Feedback Effects of Credit Ratings

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Background and Motivation

- In the aftermath of the financial crisis, rating agencies have come under fire for various reasons:
  - issuing ratings of borrowers that do not accurately reflect their credit risk
  - issuing ratings that are biased in favor of borrowers potentially because they are paid by borrowers
- Are the incentives of rating agencies indeed biased in favor of borrowers?
- What is the "optimal" rating policy (from the standpoint of a rating agency and from a social standpoint)?
- What are the normative (welfare) consequences of rating policies?

Background and Motivation

- Previous theoretical literature on credit ratings
  - incentive problems of intermediaries—effects on quality of information dissemination
- Dynamic credit risk models
  - abstract away from the interaction between ratings issued by ratings agencies on firms
- Questions posed by paper
  - unified model that examines the interaction between rating agencies and firms

This Paper

- Dynamic credit risk model that incorporates feedback effects of credit ratings
- Dynamic game between a rating agency and a firm with performance-sensitive debt whose payout flows are linked to its ratings
- Elegant and intuitive characterization of the set of Markov Perfect Equilibria of the game
  - equilibrium with lowest default likelihood—*soft rating agency equilibrium*—welfare maximizing
  - equilibrium with highest default likelihood—*tough rating agency equilibrium*

This Paper

- To induce rating agencies to select the soft rating agency equilibrium, they should be paid a small fee by the firm.
- Fee small relative to agency's reputation concerns so that agency first cares about the accuracy of its ratings and then about the default probability of the borrower
- If equilibrium is unique, it is globally stable
- If there are multiple equilibria, some could be unstable—small shocks to fundamentals could lead to a "credit cliff dynamic."

This Paper

- Effects of competition between rating agencies
- If interest payments depend on minimum (maximum) of available ratings then only the equilibrium with the highest (lowest) default probability survives
- Main implications
  - current practice of agencies being paid small fees by borrowers and issuing ratings that are "biased" in favor of borrowers could be socially optimal
  - stress tests conducted by agencies may lead to violation of rating triggers and a "cascade" towards the worst equilibrium with tough ratings
  - instability of equilibria could lead to multi-notch downgrades or immediate default in response to small shocks to fundamentals
  - increased competition among agencies could lead to rating downgrades, increase default frequencies, and reduce social welfare

Comments and Suggestions

Imperfect Information and Role of Rating Agency

- In the model, the cash flow process is observable by all market participants so there is no real role for a rating agency
- In future work, could generalize the framework to incorporate imperfect information about cash flow process
  - rating agency invests resources—physical and human—to get information about firm's cash flows
  - conveys noisy signal about information—credit ratings—to the market
  - feedback effect on firm because asset prices are determined based on market's information
- Very hard problem, especially in a dynamic setting
  - cash flow not sufficient statistic because of learning by the market
  - dynamic signaling—simplify by assuming that rating agency issues accurate ratings

Comments and Suggestions

Optimality of Performance-Sensitive-Debt (PSD)

- In the model, form of debt contract is exogenous
- In particular, interest payments exogenously depend on ratings
- Feedback effects of ratings on firms exogenously assumed rather than endogenously derived
- It is unclear whether such a contract is optimal in this setup
  - nature of contract does correspond closely with reality—could be rationalized within an adverse selection model
  - in future research, it would be nice to endogenize the contract rather than exogenously assume it
- Again, a very hard problem
  - important to incorporate "demand" and "supply" side effects

Comments and Suggestions

Structure of Rating Policy

- Rating agency issues a rating that belongs to the set $\{0, 1, 2, ..., I\}$
  - in particular, I is exogenous
- Again, corresponds closely with reality, but it is unclear whether such a policy is optimal in this setup especially when interest payments are linked to the rating
- Could be welfare-improving to have only a single rating (not obvious because of the presence of debt tax shields)
  - related to the fact that the role of the rating agency is "artificial" in this setup
- Endogenizing rating policy—in particular, justifying a "discrete" rating policy—again requires an imperfect information model (e.g. Crawford-Sobel "cheap talk" model)

Summary

- Excellent paper that addresses and answers very important questions
- Elegant model that leads to intuitive characterization of set of equilibria
- Wealth of intriguing results related to the feedback effects of credit ratings on firms
- Interesting positive and normative insights on the design and regulation of the rating industry
- Basic framework is flexible enough to be "stress tested" along different dimensions in future research

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