Asymmetric information, risk & regulation in the financial sector

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Principal Agent Relations are everywhere

Delegate management of savings

Final investors

Invest in firms

Real sector

Financial Sector (banks, funds, insurance)

Information Asymmetry
The crisis revealed that information asymmetry plagues the relation between final investors & financial intermediaries.
What are the implications of information asymmetry & moral hazard for risk & regulation in the financial sector?
Information asymmetry about actions of financial manager

Exert effort to ensure profitability/reduce downside risk:

- Carefully study loan applications.
- Work hard to identify & quantify all possible sources of risk, including those that are not obvious (fine prints, counterparty risk, rare events)
- Monitor desk to detect rogue traders.

Shirking: Instead of carefully managing risk:

- Just rely on agency ratings.
- Trust reputable advisers such as Maddoff.
- Deal with investment bankers who invite you on their Yacht in the Caribbean Islands.
- Excessive risk taking/gambling.
Incentives

To encourage effort/risk management & reduce shirking/risk taking:

Reward manager after success.

Punish after failure.
Limited liability & Moral hazard

At the individual level:
Hard to give negative wages
Hard to seize properties of bankers (or claw back previous wages)

At the level of the institutions:
Banks too big to fail
Fear that bankruptcy of one institution would precipitate disruption of entire system

Limited liability reduces the ability to punish & thus the power of incentives => Moral hazard
Moral hazard between investors & finance manager
⇒ difficult/costly to incentivize effort/risk control
⇒ if too costly, give up on incentive: go for risk
⇒ risk taking could arise in privately optimal contract between investors & bankers.

But, when big bank fails
⇒ cost for society at large, not only for the shareholders & managers of the bank
⇒ risk taking by banks = negative externality
⇒ regulation needed, to ensure that private contracts do not generate systemic risk (or taxation)
Goal: study dynamics of innovative finance sector.

Why did it grow and crash?

What were the roles of incentives, beliefs and equilibrium forces?

What explains risk-taking? At systemic level?

Biais, Rochet, Woolley (2009)
Rational expectations/optimal contracting model of innovation in finance sector (e.g. structured finance, CDS, ...)

Equilibrium allocation of resources between traditional & innovative sector  
⇒ size of finance sector

More information asymmetry in the innovative finance sector than in the traditional sector
Innovation can be strong or fragile

If strong: good for society (provided bankers behave well)

If fragile, risk of negative shock: crisis, lots of failures/defaults

As time goes by without crisis, confidence builds up: increase in Bayesian updated probability that innovation is strong

But, if big crisis, we know the innovation is fragile.
Learning when no crisis

Probability that innovation strong

If no crisis
Learning when crisis

Probability that innovation strong

If crisis at time t
Incentives & rents

Banker must exert unobservable effort to reduce probability of default

⇒ To incentivize effort/deter shirking, reward success

Probability of success under shirking higher when innovation strong, than when innovation weak.

⇒ Shirking gets more & more tempting as confidence in strength of innovation builds up

⇒ When confidence high, incentivizing bankers requires large rewards

⇒ Rents: although competitive bankers capture most of the value created
Dynamics of finance sector size & rents

Size of finance sector

Rents in finance sector: Compensation – first best equilibrium

time without crisis
Empirical evidence on size
Philippon & Resheff (2009)

Figure 1: The Size of the U.S. Financial Sector

Source: U.S. National Income and Product Accounts
Empirical evidence on rents
Philippon & Resheff (2009)

Figure 11: Historical Excess Wage in the Financial Sector

Notes: The difference between the relative wage in finance and the Benchmark wage from Figure 11.
Systemic risk taking

Good realizations

⇒ confidence builds up
⇒ initially, innovative sector grows, but bankers’ confidence grows too
⇒ when bankers very confident: rents
⇒ when rents too high: give up on incentives
  ⇒ risk taking
  ⇒ defaults
⇒ affects all bankers quasi simultaneously, since learning relevant for all: systemic risk.
Dynamics of risk taking

Default rate if industry strong

Rents so high that investors prefer to give up on incentives: Default risk rises
Empirical evidence on risk taking/shirking

Figure 6: Subprime Delinquency Rate 60+ Days, By Age and Year of Origination
Transparency

Rents & risk taking arise in equilibrium because of information asymmetry: actions of bankers, extent to which they take risk, not observable.

To avoid equilibrium risk-taking (& improve investors’ net returns) reduce information asymmetry. To do so increase disclosure & transparency:

⇒ Stay away from opaque OTC market / operate on transparent markets, with centralized clearing, reporting/observability of risky positions (e.g. in CDS)
Rents with & without transparency

Rents in opaque finance sector

Rents in more transparent finance sector

Time without crisis
Systemic risk with & without transparency

- Default rate in opaque industry
- Default rate in transparent industry
- Time without crisis
Regulation of transparency needed

Policy intervention called for because:

Market infrastructure = utility: fixed cost to set up system, not optimal for any individual investor to pay that cost, optimal for society.

Coordinating on best venue difficult for investors:
Suppose initially trading is concentrated in one venue (opaque OTC).
Each investor finds it optimal to go to transparent market only if the others also go there.
Mandating trade in transparent exchange solves coordination problem.
Bonuses: implications from theory

Bonus after success = acceptable (incentives are necessary to avoid shirking)

Bonus after failure not acceptable! It reduces investors’ net returns, encourages shirking & leads to systemic risk-taking.

“Why should the government meddle? Why not leave this to the market?”

Risk-taking = negative externality: must be regulated.
Bonuses in dynamic context
Biais, Mariotti, Rochet, Villeneuve, forth. Econometrica

BRW (2009) principal & agent interact only once. With long term interaction better outcomes. Optimal contract:

Accumulated performance of agent (with penalties for losses)

// High water marks for hedge funds
Regulation of bonuses needed

Regulation enhances commitment
Optimal contract obtained under full commitment assumption. In practice renegociation: “If we don’t grant large bonuses, our star traders will go to the competitors.”
⇒ Market failure to enforce long term optimal contract
⇒ Regulation needed

Regulation reduces negative externalities
Systemic risk = pollution/negative externality: market failure.
Not true that competition makes regulation impossible: European directive applying to all banks operating in Europe – including American banks.