

## Lecture 13: Irregularities & Operational Risk

Moving from Chapter 11 in the book to Chapter 12, we leave the discussion of banking as a going concern and proceed to a more detailed treatment of cases where something goes wrong, from minor irregularities over bank runs to major crises of the financial system.

We begin with the not so spectacular corner, treating situations where financial intermediaries may cheat their customers or conversely. This may happen in many different ways, so we have to be selective. The book has selected five cases to be treated in more detail, we skip one of them (connected with corruption, something which would take us rather too far away from the main theme) and keep the following four cases (sounding almost as Sherlock Holmes stories),

- (1) *Economics of looting*, the problem arising when firms may earn on going bankrupt,
- (2) *The neglected implicit option* in real-assets financing,
- (3) *Evergreening*, banks going on despite of having realized losses so large that they would have been closed down by the financial authorities if it became known,
- (4) *Money laundering* and the crying-wolf problem.

(1) The first case, treated in section 12.2, is one which is much cited in the literature, it has well-known authors and appeared in one of the leading journals. Nevertheless, it is a rather simple story, once you get through the somewhat complicated way of presenting it (which follows that of the original article). Basically, it says that in some situations people can get away with opening a business with borrowed money, doing some business in the beginning and withdrawing large sums as dividends in the first year, and then defaulting the next year. The story is told in two steps, where first we let the entrepreneur be honest, paying everyone what should be paid, from which it is noticed that here it doesn't matter whether you take out profit or dividend early or late (something which is rather obvious since everybody gets the due share of the business). Then the story is retold under limited liability (the entrepreneur can walk away without debt after a default), where it matters very much when the dividends are paid out. Notice that even if there are limits on the amount of debt which can be contracted, and on the dividends which can be paid, there is still a possibility that walking away from a debt can be turned into a very profitable business.

The proposition is not very interesting in itself, saying almost nothing, it is more useful to look at the examples in 12.2.2, in particular the first one with the catching

title “riding the yield curve” (also from Akerlof and Romer, they are good at finding headers that attract attention). Check the computations in Example.12.1 showing that money can be earned by treating debtors even when there are rules for how much debt to contract. The other examples can be read or skipped at will, but they are not in the curriculum so you will probably choose the latter option.

(2) The contribution reported in 12.3.2 by Pavlov and Wachter was put forward some years before the financial crisis, and it goes a large way towards explaining what actually happened. Unfortunately it appeared in an out-of-the-way journal, so not much attention was given to it. The ideas are however nice and simple as good model should always be, even if they do not go all the way towards explaining what was going on.

The basic idea is that of an implicit option given to a borrower, namely the right to walk away from the debt. In the case of a debt contracted for housing, the debtor can choose not to pay, leaving the house to the creditor (this is admittedly a model which fits the US rules better than the Danish rules). Under normal circumstances, the price of a loan to the borrower would include both a payment corresponding to the funding cost *and* the value of the implicit option. However, competition between financial intermediaries may lead to a situation where the borrowers pay less than this full cost, meaning that the implicit option is given away for free. Pavlov and Wachter are not absolutely clear why this must happen, but in the pre-crisis years this option was perhaps not a matter of importance, since housing prices were rising so quickly that the bank would lose nothing even if the borrowers never paid anything.

Read the first part of the subsection, amounting to the first two-thirds of p.250, and skip the following, possibly resuming at the middle of p.251, where I sketch a possible explanation of the neglected option: Banks are run by managers, not by owners, and managers get a bonus in good years but are fired in bad years, meaning that bad years do not matter for managers, since they are out anyway. Consequently they can safely neglect the possibility of the bad outcome, and the option becomes irrelevant.

(3) Section 12.3.3 on “evergreening” explains why banks may want to keep bad and nonperforming loans in their portfolio. This is a nice, but somewhat tricky story, and it should be read selectively. The point of this story is that due to capital regulation, there may be cases where a bank is technically insolvent and therefore should close down, but where it can manage to get on if it can hide the losses (and the reductions in equity caused by the losses). So it is a story which points in several directions – not only can banks circumvent the regulations, but it may happen that circumventing the regulations can be profitable to the banks (and even to society).

Don’t waste much time on the description of the different investment possibilities, for our purpose it is enough to know that there are both long and short investments, and that the public (including the financial authorities who cannot possibly know all

details) cannot see whether the engagements of the bank are long or short, so that absence of profits one year may be due to the long-sightedness of the investments rather than to losses.

The bank has two possibilities, namely monitoring investments at a cost, so that no losses arise, or not monitoring, giving rise to some losses. We then follow what happens if the bank chooses not to monitor. In this case, a fraction of the loans will be non-performing, and if the losses are taken immediately, this may have the consequence that the bank is closed down. To avoid this, the bank formally allows the non-performing debtors to proceed another year, so that no losses are yet realized, and since the remaining debtors are performing as they should, there may still be a profit next year, so that the danger of being closed down is over. Finally, with suitable parameter values (if the cost of monitoring is high enough) this may even be better than monitoring investments.

(4) Money laundering is a very important theme when dealing with the regulation of banks, and the spectacular case of Danske Bank from recent years shows that it has attracted much public interest. We treat this in a very superficial way, which may be surprising since it fills so much in the debate. The reason is that economic theory so far has little to say about it (similar situations occur unfortunately in many other contexts such as corruption, poverty, equity etc., all fundamentally important phenomena where the economic profession has little to contribute with). This is seen from the initial sections, which are more picturesque than important. The exception is the story in 12.4.3. Since neither this nor the other parts of 12.4 are in the curriculum, it is up to you whether to read it or not. But I suggest that you have a brief look (without going into the formal details) of the crying wolf model:

Suppose that banks have an obligation to report on money laundering transactions to the authorities. They have some but limited possibilities of detecting this, in the model taking the form of receiving a signal that it occurs, a signal which is often right but may be wrong. The decision of the bank is a decision of how to report given the signal received. It is assumed that the authorities can verify whether or not the reported case is money laundering, but this is costly to society. The bank is fined heavily if it fails to report money laundering.

This is a standard game-theoretical problem (a signalling game), and depending on parameter values, it may have equilibria which give rise to the right amount of reporting, or there may be excessive reporting in equilibrium, so that the bank reports money laundering also when the signal says that no laundering occurs, resulting in an overall loss in verification costs to society. This is the classical outcome in cases where there has been a public outcry, the resulting measures lead to considerable inconvenience to citizens which were in no way involved in the problem.

**We read:** Chapter 12 sections 1 and 2, subsection 12.3.3-4.