

# LEGAL INVESTOR PROTECTION & TAKEOVERS

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# INTRODUCTION

- Legal Investor Protection (LIP)  $\Rightarrow$  More efficient resource allocation:
  - Across industries (Wurgler 2000)
  - Across/within firms (McLean et al 2010)
  
- M&A:
  - Important resource allocation mechanism
  - Does LIP improve efficiency in the market for corporate control?
  - More active M&A and hostile takeovers market (Rossi and Volpin 2004)
  
- Little theory of the LIP-Takeovers link
  1. Takeover models do not consider LIP explicitly
  2. Takeover models assume financially *unconstrained* bidders...
    - ...but LIP mostly relaxes funding constraints (LLSV (1997), McLean et al (2010))

## This Paper

- Takeover model with:
  1. Financing constraints : Acquirers with limited access to finance
  2. LIP  $\Rightarrow$  Lower extraction of private benefits of control
  3. Interaction : LIP  $\Rightarrow$  More pledgeable income  $\Rightarrow$  Higher funding capacity
- Shifts focus on acquirer's budget constraint (B):

$$\underbrace{A}_{\text{Internal funds}} + \underbrace{F}_{\text{External funds}} \geq \underbrace{b}_{\text{Bid price}} + \underbrace{c}_{\text{Cost}}$$

- Insight:
  - LIP  $\Rightarrow$  Higher external funding capacity...
  - ... but also affects funding needs via the bid price needed to succeed
  - $\Rightarrow$  Must consider the net effect on (B)

## Results: Competition Matters

- Does LIP improve efficiency in the market for corporate control?
- **Single-bidder:** Better LIP...
  - $\Rightarrow$  Higher funding capacity but does *not* relax the budget constraint
  - $\Rightarrow$  *Less* likely that efficient takeovers succeed
- **Bidding contest:** Better LIP...
  - $\Rightarrow$  Funding capacity increases more for more efficient bidder
  - $\Rightarrow$  *More* likely that efficient takeovers succeed

## Selected Extensions / Applications

- **Extensions**

- Margins
- Cost of internal funds

- **Applications**

- 1 share–1 vote
- Sales of controlling blocks
- Cross-border M&A

## Related Literature

- M&A theory literature
  - Much focus on transaction mechanism
  - Financing: Source of funds (e.g. signalling) but little on constraint
- Almeida and Wolfenzon (2006)
  - Project with fixed setup cost
  - First pick: Entrepreneur (efficient but poor)
  - Second pick: Family (inefficient but wealthy)
  - LIP increases external funding capacity  $\Rightarrow$  Relaxes the entrepreneur's (B)
- Key difference:
  - Bid price is endogenous to actual competition and LIP ( $\neq$  fixed setup cost)
  - $\Rightarrow$  LIP affects **both** sides of (B): Funding capacity but also funding need

# Roadmap

- **Single Bidder**
- Bidding Competition
- Extensions
- Applications

## SINGLE BIDDER

- Target value increase  $0 \rightarrow v$ 
  - Security benefits:  $\bar{\phi}v$
  - Private benefits:  $(1 - \bar{\phi})v$
  - Better LIP  $\Rightarrow$  Higher  $\bar{\phi}$  (NB: In paper,  $\phi \geq \bar{\phi}$ )
- Dispersed ownership  $\Rightarrow$  Tender offer:
  - Bid price  $b$ , conditional offer, execution cost  $c$
  - 50%  $\Rightarrow$  Control
- Financing:
  - Internal funds  $A > 0$
  - Security benefits pledgeable  $\Rightarrow$  Outside funds from competitive investors



## Conditions for Successful Bid

### 1. Bidder's Participation (P)

$$v \geq b + c$$

### 2. Bidder's Budget (B)

$$\underbrace{A}_{\text{Internal funds}} + \underbrace{F}_{\text{External funds}} \geq \underbrace{b}_{\text{Bid price}} + \underbrace{c}_{\text{Cost}}$$

**3. Free-rider condition (FRC):** Dispersed shareholders tender only if the bid price exceeds minority share value post-takeover (Grossman-Hart (1980), Bradley (1980))

$$b \geq \bar{\phi}v$$

## Optimal Bid

- (FRC) is binding:

$$b = \bar{\phi}v$$

- $\Rightarrow$  Participation constraint (P):

$$v \geq b + c \quad \Rightarrow \quad \underbrace{(1 - \bar{\phi})v}_{\text{Private Benefits}} \geq c$$

- $\Rightarrow$  Budget constraint (B):

$$\underbrace{A + \bar{\phi}v}_{\text{Funding Capacity}} \geq \underbrace{b + c}_{\text{Funding Needs}} \quad \Rightarrow \quad A \geq c$$

- NB: Stronger LIP...

1.  $\Rightarrow$  (P) is tighter

2. (B) unchanged: Funding capacity ( $\bar{\phi}v$ ) and funding needs ( $b$ ) increase... equally

## Outcome + LIP Effect

**LEMMA 1: The takeover succeeds iff**

$$\min\{ (1 - \bar{\phi})v , A \} \geq c$$

- Stronger LIP has two effects:
  - Bidder budget constraint : Neutral
    - \* Higher funding capacity...
    - \* ...but higher funding needs
  - Bidder profit : Lower  $\Rightarrow$  Efficient takeovers are less likely

**PROPOSITION 1: No competition  $\Rightarrow$  LIP impairs takeovers efficiency**

# Roadmap

- Single Bidder
- **Bidding Competition**
- Extensions
- Applications

# BIDDING CONTEST

- Two bidders:

- Bidder 1: Wealth  $A_1$  and value  $v_1$
- Bidder 2: Wealth  $A_2$  and value  $v_2 < v_1$
- Simultaneous bids  $b_1$  and  $b_2$

- **Assumption:** Bidder 1 is “active”

$$\min\{ (1 - \bar{\phi})v_1, A_1 \} \geq c$$

Else, no bidding (competition)

**LEMMA 2: Pareto-dominance  $\Rightarrow$  Highest bid s.t.  $b_i \geq \bar{\phi}v_i$  (if any) wins**

## Outcome + LIP effect

- $\hat{b}_i \equiv$  Highest offer bidder  $i$  is willing and able to make satisfies

– Participation (P):

$$v_i \geq b_i + c$$

– Budget (B):

$$A_i + \bar{\phi}v_i \geq b_i + c$$

– Therefore:

$$\hat{b}_i = \bar{\phi}v_i + \min \{ (1 - \bar{\phi})v_i, A_i \} - c$$

**LEMMA 3: Bidder 1 wins iff willing/able to outbid rival ( $\hat{b}_1 \geq \hat{b}_2$ )**

$$A_1 \geq \min \{ (1 - \bar{\phi})v_2, A_2 \} - \bar{\phi}(v_1 - v_2)$$

**PROPOSITION 2: Competition  $\Rightarrow$  LIP promotes takeover efficiency**

## Intuition

- LIP increases outside funding capacity... and *more so for more efficient bidder*

- “Weak” LIP:  $\bar{\phi} = 0.7 \Rightarrow$  **Inefficient outcome**

	Wealth $A$	Value $v$	Security Benefits	Private Benefits	Max Bid
Bidder 1	0	100	70	30	70
Bidder 2	8	90	63	27	<b>71</b>

- “Strong” LIP:  $\bar{\phi} = 0.9 \Rightarrow$  **Efficient outcome**

	Wealth $A$	Value $v$	Security Benefits	Private Benefits	Max Bid
Bidder 1	0	100	90	10	<b>90</b>
Bidder 2	8	90	81	9	89

# Roadmap

- Single Bidder
- Bidding Competition
- **Extensions**
  - Margins
  - **Cost of internal funds**
- Applications



## “MARGINS”

- Wedge between:
  - Security benefits  $\bar{\phi}v$
  - Funding capacity  $(1 - \pi)\bar{\phi}v$
- $\Rightarrow$  Bidder must provide  $\pi\bar{\phi}v$  out of pocket (“haircut”)

- Analysis: Same but for (B)

$$\underbrace{A}_{\text{Internal Funds}} + \underbrace{(1 - \pi)\bar{\phi}v}_{\text{External Funds}} \geq \underbrace{b + c}_{\text{Funding Needs}}$$

which can be written as

$$\underbrace{(A - \pi\bar{\phi}v)}_{\text{Effective Internal Funds}} + \underbrace{\bar{\phi}v}_{\text{Effective External Funds}} \geq \underbrace{b + c}_{\text{Funding Needs}}$$

## Single Bidder

**LEMMA 6: No competition  $\Rightarrow$  The takeover succeeds iff**

$$\min\{ (1 - \bar{\phi})v , A - \pi\bar{\phi}v \} \geq c$$

**$\Rightarrow$  Margins impair takeover efficiency ... esp. if strong LIP**

Intuition:

- Margins reduce funding capacity but not the funding needs  $\Rightarrow$  Tightens (B)
- Greater tightening when outside funding capacity is greater, i.e., under stronger LIP

## Competition

**LEMMA 7: Bidder 1 wins the takeover contest iff  $\hat{b}_1 \geq \hat{b}_2$**

$$A_1 - \pi\bar{\phi}v_1 \geq \min \{ (1 - \bar{\phi})v_2, A_2 - \pi\bar{\phi}v_2 \} - \bar{\phi}(v_1 - v_2)$$

**PROPOSITION 4: Margins impair takeover efficiency... esp. if strong LIP**

Intuition:

- Margins reduce funding capacity more when funding capacity is larger
  - $\Rightarrow$  Bigger impact on more efficient bidder
  - ... particularly when LIP is strong

## COST OF INTERNAL FUNDS

- Financial constraints  $\Rightarrow$  Cost of internal funds

- Risk management buffer, dry powder, etc.
- Imperfectly liquid assets

- **Assumption:** Using internal funds  $a \leq A \Rightarrow$  Shadow “cash cost”  $= \tau a$

- Cash cost  $\Rightarrow$  First exhaust outside funding capacity  $\Rightarrow$  Internal fund use

$$a = b + c - \bar{\phi}v$$

- Same analysis but for Participation (P)

$$v - \tau a \geq b + c \quad \Rightarrow \quad \bar{\phi}v + \frac{(1 - \bar{\phi})v}{1 + \tau} \geq b + c$$

## Single Bidder

- (FRC)  $\Rightarrow$  (P) becomes

$$\frac{(1 - \bar{\phi})v}{1 + \tau} \geq c$$

**LEMMA 8: No competition  $\Rightarrow$  The takeover succeeds iff**

$$\min \left\{ \frac{(1 - \bar{\phi})v}{1 + \tau}, A \right\} \geq c$$

**$\Rightarrow$  Cost of internal funds impairs takeover efficiency... esp. if weak LIP**

Intuition:

- Cash cost tightens (P) esp. when low outside funding capacity leads to high reliance on internal funds, i.e., under weak LIP

## Competition

- Highest offer which bidder  $i$  is willing and able to make

$$\hat{b}_i = \bar{\phi}v_i + \min \left\{ \frac{(1 - \bar{\phi})v_i}{1 + \tau}, A_i \right\} - c$$

**LEMMA 9: Bidder 1 wins the takeover contest iff  $\hat{b}_1 \geq \hat{b}_2$**

$$A_1 \geq \min \left\{ \frac{(1 - \bar{\phi})v_2}{1 + \tau}, A_2 \right\} - \bar{\phi}(v_1 - v_2)$$

**PROPOSITION 5: Competition  $\Rightarrow$  Cost of internal funds promotes takeover efficiency... esp. if weak LIP**

Intuition:

- Cash cost reduces the appeal of internal funds  $\Rightarrow$  Favors bidder with high outside funding capacity, i.e., the more efficient ones
- Esp. if internal funds are otherwise important, i.e., under weak LIP

# Roadmap

- Single Bidder
- Bidding Competition
- Extensions
  - Margins
  - Cost of internal funds
- **Applications (to simplify,  $c = 0$ ):**
  - **1 share – 1 vote**
  - **Sales of controlling block**
  - **Cross-border M&A**

## ONE SHARE – ONE VOTE

- Dual-class share structure:
  - Voting shares : fraction  $\alpha$
  - Non-voting shares: fraction  $(1 - \alpha)$
- One share – one vote corresponds to  $\alpha = 1$

### LEMMA 12: WLOG, no bid for non-voting shares

#### Intuition:

- Non-voting shares are useless for gaining control
- Free-riding  $\Rightarrow$  They cannot be bought at discount—i.e., below “fair value”  $\bar{\phi}v_i$



## Competition

- $\hat{b}_i \equiv$  Highest offer bidder  $i$  is willing and able to make

- Participation (P):

$$\alpha \cdot \bar{\phi} v_i + (1 - \bar{\phi}) v_i \geq \alpha \cdot b_i$$

- Budget (B):

$$A_i + \alpha \cdot \bar{\phi} v_i \geq \alpha \cdot b_i$$

- Therefore:

$$\hat{b}_i = \bar{\phi} v_i + \frac{1}{\alpha} \cdot \min \{ (1 - \bar{\phi}) v_i, A_i \}$$

**LEMMA 13: Bidder 1 wins the takeover contest iff  $\hat{b}_1 \geq \hat{b}_2$  i.e.**

$$A_1 \geq \min \{ (1 - \bar{\phi}) v_2, A_2 \} - \alpha \cdot \bar{\phi} (v_1 - v_2)$$

- Note: As the fraction of votes  $\alpha$  decreases...
  - Maximum bids increase due to higher willingness and ability to pay
  - Bidder 1 is *less* likely to win

## PROPOSITION 7 + COROLLARY 2:

- One share – one vote is socially optimal
- “More so” when LIP is weak

### Intuition:

- Say financing constraints are binding  $A_i \leq (1 - \bar{\phi})v_i$

- $\Rightarrow$  Maximum bids

$$\hat{b}_1 = \bar{\phi}v_1 + \frac{A_1}{\alpha} \quad \text{and} \quad \hat{b}_2 = \bar{\phi}v_2 + \frac{A_2}{\alpha}$$

- Higher  $\alpha \Rightarrow$  Greater need for external funds
- $\Rightarrow$  Favors efficient bidders (b/c greater external funding capacity)
  
- Weak LIP attenuates the difference in external funding capacity
- $\Rightarrow$  Increases the role of internal funds
- One share – one vote reduces the role of internal funds

## BLOCK SALES

- Bidders:
  - Controlling shareholder: block  $\beta \geq 50\%$  value  $v_0$
  - Acquirer: value  $v_1 > v_0$
- Market Rule: No obligation to buy minority shares (+ no reason to, as before)

**LEMMA 14: The bidder acquires the controlling block iff**

$$A_1 \geq (1 - \bar{\phi})v_0 - \beta\bar{\phi}(v_1 - v_0)$$

Intuition:

- Same as for 1S/1V except for:
  - $\alpha$  (fraction of voting shares)  $\Leftrightarrow \beta$  (block size)
  - Incumbent's wealth  $A_0$  absent because his ability to pay is irrelevant

## **PROPOSITION 8: Larger block promotes sale efficiency**

### Intuition:

- Larger block reduces the role of internal funds (like 1S/1V)

## **COROLLARY 3: Stronger LIP promotes efficient sales of control**

### Intuition:

- Stronger LIP  $\Rightarrow$  increases the differences in outside funding capacity

## Optimal Block (à la Zingales, 1995):

- Founder:
  - At  $t = 0$ , retains controlling block  $\beta$  and disperses the rest
  - Assume ( $t = 1$ ) bidder has full bargaining power in block sale
- At  $t = 1$ , sale of control iff

$$A_1 \geq (1 - \bar{\phi})v_0 - \beta\bar{\phi}(v_1 - v_0) \quad (*)$$

at price

$$\beta\bar{\phi}v_0 + (1 - \bar{\phi})v_0$$

- At  $t = 0$ , if (\*) holds
  - Dispersed investors are willing to pay  $(1 - \beta)\bar{\phi}v_1$
  - $\Rightarrow$  Founder's payoff

$$\beta\bar{\phi}v_0 + (1 - \bar{\phi})v_0 + (1 - \beta)\bar{\phi}v_1$$

## PROPOSITION 9 + COROLLARY 4:

- The incumbent's optimal controlling stake is

$$\beta^* = \max \left\{ \frac{(1 - \bar{\phi})v_0 - A_1}{\bar{\phi}(v_1 - v_0)}, 50\% \right\}$$

- Larger when LIP is weak

### Intuition:

- As  $\beta$  decreases:
  - Incumbent's total payoff increases
  - But (\*) is tighter
- LLSV (1998, 1999): more concentrated ownership in weaker LIP countries

## CROSS-BORDER M&A

- Two bidders:

- Same efficiency  $v_1 = v_2 = v$
- Same internal funds  $A_1 = A_2 = A$
- Different countries (LIPs):  $\bar{\phi}_1 > \bar{\phi}_2$

- Typically, targets adopt standards of acquirer's country (Rossi and Volpin (2004), Bris and Cabolis (2008), Chari et al (2009))

- Bidder  $i$ 's maximum offer is:

$$\hat{b}_i = \bar{\phi}_i v + \min \{ (1 - \bar{\phi}_i)v, A \}$$

**PROPOSITION 10: Bidder with stronger LIP is favored if internal funds are limited ( $A < (1 - \bar{\phi}_2)v$ )**

# CONCLUSION

- Model of the market for corporate control:
  - Financial constraints
  - Institutional environment : here LIP
  - Implications for the efficiency of resource allocation via M&A

## Main insights:

- Must consider LIP's effects on outside funding capacity...but also on funding needs
  - Single bidder: Funding effects cancel out
  - Bidding contest: LIP favors efficient M&A
- Net effect also depends on cost of external funds and internal funds
- Applications: 1S/1V, larger blocks, cross-border M&A