

LECTURE 30

9 May 2013

ANNOUNCEMENTS

- Final HW due tomorrow at 11:45 PM
- Final Exam next Tuesday

FINAL EXAM

- Final is NEXT Tuesday (May 14) from 6:30 to 8:30 PM in Anderson 330
- Resources:
 - Q & A Sessions in Anderson 330 on Friday: 4-5:30 PM (my session) and 6-7:30 PM
 - Visit [Final Page](#) on Moodle
- Make sure you work through recitation worksheets and practice tests for the last third of the course!

FINAL EXAM

- Final is cumulative
 - Test has 60-70 questions with $\approx 1/2$ weight on old material (before week 12) and $1/2$ on new material (week 12 and after)
 - Old Material is taken **directly from your old midterms**
 - Will also need to make sure you cover all the readings from the course
- Bring pencils, ID, ruler

REVIEW: HIDDEN ACTION

- The first case of asymmetric information is hidden action
- **Hidden action**: one agent does not necessarily know what the other is *doing*
- A common example is in insurance markets:
 - Let's call the people buying insurance **agents**
 - And the firms selling insurance **principals**
 - **Agents** can take certain actions to reduce the chance of having an accident the insurance company would need to cover but the **principal** does not see these actions
 - For example with car insurance, am I driving safely? Am I wearing a seatbelt...

REVIEW: HIDDEN CHARACTERISTIC

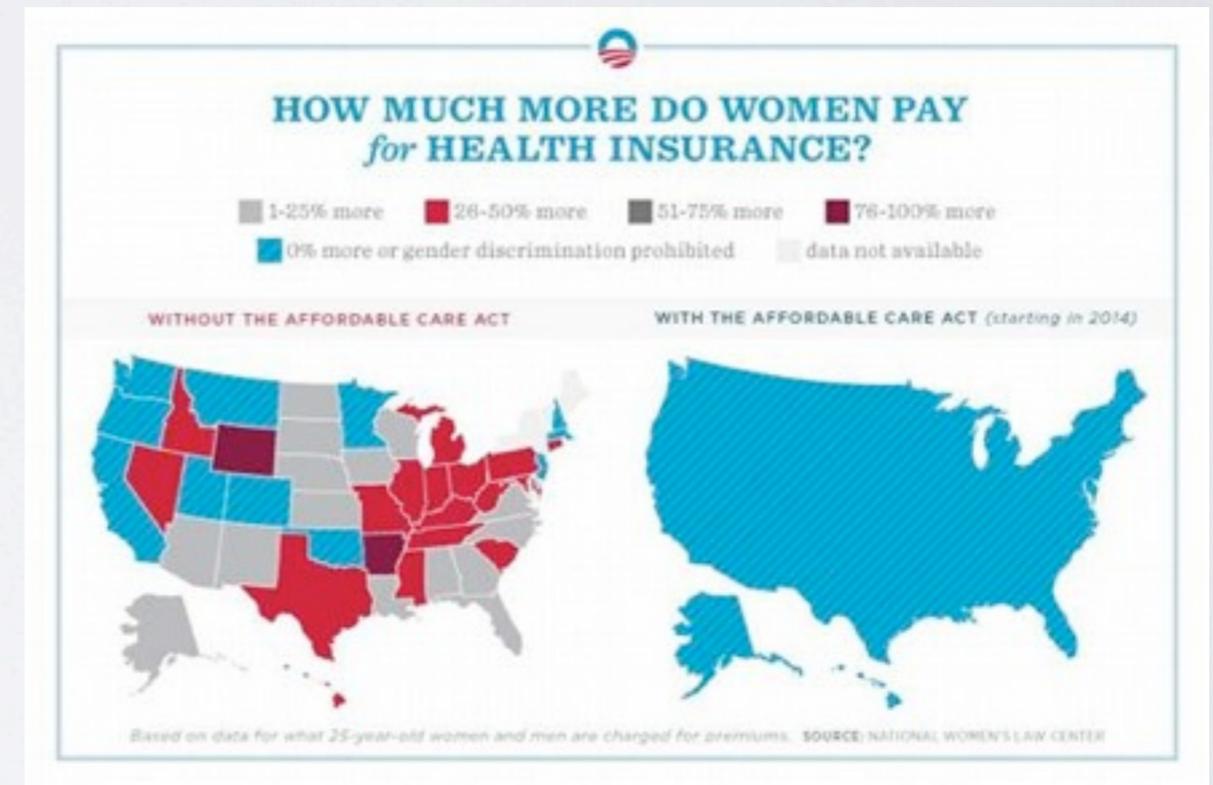
- The second case of asymmetric information is hidden characteristics
- A **hidden characteristic**: one person/firm knows something relevant about the world (with regard to the agreement they have) that the other does not know
- Suppose our **agent** is buying health insurance from a **principal**, but the agent knows a lot more about his own chance of getting ill than the insurance company does

REVIEW: ADVERSE SELECTION

- Suppose the insurance company is offering different rates pending on your health history
 - If you are more likely to get sick and need insurance, the company would like to charge more (and it probably needs to if it wants to make profit)
 - But what if the insurance company cannot tell who is more or less likely to get sick?
 - The company will charge rates in between what would be optimal to charge the healthy and unhealthy guy
 - What's the problem?
- The healthy guys won't buy the insurance because it is too expensive to warrant buying it (remember they have a low risk of becoming sick)
- So the insurance company charges the lower rate but all of the customers are the "bad" type; this issue of "bad types" being the only buyers is known as **adverse selection**

AND HEALTH REFORM

- One of the staples of President Obama's healthcare reform is that insurance companies cannot charge different insurance rates based on pre-existing conditions
- So now even if the insurance companies would like to charge different rates to customers based on characteristics, they cannot
- This also leads to **adverse selection** just as if the characteristics were hidden
- BUT the Affordable Health Care Act has an individual insurance mandate so the healthy guys cannot stop buying insurance
- To oversimplify, the healthy guys are "subsidizing" the insurance company's ability to pay for the procedures of unhealthy guys



LEMONS PROBLEM

- Hidden characteristics can also lead to problems when a “seller” has hidden information
- Think of a used car lot with some good and bad cars (lemons) but you (the buyer) are not savvy enough to distinguish between them
 - Sellers know what kind of car they have but can't realistically convince you what type so they have more information
 - Sellers with good cars will sell for a high price only and sellers with bad will sell for high or low prices
 - Because you do not know what type of car you will get, you are not willing to pay a high price
 - Eventually good cars are driven (no pun intended) out of the market
- Hidden characteristics driving good products out the market is known as a “**market for lemons**”

SCREENING AND SIGNALING



Joey Signaling for Women

NAUGHTY V. NICE

- With adverse selection or hidden characteristics we would like to separate the “good” from the “bad”
 - In the last example this was the healthy versus the unhealthy
 - The “bad” typically (but not always) have an incentive to lie about being good; here so they can get lower insurance rates
- In general in the case of hidden characteristics there is a side of the market that is “informed” and one side that is uninformed
- In the insurance example the potential buyers were the informed

SCREENING

- If the uninformed side of the market tries to separate out the good, it is known as **screening**
 - The insurance company might offer a very cheap policy with a high deductible or a policy with higher rates and a low deductible
 - Because the healthy folks know they probably will not need the insurance, they are willing to take the high deductible policy
 - Because the unhealthy guys know they need the insurance, they will probably take the policy with the lower deductible but higher rates
- The most basic example is a company interviewing candidates for employment



SIGNALING

- If the informed side of the market does something to tell the uninformed he or she is one of the good guys, it is called **signaling**
- You might be more interested in dating someone who is successful
 - How do you signal success?
 - Drive an expensive car
- Likewise, potential employers have no idea what your ability is before working with you
 - Education (and grades) are a signal to these employers
 - And the interview is also an opportunity for the candidate to offer other signals to the employer



MORAL HAZARD: LENDING CRISIS



SIMPLE BANKING

- Let's get a taste of macro by looking at the balance sheet of a bank
- Banks have **assets** and **liabilities**; the former are typically debts owed to the bank and the latter the debts the bank has with others
 - Loans are considered assets of the banks
 - Deposits are liabilities (the bank owes me the money I have deposited there)
 - Equity = assets - liabilities
 - Obviously assets = liabilities + equity

BANKING SHEET

- The \$200 in loans might be from a home mortgage; it is paying for the loan through liabilities and equity
- Liabilities might include deposits

Assets		
	Loans	\$200

Liabilities and Equity		
	Liabilities	\$170
	Equity	\$30
	Total	\$200

FOUNDATIONS OF CRISIS

- Suppose housing prices are stable and a new house purchaser puts a \$50,000 down payment down on a \$250,000 house (so the bank lends \$200,000)
- The bank sees the borrower has a steady job so can make the mortgage payments without a problem
 - Even in the borrower loses his job and cannot pay, the bank has a way to get back its money
 - The borrower can sell the house for \$250,000 (or more) and definitely pay back the bank
 - If the borrower just walks away, the bank can foreclose on the home and make back the money as well

CRISIS

- This is all under the assumption that house prices do not fall, which they really had not in recent enough memory
- The housing bubble in the 2000s was a period when housing prices rose far too quickly to be sustainable
 - When the bubble burst, housing prices fell which is a problem for the bank and that borrower
 - BUT the bank was also giving out loans with no down payment required to people who may not have income (subprime loans)
 - As crazy as it is, banks figured it's still a good deal since they could sell back the foreclosed home later for a profit
 - When housing prices started to fall, this fell through as well

INSOLVENCY

- Suppose the bank lent out \$200k for a house, the value fell to \$150k and the owner walked away
- The bank could sell the house for \$150k but the bank sheet looks pretty terrible
- It has \$170k in liabilities but only \$150k in assets
- So equity is -\$20k

Assets		
	Loans	\$200 \$150

Liabilities and Equity		
	Liabilities	\$170
	Equity	\$30 -\$20
	Total	\$150

INSOLVENCY

- A bank with negative equity is insolvent
 - Imagine everyone with a claim on the bank's money (those of us depositing for example) sees the bank doesn't have enough assets to pay us all bank
 - We might make a **bank run** to ensure we can get our money out of this bank before there is nothing left
 - With the FDIC, actually all deposits up to \$100,000 are insured to prevent bank runs
- A nice, fuller description of the intricacies of the [financial crisis are in this video](#)

MORAL HAZARD AND TOO BIG TO FAIL

- So where does asymmetric information come into this discussion?
- The government putatively has an incentive to step in and prevent the biggest banks from going into bankruptcy because of their role in making the macroeconomy work
- If a small bank is insolvent and must declare bankruptcy the harm it causes is small scale (only a few creditors do not get all their money back)
- If a huge bank fails, the risk is **systemic**; the loss affects the entire economy



MORAL HAZARD AND TOO BIG TO FAIL

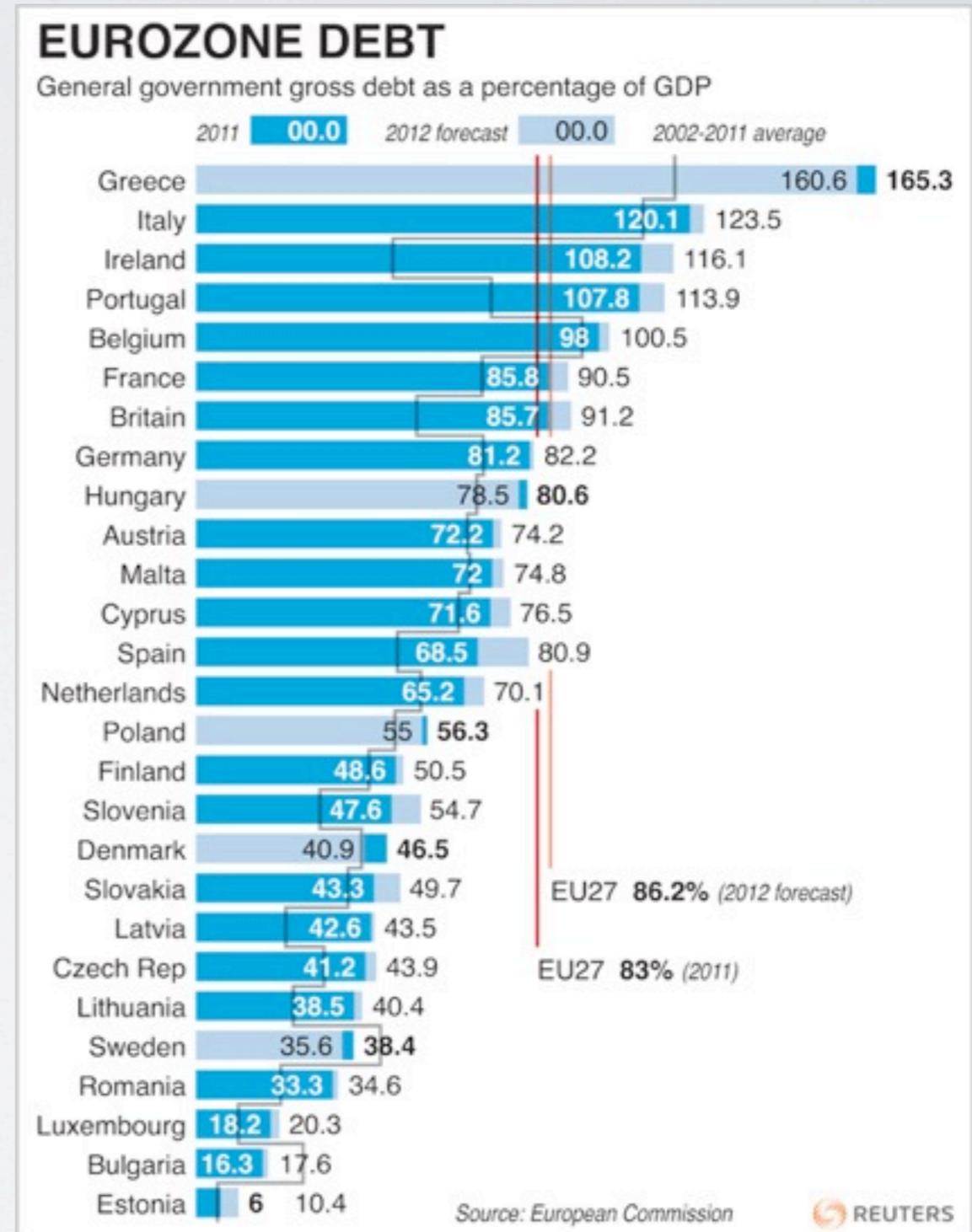
- So the government has an incentive to bail out huge banks like through TARP (Troubled Assets Relief Program) of 2008
- But this introduces a problem of **moral hazard**
 - Big banks now believe that if they are at risk of bankruptcy, a bailout is waiting
 - These big banks have an incentive to take risks that are too big because the government, not them, will take on the losses
 - Also creditors lending money to the bank won't be as careful with their money (where it is invested) because it is essentially insured

MORAL HAZARD: EURO ZONE



EUROZONE DEBT

- The Eurozone is a collection of 17 countries in the European Union that share the Euro as a common currency
- Several countries have run up huge debt in Euros, particularly Greece
- When a country has a huge debt in its own currency (like the US), it can just print money (at huge inflation cost) to cover the debt
- This is not an option for countries like Greece; the European Central Bank (and basically Germany) run the monetary system



EUROZONE DEBT

- Another problem with **sovereign debt** (debt of a sovereign nation) is that creditors can't exactly foreclose on Greece
- If Greece defaults, there are huge concerns about **contagion effects** that would cause financial catastrophe elsewhere in the UEU
- So Germany has been loaning money to Greece and to banks lending to Greece (while forcing Greece to take on huge austerity measure to drive down debt)
- What's the problem?
 - There is an issue of **moral hazard**
 - If less wealthy countries can just run up their debt and consume like crazy and know someone will step in to pay the check, why not do it?!

EUROZONE DEBT

- But Germany has not been as happy to lend to Greece
- And the EU has tried to implement stricter budget rules for its members to prevent this type of crisis (like the country gives up some of its sovereignty in the event of fiscal impropriety)



SUMMARY

- In a world with asymmetric information, we can have undesirable situations (from whose perspective?) that arise from hidden actions (moral hazard) or hidden characteristics (adverse selection)
- In the case of adverse selection, signaling and screening can be used by the informed and uninformed sides of the market, respectively, to help separate “good” agents from “bad” agents
- The subprime mortgage crisis and sovereign debt crisis and their management (bailing out big banks and countries) raise worry because of moral hazard issues
- Bail out policies can reduce the incentive for agents (banks and countries) to reduce their risky behavior that led to these crises