Negotiation under the threat of an auction: friendly deals, *ex-ante* competition and bid premium

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Outline

- Motivation
- Theoretical analysis
- Empirical evidence
- Conclusion

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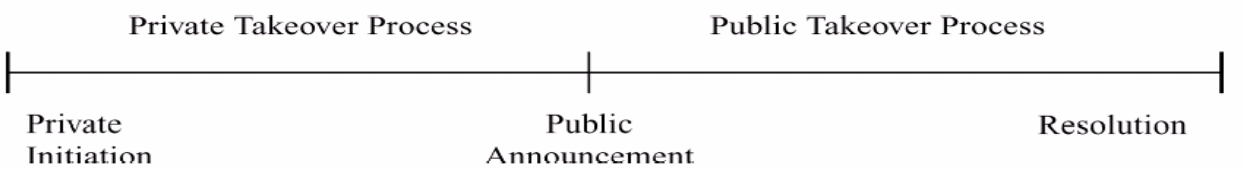
Motivation

- The "market for corporate control" plays an important role in our economies:
  - It acts as an external control mechanism over incumbent managers
    - According to Manne (1965) "[…]greater capital losses are prevented by the existence of a competitive market for corporate control"
  - In a competitive market, the bidder with the highest valuation (synergy) will take over the target, promoting efficient resource allocation

- However, the M&A market seems NOT to display strong evidence of competition among bidders (at least ex-post):
  - Large sample studies use the number of bidders that publicly attempt to acquire the target as a measure for competition
    - The average number of bidders per deal is 1.1 in Andrade *et al.* (2001)
    - Only 2,95% of the 11,393 deals were competed for by rival firms in Moeller et al. (2004)
  - Competition seems to have been somewhat more pronounced during tender offers in the 70s and 80s
    - Betton and Eckbo (2000) document that out of 1,353 tender offers in their samples, 508 cases involved multiple-bid contests, from which 214 cases were challenged by rivals

- Recent evidence by Boone and Mulherin (2007, 2008) on private-takeover process is perhaps more encouraging:
  - They argue that the number of bidders is a noisy proxy for competition
  - Using merger documents from the SEC, they build sophisticated proxies for competition based on information from the private takeover process
  - Half of the deals (202) is a **private auction** among multiple bidders, the remaining being **direct bargaining** with only one bidder
  - For the private auctions, on average 9.49 bidders were contacted and 1.13 eventually publicly announced a formal bid



Time line of the takeover process in Boone and Mulherin (2007)

➔ Main conclusions:

(i) Target CARs and bid premium are not significantly different between negotiations and auctions

(ii) Competition does not affect acquirers CARs

- To sum up
  - the literature suggests that the number of *ex-post* observable bidder is low
  - that multiple-bid contests represent a minority of cases
  - that for private auctions no clear relation is found between the winning bidder's CAR and the number of rival bidders
  - and, finally, that one-to-one direct negotiation represents at least fifty percent of cases

- So the question of whether the market for corporate control really lacks competition remains largely an open issue

- We focus on so-called "friendly negotiations", for which no competition is observed ex post
  - Are these friendly bidders totally immune to competitive pressure?

- An absence of competition in friendly deals raise other intriguing questions
  - Why do target firms not systematically require a competitive sale procedures?
  - Why do bidders have such low CARs?

- We argue that it is mainly *ex ante* competition that matters in explaining acquirers' bidding behavior
  - Our argument is analogous to the theory of contestable markets (Baumol, 1982)

- We first provide a theoretical analysis of the role of ex ante competition where takeovers are modeled as a two-stage process
  - The first stage corresponds to a one-to-one negotiation with the target
  - If the negotiation fails, either there is a takeover battle or the target organizes a competitive auction (in the spirit of Hansen (2001) or Boone and Mulherin (2007))

- We then provide an empirical test of the main prediction of the model using a sample of negotiated deals
  - We use several proxies for ex-ante competition:
    - M&A wave, deal frequency, buyout activities, and NBER recession

- In the model, the bidder negotiates in the first stage under the threat of an auction
- This practice is stressed by financial intermediaries advising target companies

> *"Sometimes we advise a client to use the threat of an auction as its lever to get a reasonable deal done with the best buyer."*
> Donald Meltzer (co-head of Global M&A, Credit Suisse First Boston LLC)
> Source: CFO Magazine 2003

> *"The greatest obstacle in an auction is that strategic buyers with reasons to offer higher prices may refuse to participate. This usually occurs with companies that are market leaders in highly concentrated activities. The mere threat of an auction, however, is often enough to galvanize a strategic buyer into making a good preemptive offer."*
> Brian O'Hare (partner at CoramClairfield)
> Source: Clairfield Review, Third Quarter 2006

Theoretical analysis

- We model the decision problems of the acquirer and target as a two-stage extensive game with a finite horizon
- Structure of the game
  - Risk neutrality: acquirer's and target's preferences are fully described by their expected payoffs
  - Organizing an auction in the second-stage implies
    - Direct costs (common knowledge) and indirect costs (private knowledge)
    - Indirect costs are private knowledge of the target (source of asymmetry between the bidder and the target at the first stage)
  - Synergies are private to the acquirer, and the valuation of the target is increasing in synergies
  - Rivals enter into the game only in the second stage
    - The initial acquirer and the target have imperfect knowledge of the valuations of potential rivals
    - The initial acquirer is a high-value bidder: at most one rival firm has a higher valuation
  - The rejected bid in the first stage become the seller's reserve price in the second-stage

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Bargaining stage

First and final offer: b_1
Asymmetric information

Two possible outcomes

Auction stage

Second price auction
Independent and private value
N symmetric bidders
c = cost organizing the auction
b_1 = new reserve price of the target

Three possible outcomes

Initial bidder offer b_1

- The offer is accepted and the game ends
- The offer is not accepted and the auction-stage starts

	Probability
$v_{(1)} \leq b_1$	$\varphi_1 = F(b_1)^{N-1}$
$b_1 < v_{(1)} \leq v_1$	$\varphi_2 = F(v_1)^{N-1} - F(b_1)^{N-1}$
$v_{(1)} > v_1$	$\varphi_3 = 1 - F(v_1)^{N-1}$

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Second stage analysis: the auction

The Outcomes of the Second-Stage Takeover Battle

	Case 1 Rival highest valuation below initial acquirer bid $v_{(1)} \leq b_1$	**Case 2** Rival highest valuation between initial acquirer bid and initial acquirer valuation $b_1 < v_{(1)} \leq v_1$	**Case 3** Rival highest valuation above initial acquirer valuation $v_{(1)} > v_1$
Price	$p_2 = b_1$	$p_2 = \tilde{v}_{(1)}$	$p_2 = v_1$
Target profit	$\Pi_2^{Target} = b_1 - v_T - c$	$\Pi_2^{Target} = \tilde{v}_{(1)} - v_T - c$	$\Pi_2^{Target} = v_1 - v_T - c$
Initial acquirer's profit	$\Pi_2^{Acquirer} = v_1 - b_1$	$\Pi_2^{Acquirer} = v_1 - \tilde{v}_{(1)}$	$\Pi_2^{Acquirer} = 0$
Probability	$\varphi_1 = F(b_1)^{N-1}$	$\varphi_2 = F(v_1)^{N-1} - F(b_1)^{N-1}$	$\varphi_3 = 1 - F(v_1)^{N-1}$

The expected sale price at the second stage

$$E(p_2) = F(b_1)^{N-1} b_1 + \int_{b_1}^{v_1} v(N-1)F(v)^{N-2} f(v)dv + (1 - F(v_1)^{N-1})v_1$$

Rival highest valuation below initial acquirer bid

Rival highest valuation between initial acquirer bid and initial acquirer valuation

Rival highest valuation above initial acquirer valuation

p_2 : price at the second step

b_1 : bid at the first setp

v_1 : valuation of the initial bidder

$F(.)$: CDF of bidders' valuation ($f(.)$: correspond ing PDF)

N : number of bidders

The initial acquirer's expected profit at the second stage

$$E\left(\Pi_2^{\text{Acquirer}}(v_1)\right) = F(b_1)^{N-1}(v_1 - b_1) + \left(F(v_1)^{N-1} - F(b_1)^{N-1}\right)\left(v_1 - E\left(\tilde{v}_{(1)} \middle| \tilde{v}_{(1)} > b_1, \tilde{v}_{(1)} \le v_1\right)\right)$$

Profit when the rival maximum valuation is below the initial acquirer's bid at the negotiation phase

Profit if the rival maximum valuation is above the initial acquirer's bid at the negotiation phase, but below the initial acquirer's valuation

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First stage analysis: the negotiation

The target's decision problem: accept the first-stage offer if:

$$b_1 - v_T \geq E(p_2) - v_T - c \quad \Longleftrightarrow \quad c > E(p_2) - b_1$$

The initial acquirer's decision problem at the negotiation phase is

$$\underset{b_1}{Max}\left(1 - K\left(E(p_2) - b_1\right)\right)(v_1 - b_1) + \left(K\left(E(p_2) - b_1\right)\right)E\left(\Pi_2^{\text{Acquirer}}(v_1)\right)$$

Probability in the eyes of the initial acquirer that $c \leq E(p_2) - b_1$

The expected payoff of the initial acquirer is given by

$$E\left(\Pi_1^{Acquirer}(v_1)\right) = \left(1 - K\left(E(p_2) - b_1^*\right)\right)(v_1 - b_1^*) + \left(K\left(E(p_2) - b_1^*\right)\right)E\left(\Pi_2^{Acquirer}(v_1)\right)$$

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Propositions from the theoretical analysis

Proposition 1
An increase in the number of rivals in the second-stage takeover battle increases both the equilibrium expected price and the equilibrium expected profit of the target shareholders, and decreases the equilibrium expected profit of the acquirer.

Proposition 2
An increase in the number of rivals in the second-stage takeover battle increases the equilibrium initial acquirer offer during the negotiation phase.

Proposition 3
In the first-stage negotiation phase, an increase in the number of rivals in the second-stage takeover battle: increases the equilibrium target-shareholders expected profit, and decreases the initial acquirer's expected profit.

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Empirical evidence – Sample

- The sample is from SDC database for the period 1994-2006
  - Both the target and the bidder are listed US firms
  - Shareholdings increase from less than 50% to 100% after the transaction
  - Significant acquisition: deal value is above $1 million and represents more than 1% of the acquirer market value
  - The bid premium is available in the SDC database

  ➔ **These criteria yield an initial sample of 2,677 deals**

- We further require the
  - Availability of the he GIM index (Gompers et *al.*, 2003)
  - Availability of the financial analysts forecasts for acquirer EPS long term growth in the IBES database

  ➔ **The sample is reduced to 1,007 deals**

- We focus on friendly *negotiations*
  - SEC filings are used to identify the selling procedure (14A and S-4 filings for mergers and 14D filings for tender offers)

  ➔ **The use of SEC filings limits the sample to 591 transactions, among which 286 deals are classified as one-to-one negotiation**

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Sample Distribution by Announcement Year

	SDC		SEC Filings		Auction		Negotiation	
Year	*N*	%	*N*	%	*N*	%	*N*	%
1994	115	4.30	13	2.20	9	2.95	4	1.40
1995	225	8.40	43	7.28	23	7.54	20	6.99
1996	236	8.82	47	7.95	24	7.87	23	8.04
1997	340	12.70	57	9.64	30	9.84	27	9.44
1998	335	12.51	87	14.72	35	11.48	52	18.18
1999	322	12.03	69	11.68	30	9.84	39	13.64
2000	275	10.27	57	9.64	31	10.16	26	9.09
2001	192	7.17	31	5.25	16	5.25	15	5.24
2002	103	3.85	20	3.38	11	3.61	9	3.15
2003	141	5.27	39	6.60	22	7.21	17	5.94
2004	147	5.49	45	7.61	23	7.54	22	7.69
2005	129	4.82	41	6.94	27	8.85	14	4.90
2006	117	4.37	42	7.11	24	7.87	18	6.29
Total	2,677	100.00	591	100.00	305	100.00	286	100.00

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Sample Description

Variable	SDC (*N*=2,677)		SEC Filings (*N*=591)		Auction (*N*=305)		Negotiation (*N*=206)		*p*-value
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	
Panel A. Firm Size									
Target Size ($ billions)	1.18	0.17	1.96	0.41	1.07	0.30	2.91	0.55	0.00
Acquirer Size ($ billions)	7.84	1.44	14.09	4.97	11.31	4.32	17.06	6.49	0.01
Relative Size	59%	15%	20%	8%	18%	7%	23%	11%	0.05
Panel B. Deal Characteristics									
Cash	20.32%		22.33%		28.85%		15.38%		0.00
Toehold	2.69%		1.86%		1.64%		2.10%		0.68
Target-initiated	N/A		42.31%		60.66%		22.73%		0.00
Panel C. Target Characteristics									
Tobin's *q* Ratio	N/A	N/A	1.91	1.40	1.85	1.37	1.97	1.41	0.33
Run-up	N/A	N/A	4.75%	3.73%	4.84%	3.25%	4.66%	3.97%	0.90
Intangibles	N/A	N/A	9.73%	1.43%	9.25%	1.30%	10.23%	1.67%	0.44
Sales Concentration	N/A	N/A	0.06	0.04	0.06	0.04	0.07	0.04	0.50
R&D Intensive Industry	12.89%		28.60%		28.85%		28.32%		0.89
Regulated Industry	25.33%		31.13%		32.46%		29.72%		0.47
Strong Antitakeover State	15.52%		18.44%		18.03%		18.88%		0.79
Panel D. Acquirer Characteristics									
Idiosyncratic Risk	N/A	N/A	0.021	0.018	0.020	0.017	0.021	0.019	0.29
Acquirer to Target *q* Ratio	N/A	N/A	1.23	1.05	1.20	1.05	1.27	1.05	0.29
GIM Index	N/A	N/A	9.48	9.00	9.64	10.00	9.30	9.00	0.11
St.Dev. of EPS Forecasts	N/A	N/A	3.34	2.44	3.23	2.31	3.46	2.52	0.39

Empirical evidence – Variable

- Dependent variable
  - The bid premium in percentage obtained from the SDC database
  - It corresponds to the share price offered by the winning bidder deflated by the stock price of the target four weeks prior to the announcement date

  - We use the bid premium because:
    - The main prediction of the model is on bid premium
    - Bid premiums are not contaminated by investors revisions on the acquirer value
    - Bid premiums are less affected by rumors
    - Bid premiums are not affected by the probability of deal completion

SDC (*N*=2,677)		SEC Filings (*N*=591)		Auction (*N*=305)		Negotiation (*N*=206)		*p*-value
Mean	Median	Mean	Median	Mean	Median	Mean	Median	
43.12%	34.37%	44.43%	34.45%	45.93%	36.39%	42.83%	32.62%	*0.33*

- Variable of interest:
  - Ex-ante competition is not observable. In the model, it is the number of rivals that the initial bidder and the target anticipate to come into play in the second-stage auction
  - We use four proxies
    - M&A waves
      - Using the algorithm in Harford (2005), we identify M&A waves within the target industry
    - Deal frequency
      - The number of deals in the industry of the target divided by the number of firms in the industry
    - Private buyout funds activities
      - The aggregate amount of investments realized in the U.S. by private buyout funds divided by the size of the U.S. stock market (aggregate Nyse, Amex and Nasdaq market value)
    - Economic recession

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Correlation Analysis of Ex-ante Competition Proxies

	Wave	Predicted Wave	Deal Frequency Previous Quarter	Deal Frequency Previous Semester	Buyout Activities	NBER Recession
Wave	1.00					
Predicted Wave	0.24***	1.00				
Deal Frequency Previous Quarter	0.36***	0.22***	1.00			
Deal Frequency Previous Semester	0.40***	0.26***	0.71	1.00		
Buyout Activities	0.10***	0.39***	0.07*	0.12	1.00	
NBER Recession	-0.17***	-0.21***	-0.06	0.05	-0.07*	1.00

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Probability of Negotiation

Variable	Coefficient	*p*-value
Intercept	0.05	*0.96*
Target Tobin's *q* ratio	-0.01	*0.81*
Target Intangibles	0.40	*0.29*
Target Sales Concentration	0.03	*0.88*
Relative Deal Size	0.08	*0.59*
Acquirer Size	0.03	*0.52*
Stock	0.45	*0.00*
Target-Initiated	-1.01	*0.00*
Industry Count	-0.10	*0.10*
R&D intensive industry	0.03	*0.85*
Strong Antitakeover State	-0.04	*0.79*
LR Statistic	112.4	*0.00*
% Correct Prediction	68.18%	
N	591	

Empirical evidence-Results

SDC Sample (N= 2,398)

Variable	(1) Wave		(2) Predicted Wave		(3) Deal Freq. Q-1		(4) Deal Freq. S-1		(5) Buyout Activities		(6) NBER Recession	
	Coef.	*p*-value	Coef.	*p*-value	Coef.	*p*-value	Coef.	*p*-value	Coef.	*p*-value	Coef.	*p*-value
Ex ante competition proxy	0,02	*0,40*	-0,01	*0,95*	-0,09	*0,84*	0,01	*0,97*	17,15	*0,08*	-0,02	*0,73*
Control Variables												
Cash	0,01	*0,65*	0,01	*0,63*	0,01	*0,63*	0,01	*0,63*	0,02	*0,43*	0,01	*0,63*
Toehold	0,29	*0,25*	0,28	*0,25*	0,28	*0,26*	0,28	*0,25*	0,27	*0,28*	0,28	*0,25*
Target Run-up	0,27	*0,00*	0,27	*0,00*	0,27	*0,00*	0,27	*0,00*	0,27	*0,00*	0,27	*0,00*
Target Size	-0,05	*0,00*	-0,05	*0,00*	-0,05	*0,00*	-0,05	*0,00*	-0,05	*0,00*	-0,05	*0,00*
Target Tobin's *q* Ratio	0,02	*0,02*	0,02	*0,02*	0,02	*0,03*	0,02	*0,02*	0,02	*0,03*	0,02	*0,02*
Acquirer Idiosyncratic Risk	2,26	*0,01*	2,31	*0,01*	2,32	*0,01*	2,31	*0,01*	2,36	*0,01*	2,36	*0,01*
Acquirer to Target *q* Ratio	0,03	*0,02*	0,03	*0,02*	0,03	*0,02*	0,03	*0,02*	0,03	*0,02*	0,03	*0,02*
Adjusted-R^2	6,0%		6,0%		6,0%		6,0%		6,1%		6,0%	
F-Statistic	19,01	*0.00*	18,92	*0.00*	18,92	*0.00*	18,92	*0.00*	19,33	*0.00*	18,93	*0.00*

SEC Filings Sample (N= 591)

Variable	(1) Wave		(2) Predicted Wave		(3) Deal Freq. Q-1		(4) Deal Freq. S-1		(5) Buyout Activities		(6) NBER Recession	
	Coef.	*p*-value	Coef.	*p*-value	Coef.	*p*-value	Coef.	*p*-value	Coef.	*p*-value	Coef.	*p*-value
Ex ante competition proxy	0.04	*0.19*	0.33	*0.08*	0.63	*0.23*	0.62	*0.08*	42.44	*0.00*	-0.08	*0.21*
Control Variables												
Cash	0.04	*0.22*	0.05	*0.15*	0.05	*0.19*	0.05	*0.19*	0.08	*0.03*	0.04	*0.22*
Toehold	3.59	*0.00*	3.55	*0.00*	3.55	*0.00*	3.58	*0.00*	3.39	*0.00*	3.57	*0.00*
Target Run-up	0.29	*0.00*	0.30	*0.00*	0.29	*0.00*	0.28	*0.00*	0.30	*0.00*	0.30	*0.00*
Target Size	-0.06	*0.00*	-0.06	*0.00*	-0.06	*0.00*	-0.06	*0.00*	-0.06	*0.00*	-0.06	*0.00*
Target Tobin's *q* Ratio	0.03	*0.01*	0.03	*0.01*	0.03	*0.00*	0.03	*0.00*	0.03	*0.01*	0.03	*0.01*
Acquirer Idiosyncratic Risk	5.54	*0.00*	6.09	*0.00*	5.67	*0.00*	5.48	*0.00*	5.64	*0.00*	6.13	*0.00*
Acquirer to Target *q* Ratio	-3E-3	*0.87*	-4E-3	*0.85*	-6E-4	*0.98*	2E-3	*0.91*	-4E-3	*0.86*	-4E-3	*0.87*
Acquirer GIM Index	-7E-4	*0.91*	-9E-4	*0.87*	-1E-3	*0.81*	-1E-3	*0.80*	-2E-3	*0.74*	-7E-4	*0.90*
St.Dev. of Acquirer EPS Forecasts	-5E-4	*0.92*	-1E-3	*0.79*	-1E-3	*0.80*	-1E-3	*0.79*	-5E-4	*0.91*	-1E-3	*0.80*
Adjusted-R^2	19.9%		20.1%		19.9%		20.1%		21.3%		19.9%	
F-Statistic	14.40	*0.00*	14.56	*0.00*	14.37	*0.00*	14.58	*0.00*	15.65	*0.00*	14.38	*0.00*

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Negotiation Sample (N= 286)

Variable	(1) Wave		(2) Predicted Wave		(3) Deal Freq. Q-1		(4) Deal Freq. S-1		(5) Buyout Activities		(6) NBER Recession	
	Coef.	*p*-value	Coef.	*p*-value	Coef.	*p*-value	Coef.	*p*-value	Coef.	*p*-value	Coef.	*p*-value
Ex ante competition proxy	0.07	*0.13*	0.46	*0.10*	1.41	*0.05*	1.17	*0.02*	54.36	*0.00*	-0.16	*0.10*
Control Variables												
Cash	0.06	*0.33*	0.06	*0.36*	0.07	*0.27*	0.07	*0.24*	0.10	*0.10*	0.06	*0.36*
Toehold	0.15	*0.90*	0.27	*0.83*	0.26	*0.83*	0.28	*0.82*	0.07	*0.96*	0.25	*0.84*
Target Run-up	0.23	*0.06*	0.23	*0.05*	0.21	*0.08*	0.20	*0.10*	0.23	*0.05*	0.22	*0.06*
Target Size	-0.07	*0.00*	-0.07	*0.00*	-0.07	*0.00*	-0.07	*0.00*	-0.06	*0.00*	-0.06	*0.00*
Target Tobin's *q* Ratio	0.04	*0.01*	0.04	*0.01*	0.04	*0.00*	0.05	*0.00*	0.04	*0.01*	0.04	*0.01*
Acquirer Idiosyncratic Risk	7.88	*0.00*	8.41	*0.00*	8.06	*0.00*	7.75	*0.00*	8.24	*0.00*	9.25	*0.00*
Acquirer to Target *q* Ratio	-0.01	*0.83*	-4E-3	*0.88*	-4E-4	*0.99*	2E-3	*0.96*	-0.01	*0.79*	-0.01	*0.81*
Acquirer GIM Index	-0.01	*0.47*	-0.01	*0.52*	-0.01	*0.39*	-0.01	*0.40*	-0.01	*0.34*	-0.01	*0.48*
St.Dev. of Acquirer EPS Forecasts	-2E-3	*0.80*	-3E-3	*0.68*	-3E-3	*0.65*	-3E-3	*0.62*	-2E-3	*0.77*	-3E-3	*0.66*
Heckman's Lambda	-0.11	*0.15*	-0.10	*0.16*	-0.10	*0.19*	-0.10	*0.16*	-0.10	*0.15*	-0.10	*0.16*
Adjusted-R^2	23.0%		23.1%		23.4%		23.9%		25.1%		23.1%	
F-Statistic	7.43	*0.00*	7.46	*0.00*	7.61	*0.00*	7.80	*0.00*	8.32	*0.00*	7.47	*0.00*

Conclusion

- Competition is essential for the efficient allocation of management teams among firms
- However, based on previous evidence in the literature, observable competition seems to be at best low
- This paper has emphasized the role of *ex-ante* competition, which is not easily observable
- Even if competition seems largely absent *ex-post*, the existence of potential competitors propels bidders toward more competitive actions
- To capture this idea, we modeled the takeover process as a two-stage procedure
- Our empirical analysis suggests that the M&A market is fairly competitive, and that competition allows target shareholders to receive a reasonable premium even in friendly deals