

# Econ 234C – Corporate Finance

## Lecture 1: Topics and Tools

Ulrike Malmendier  
UC Berkeley

January 23, 2008

# Outline

1. Syllabus and Organization
2. Topics in Corporate Finance
3. Tools and Methods in Corporate Finance

# 1 Syllabus and Organization

## 1.1 Who am I?

Ulrike Malmendier

- Assistant Professor, Department of Economics, Berkeley (previously Stanford GSB)
- Background: Bonn (Germany) undergraduate (Math/Econ, Law), Bonn/Oxford PhD (Law), Harvard PhD (BusEc)
- Behavioral Economics/Finance, Corporate Finance, Applied Micro, Organizational Economics, Contract Theory
- Evans 643  
OH: Th 12:30-2:30pm
- Assistant: Judi Chan (Evans 645)  
OH: MW 7:15am-2:15pm, TTh 7:15am-4:15pm, F 7:15-1:15pm

## 1.2 Who are you?

- PhD student 2nd year and higher
- Graduate courses in
  - Econometrics (240A and 240B)
  - Micro Theory (Contract Theory, Game Theory)
  - Psychology and Economics – Theory (219A)
- Interest in
  - Finance
  - Theory (contract theory, behavioral economics)
  - Applied, empirical microeconomics (industrial organization, labor, organizational, development, public, behavioral economics)
- Enrolled in this class (auditors: enrollment as auditor)
  - Questions? Email Phil Walz, [phil@econ.berkeley.edu](mailto:phil@econ.berkeley.edu)

## 1.3 What is this course?

- Go over syllabus together
  - Hand out readings.
- Go to [www.nber.org/confer](http://www.nber.org/confer)
  - ==> choose any year or Summer Institute of any year
  - ==> choose cf (also entrepreneurship, corporate governance, behavioral finance)

## 2 Topics in Corporate Finance

### 2.1 Investment

- Basic approach in economics: Optimizing allocation of fund subject to budget constraint.
- In firm:
  - Optimization: Managers make corporate decisions to maximize profits or shareholder value  
(Neglect misaligned incentives; asymmetric information for now.)
  - Allocation of funds: new plant, machinery, R&D, hiring
  - Budget constraint: internal funds + external financing (debt & equity)

- Consider a simple 3-period model with a firm with existing assets  $A$  and  $s$  the number of shares outstanding. (Assume no debt for now.)  
(The interest rate is normalized to 0.)
  - $t = 0$ : return function  $R(\cdot)$  is drawn from a distribution  $F$ , which is known to the CEO + investors;  $R$  defined on  $[0, \infty)$ ,  $R' > 0$ ,  $R'' < 0$ .
  - $t = 1$ : level of cash flow  $C$ , e.g. from previous projects, is realized (firm is now worth  $A + C$ ) and the CEO decides how much to invest.
  - $t = 2$ : Investment  $I$  leads to returns  $R(I)$ .
- Which level of investment  $I \in [0, \infty)$  and means of financing does CEO choose at time 1?

- To gain intuition, let's distinguish 2 cases:
  1. CEO has sufficient internal funds ( $C$ ) to finance all desired investment projects.
    - ⇒ Maximizes  $A + C + R(I) - I$ . (Budget constraint not binding.)
    - ⇒ Invests at the first best level, where  $R'(I) = 1$ .This condition defines a unique, interior solution for the optimal level of investment  $I^*$  as long as  $R'(I) > 1$  for some  $I$ .
  2. CEO cannot finance all desired investment internally.
    - ⇒ CEO must finance (at least)  $I - C$  by issuing new equity ( $s'$  number of shares).
    - ⇒ Assume, w.l.o.g., that the CEO first expends the full amount of internal funds and raises the remaining financing for investment by issuing new equity.



⇒ Budget constraint:  $\frac{s'}{s+s'}(A + R(I)) = I - C$ . (Why?)

⇒ CEO maximizes shareholder value subject to the financing constraint:

$$\max_I \frac{s}{s+s'}(A + R(I))$$

$$\text{s.t. } \frac{s'}{s+s'} \cdot (A + R(I)) = I - C$$

⇒ First-order condition:  $R'(I) = 1$ .

- Not surprisingly, the rational CEO invests at the first-best level, independent of the availability of internal funds. Since the CEO equates the marginal return on investment with the social marginal cost of additional investment, 1, the optimal level of investment is not sensitive to cash flow.

- EMPIRICAL PUZZLE: Investment-cash flow sensitivity:

$$I_{k,t} = \alpha + \beta C_{k,t} + X'_{k,t} \Gamma + \varepsilon_{k,t}$$

where  $C$  is cash-flow of company  $k$  in year  $t$ .

- Coefficient  $\beta$  significantly positive
- Theory: Investment should not depend on whether earnings are available.  
(Firm can borrow at market interest rate.)
- Why?

- Cf. puzzles in other fields of economics:
  - debt aversion & choice of education/jobs (Erica Fields on NYU law school graduates' job choice);
  - financing frictions in development economics;
  - Q-theory of investment in macro-economics
- This will be the topic of next class.

- Recommended reading for next class: Overview Stein (*forthcoming*)
  
- Required reading for next class:
  - Lamont, Owen (1997), “Cash Flow and Investment: Evidence from Internal Capital Markets,” *Journal of Finance* 52, pp. 83-109.
  
  - Fazzari, S. M., R. G. Hubbard and B.C. Petersen (1988), “Financing Constraints and Corporate Investment,” *Brookings Papers on Economics Activity*, pp. 141-195.
  
  - Kaplan, Steven N. and Luigi Zingales (1997), “Do Investment-Cash Flow Sensitivities Provide Useful Measures of Financing Constraints?” *Quarterly Journal of Economics* 112, pp. 159-216.

## 2.2 Mergers

- Company expands by:
  - building new plant
  - taking over another company
- Why do CEOs want to expand? (Andrade-Mitchell-Stafford, *JEP* 2001)
  1. Synergies (economies of scale).
  2. Self-serving attempts to overexpand (empire-building).
  3. Advantages of diversification (e.g. internal capital market; diversification for undiversified managers)
  4. Overconfidence (believe can run other companies better)

- Why mergers in particular?
  1. Attempt to create market power (forming monopolies)
  2. Incompetent target management
  3. Response to deregulation.
  
- The big question: Are mergers in the interest of shareholders?
  - Moeller et al. (2006): during the last two decades, U.S. acquirers lost in excess of \$220 billion at the announcement of merger bids alone. Huge implications for (1) small + large shareholders, (2) executives, (3) employees
  - Why such losses? Which of the above theories apply?
  - How can we test it?

## 2.3 Executive Compensation

Executive compensation = CEOs pay.

Why CEOs? → far-reaching decisions; data *ExecuComp*.

- Jensen and Murphy (1990): “Are CEOs paid like Bureaucrats?”
  - \$1,000 increase in firm value increases CEO pay by only \$3.5.
  - CEO does not have enough incentives.
- 1990s: Dramatic increase of CEO pay and stock option grants.
- CEOs not bureaucrats, but what are they?

- Problems:

- If company does badly, options are repriced → lose incentives.
- Bertrand-Mullainathan (2004): Rent seeking by CEO to get higher pay.
- Bertrand-Mullainathan (2002): CEOs rewarded for luck.
- Bergman and Jenter (2005): Why do rank-and-file workers get options?



## 2.4 Corporate Governance: Boards

- Board of directors monitors the CEO.
- Does it? CEO chooses (propose) most members of Board
  - In January 2007, Robert Nardelli's got a \$210 million "golden handshake" for leaving Home Depot. (In August, he became chairman and CEO of the newly privatized Chrysler ...)
- Ergo: CEO chooses own controllers (and pay).
- Corporate governance literature
  - Which board composition is better?
    - \* Outsiders or insiders?
    - \* Large institutional block-holder (solves public good problem)

- Estimate effects of governance measures (Gompers, Ishii and Metrick, QJE 2003)
  
- Atheoretical literature
  - Not even an attempt to get to finer predictions (E.g. when would insiders make worse decisions, when outsiders)? Exception: Hermalin & Weisbach.
  
  - Not even an attempt to deal with the endogeneity.
  
  - Much progress needed (and demanded!)

# 3 Tools

## 3.1 Theory

- Key: contract theory
  - Moral hazard: Managers maximize private utility  $\neq$  shareholder value
  - Asymmetric information: Outside investors do not know true value of investment projects for which manager is trying to raise money. Manager signals, e.g. with the type of financing raised (debt versus equity) or by paying dividends (= burning money)
  - Note: corporate finance has given rise to much of the development in contract theory, e.g. Myers-Majluf on asymmetric information.

- Other:
  - Security design: What is the optimal financial contract in a very general space of contracts? Do we find anything resembling debt or equity?
  - Corporate control: How should a takeover offer / tender offer be structured to avoid free-riding among shareholders?
  - Dynamic theories of debt
  - Career concern models

## 3.2 Empirics

- Key data: [wrds.wharton.upenn.edu](http://wrds.wharton.upenn.edu)
  - Let's check it out together
  - YOU NEED TO GET A LOGIN!
- Increasingly more important:
  - Detailed data on personal characteristics of CEOs and top managers (partly in ExecuComp), e.g. details of their compensation, details of their education, their prior career
  - Detailed data on boards (partly on IRRC)