Econ 1101
Spring 2013

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Announcements

- **Final exam**: Tuesday, May 14th, 6.30-8.30pm
  - – If you have exam conflict, there is a makeup final on Thursday, May 16th, 10am-12pm
  - – Registration deadline for the makeup
    - Tuesday, May 7th at 4pm
    - To register, email headgrader@gmail.com
- Review sessions (Anderson 330):
  - – Friday, May 10th, 4.00-5.30 pm
  - – Friday, May 10th, 6.00-7.30 pm
- Homework 11 due this Friday!

Agenda

- Asymmetric Information
  - Moral Hazard
  - Adverse Selection
  - Screening
  - Signaling
- Application: Moral Hazard in Banking and the Global Financial Crisis

Asymmetric Information

- „Frontiers of Microeconomics”
- Review - we started with:
  - First Welfare Theorem:
    - Assumed no externalities
    - No monopolies
    - Then a free market is efficient
  - Then we discussed what happens with:
    - Externalities (role of the government)
    - Market power (potential role of the government)

- All that time we ignored the issue of asymmetric information.
- But the market may still not be efficient if we do not take it into account.

- For this problem, the government might not have an answer either.
  - The government doesn't usually have much more information than the private sector.
- This is where things start getting complicated.

- So that is why this topic is still called „Frontiers of Microeconomics” even though asymmetric information has already been talked about for the past 30 years.
- Basic tools of principles of microeconomics:
  – not much different here
- Basic tools of principles of macroeconomics:
  – big differences

So information is hidden…

– But what is that information all about?

1. Hidden Action
   – Moral Hazard

2. Hidden Characteristics
   – Adverse Selection

Moral Hazard

- We illustrate the problem with the case of the insurance idustry:
  - Hidden Action:
    - People who are covered by an insurance policy can take certain actions that increase the probability of an accident happening.
  - Extreme example:
    - Business has $1,000,000 in coverage for a building worth $500,000 (over-insured).
    - Someone might just accidentally leave gasoline around and then light a candle on a birthday cake…

- Over-insurance can lead to a hazard for a person's morals!
- Other examples in insurance…
  - Car insurance – if you don't have a car insurance, you are more likely to drive safely. Once you get it though, you often don't care that much.
- Examples in employer/employee relationship
  - Hourly pay vs. commission
- What is the connection between moral hazard and externalities?

- In an employee relationship, compare incentives when people are paid a flat salary versus commission…
- If paid on a commission basis, workers bear more risk and have stronger incentive to put effort.
  - But this can cause other problems on the other hand…
- Ways to overcome moral hazard in workplace:
  - Close monitoring of employees
  - Wages high enough (so-called “Efficiency Wage Theory”)
  - Delayed payments

Adverse Selection

- Hidden Characteristics:
  - Suppose you are buying house insurance and deciding whether to get coverage for water damage.
  - A homeowner may know more about the likelihood of having the problem, than the insurance company (inside information).
  - The selection of people who purchase the water damage coverage will be adverse from the perspective of the insurance company.

- If the government passes a law that insurance companies cannot base the price on a given characteristic, then it has the same impact as if it was hidden.
- If the new law makes it illegal to base insurance rates on preexisting conditions, then we get adverse selection.
  - people with cancer: very interested in buying insurance.
  - healthy people: much less interested.

Big idea

- With adverse selection or hidden characteristics, there will be incentive to separate the good from the bad.
  - In case of an insurance company, there is an incentive to separate the good risks from the bad risks.

Screening

- One side of the market: informed
- Other side: uninformed
- Screening is about the uninformed side taking steps to try to separate out the good.
  - An insurer can offer a policy with a very high deductibles and make it very cheap.
  - Good risks will tend to buy it…
- Other examples?

Signaling

- Signaling is about the informed side taking steps to signal that he or she is one of the good ones.
- Example: real estate agent could be successful or not.
  - Potential client may not be able to tell.
  - A successful real estate agent gets a Lexus or BMW

  - An unsuccessful one drives
  - Potential client figures out who must be good.
  - Thus, fancy car – a signal of success.
- Other examples?

Application: Moral Hazard in Banking

- We will discuss the role of Moral Hazard in:
  - Subprime mortgages in the United States
  - Lending to countries in the Eurozone
- You may remember that in September 2008 the financial sector was falling off the cliff. To say something about this, we need to take a look at a balance sheet of a bank.

Balance Sheet of an imaginary bank

Assets	Value
Loans (mortgages)	200

Liabilities & Equity	Value
Liabilities (deposits, short-term credit…)	170
Equity	30
Total Liabilities & Equity	200

- Let’s say the bank makes a mortgage loan of 200k. Put that down as an asset of the bank. On the other side of the ledger, this money is coming from:
  - Liabilities of the bank
  - Equity in the bank (or capital)
- Suppose:
  - Housing prices are stable.
  - Borrower puts 20% down (50k down payment, out of a 250k house).
  - Borrower has a good job and can pay the mortgage payments.

Moreover

- The bank is in a good shape.
- The borrower should be able to pay.
  - If the borrower has bad luck and loses his or her job, resulting in an inability to make the mortgage payment, the borrower can sell the 250k house and should clear at least 225k (after paying real estate agents 6% and other costs) to pay off the 200k mortgage.
  - If the borrower just walks away, the bank can foreclose on the home and recover the bank's investment.

- Note that this is not the reality of the housing market before the crisis.
- Housing bubble: prices kept going up a lot faster than overall inflation and people acted as though this was going to happen forever.
- Subprime Loan:
  - Give a loan to someone for 200k with no down payment (that is, to buy a 200k house).
  - And maybe even no income (NINJA)…
- Why would you do something crazy like that? If next year the borrower can’t pay, no problem. The house will be worth 250k. The bank can sell it and make a profit.

Oooops…

- That logic broke down when the housing bubble burst out. Instead of going up, home prices started going down.
- Suppose the house price goes down to 170k. Homeowner is now “under water”. It’s better for him to just walk away and let the bank have the house.

- Suppose for a moment that the bank can actually sell the house for 170k. How is that going to change the balance sheet of the bank?

Assets	Value
Loans (mortgages)	~~200~~ 170

Liabilities & Equity	Value
Liabilities (deposits, short-term credit…)	170
Equity	~~30~~ 0
Total Liabilities & Equity	~~200~~ 170

What can we say now about the equity position of the bank?

- Now, more realistically, take into account that the bank won't net \$170k from the repossessed home. Let's say \$150k is all they can get.
- What can we say about the equity position of the bank now?
  - What happens next is <u>insolvency</u>.

- What comes next is this:
  - http://www.youtube.com/watch?v=EOzMdEwYmDU
  - http://www.youtube.com/watch?v=TB3DDsCHKgE

- When the bank is insolvent and the creditors do not have insurance, there is an incentive for a "run" on the bank. If there are assets of 150 to go around and there are creditors who claim the total debt of 170, you don't want to be the last one trying to get your money back!

- There is a famous scene of a bank run in the movie "It's a Wonderful Life". This scene is from the banking crisis of 1932. A banking reform after that crisis was to set up the Federal Deposit Insurance Corporation (FDIC). With this system, a depositor (with less than 100k) in a checking of savings deposit need not run to the bank at the first sign of trouble. That's because the depositor's money is insured by the federal government.

- As the current crisis began, some bank creditors were insured (deposit < 100k) but others were not. To prevent a bank run by the uninsured creditors, at least for the big banks, the government stepped in and basically said it was going to back the bank up.

- In the movie, Old Man Potter tells the depositors that he will pay for their deposits at a rate of 50 cents on the dollar. In Wall Street terminology, Potter was offering them a "haircut". George Bailey injects his own capital in the bank (it comes from the money he was going to use for his honeymoon). He convinces the depositors to take what they need out of his honeymoon money and wait out the problems.

Moral Hazard (TBTF)

- TBTF stands for **Too Big to Fail**
- Bankruptcy process: GM, Chrysler bankruptcies not disruptive (in a relative sense).
- Many argue that banking is different:
  - Trust is what they do
  - Greases the wheels of the whole economy
- So there is an incentive for the government to step in and not let huge banks go into bankruptcy.

- Suppose a bank is insolvent…
- Small Bank
  - Depositors (with less than 100k) are insured by FDIC
  - Other creditors may not get all of their money back
  - No systemic risk of bringing the entire economy down.
- Large Bank
  - There is a concern that failure poses a systemic risk (i.e. a risk to the whole financial system).
- **The government has incentive to bail out even the uninsured creditors of large banks.**

TARP

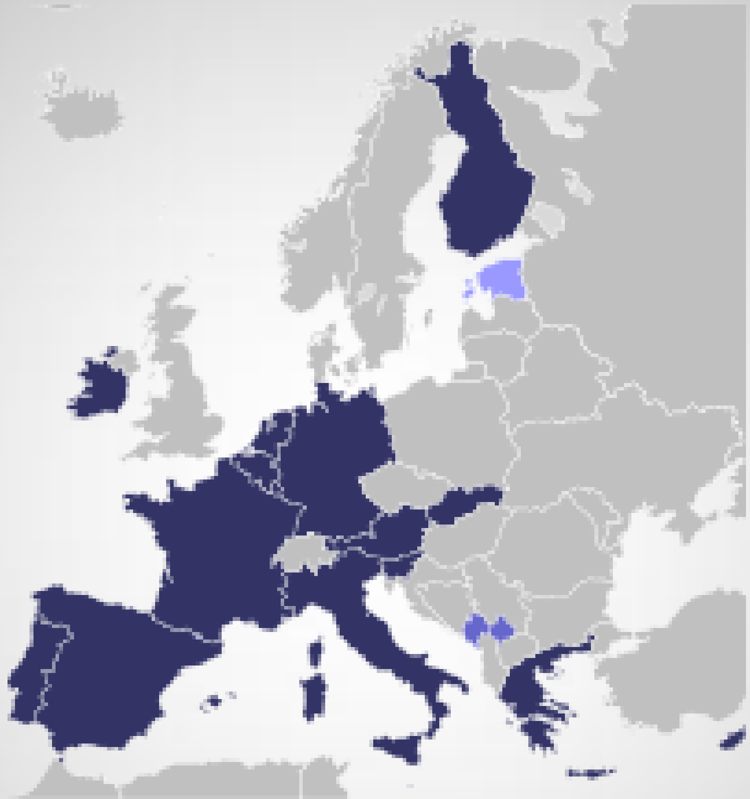
- TARP = Troubled Assets Relief Program
- The bank bailout of Fall 2008
- Federal government injected cash into the banks (just like George Bailey did with his own money in the scene from "It's a Wonderful Life").
- Potter's solution in the movie was what happens with the free market ("50 cents on the dollar")

So the moral hazard is…

1. Big banks have incentive to take risks that are too big.
   – Heads = "I win"
   – Tails = "The government loses"
2. Moral Hazard on the part of creditors lending to the bank – they won't be careful with their money.

- Since the bailout, big banks can borrow at relatively lower rates than small banks.
- Before, they could borrow at 0.3 percentage points less.
- Now, with the TBTF firmly established, they can borrow at 0.8 percentage points less.
- Global Perspectives: Let's turn our attention to the Euro zone. In terms of moral hazard, there is an analogy between subprime loans for houses in the US and loans to Greece.

- The countries in the Euro zone are in navy blue:



- Common currency among sovereign nations
  - Countries in the European Union are not equivalent to the States in the US federal system

- A number of countries have been running up unsustainable debt, denominated in Euros.
  - Greece as an extreme example
- If a country runs up a debt denominated in its own currency, it does not have to default.
- Instead, it can just print boxes of money and say “Here”.
  - Similarly as the US can do this with its debt to China

- Greece has been running up a bigger debt than it could pay back. So what to do?
  - Greece can't print Euro notes because the other countries won't let them.
  - As it is a sovereign nation, banks can't "foreclose" on Greece and take the keys to Athens.
  - What if Greece just defaults?
    - Countries in the Euro zone are worried about the contagious effect.
  - Upshot: Bailout! Germany steps in and writes checks.
    - Not just Greece getting bailed out.
    - Banks lending to Greece getting bailed out.

- Can you see where the moral hazard is creeping in?
  - As these countries are Too Big To Fail, there was moral hazard in the banks' lending. They were too eager to lend, overlooking problems, rationally anticipating that these countries (and the banks lending to them) would be bailed out in the end.
  - And we could perhaps argue that there is moral hazard at the country level. Greece went on a binge, perhaps thinking that its big brother Germany would always pay the bill…

- One key difference between the European crisis and the US subprime crisis:
  - The US government seems like it was more keen to bail out Citibank, than Germany is to bail out Greece. So there is a possibility that Euro goes…

- Germany is trying to change the institutions to reduce the moral hazard. Recently, all 27 countries in the EU except the UK agreed on a new fiscal pact that would impose budget rules on the members (limiting the ability to go into debt). The treaty would take away some of each country's sovereignty to reduce moral hazard.
  – As an analogy, suppose 27 people go out to dinner and agree to split the bill 27 ways. There is a moral hazard problem here: what if some people tend to order steak, expensive wine, fancy desserts?
  – To limit moral hazard, the group may decide on a pact before the dinner that no one can order a dessert, no one can order a steak, etc.

THE END

- Thank you for your participation in this class!
- I wish you all the best on your final and in your future studies!
- Don’t hesitate to contact me in the future if you are interested in any other Economics classes!