways in which the intuitive notion capital reserve can be diluted, in particular by refining the notion of equity, which is not only common stock but can also contain loans in the form of bonds with some particular properties, the so-called Coco (Contingent Convertible) bonds, which are bonds which are converted to equity if certain

stipulated conditions are fulfilled (typically that the shares fall below a certain value). This means that even though the bond owners are not shareholders, they become so if the bank gets into trouble, so they can be seen as a defence line against depositor losses on line with ordinary common stock.

The model in section 18.3 deals with a more realistic problem than those considered in the beginning of the chapter, namely the possibility that banks reduce assets rather than increase equity as a result of stricter capital regulation, we pass quickly over the formalism and stay with what is behind. A similar quick approach is used in our treatment of the final section 18.4 which treats a proposal for a self-regulating financial sector. There are two main ingredients in this proposal, namely

- (i) a form of *narrow banking*, namely a demand that deposits should be fully matched by very secure papers such as government bonds, and
- (ii) a version of *contingent convertible* bonds for the funding of all remaining bank business. The bonds convert to equity in an automatic way, namely whenever the value of the equity will increase by this conversion.

The proposed way of funding the financial sector is shown to be consistent, at least in theory. You don't need to go into details with the formalism, which however is not too formidable, since this is of course only a proposal which has not found much enthusiasm among practical decision makers. Anyway, it is worth noticing as one of several features (blockchain among others) which may change the financial sector in a fundamental way in only a few years from now.

We read: Chapter 18, sections 2–4.