

Merger Negotiations with Stock Market Feedback

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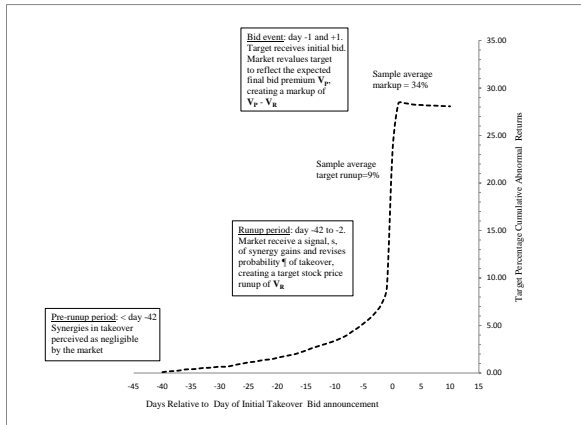
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Figure 1: Information arrival process in event time.



Information environment

- Market receives signal s about synergy gains S .
- S known to bidder and target. Market knows only the distribution over S given the signal.
- Negotiations establishes a sharing rule θ for S and γ for bidding cost C .
- Rational bidding threshold: $K = \frac{\gamma C}{\theta}$.
- Target benefit function: $B(S, C)$ ($= 0$ when $S < K$).
- Prior takeover probability $\pi(0)$ and prior target stock price normalized to zero.

Rational market pricing conditional on the rumor s :

- Target runup prior to the first bid announcement:

$$V_R = \pi(s)E_s[B(S, C)|s, bid] = \int_K^\infty B(S, C)g(S|s)dS \quad (1)$$

- Expected final offer and markup at first bid announcement:

$$V_P = E_s[B(S, C)|s, bid] = \frac{1}{\pi(s)} V_R \quad (2)$$

$$V_P - V_R = \frac{1 - \pi(s)}{\pi(s)} V_R \quad (3)$$

Figure 2A: Target revaluations under deal anticipation.

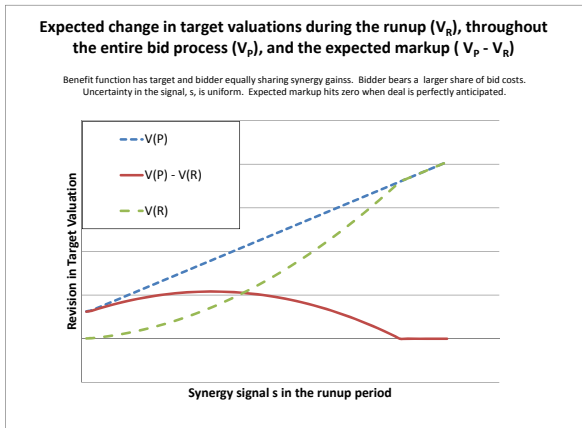
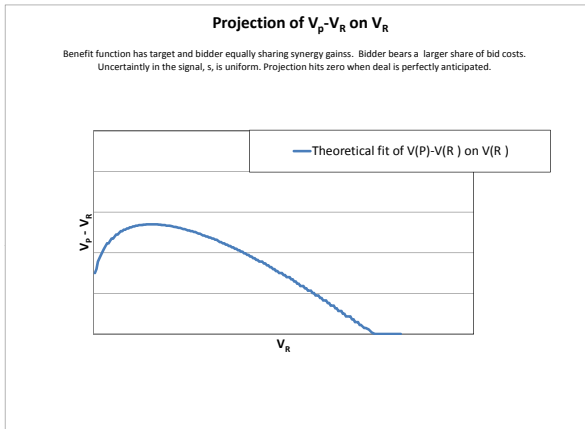


Figure 2B: Markup projections under deal anticipation.



Adding a known target stand-alone value change T

- Target runup:

$$V_{RT} = \pi(s)E_s[B(S, C) + T | s, bid] + [1 - \pi(s)]T = V_R + T \quad (4)$$

- Expected final offer and markup at first bid announcement:

$$V_{PT} = E_s[B(S, C) + T | s, bid] = V_P + T \quad (5)$$

$$V_{PT} - V_{RT} = \frac{1 - \pi(s)}{\pi(s)} [V_{RT} - T] \quad (6)$$

Figure 3: Markup projections with stand-alone change T in runup. Solid line (Avg.): vertical markup summation across different T s

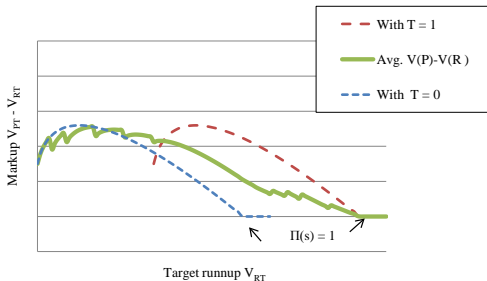
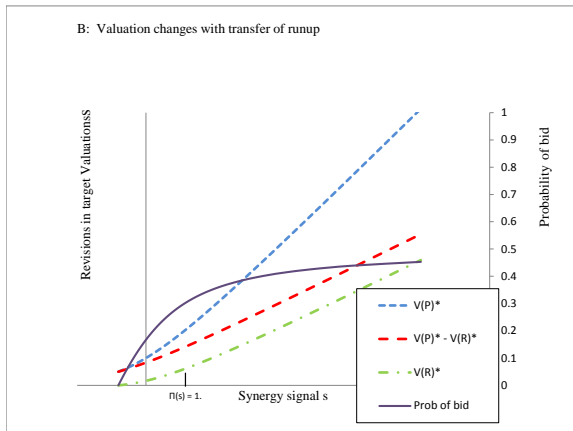


Figure 4B: Markup projections with runup feedback



Deal anticipation with runup fed back into the offer price

Proposition 3: *The hypothesis that runups caused by deal anticipation are transferred from bidders to targets is rejected by a zero or negative average relation between markups and runups.*

Markup measure $V_P - V_R$	Runup measure V_R	Linear projection $V_P - V_R = a + bV_R$	Linear res. ser. corr.	Nonlinear res. ser. corr.
Total markup $\frac{OP}{P_{-2}} - 1$	Total runup $\frac{P_{-2}}{P_{-42}} - 1$	$a = 0.36$ <div>$b = -0.24$</div> (-11.9)	0.030 (2.36)	0.015 (1.15)
Total markup $\frac{OP}{P_{-2}} - 1$	Total runup $\frac{P_{-2}}{P_{-42}} - 1$	$a = 0.36$ $b = -0.22$ (-10.1)	0.045 (3.21)	0.027 (2.19)
Expected markup $\pi[\frac{OP}{P_{-2}} - 1]$	Total runup $\frac{P_{-2}}{P_{-42}} - 1$	$a = 0.31$ $b = -0.17$ (-9.5)	0.027 (2.11)	0.016 (1.25)

Figure 2B: Markup projections under deal anticipation.

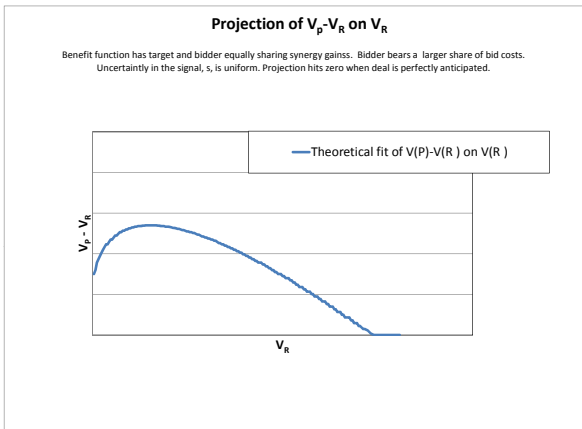


Figure 5A: Empirical markup projections (using offer prices)

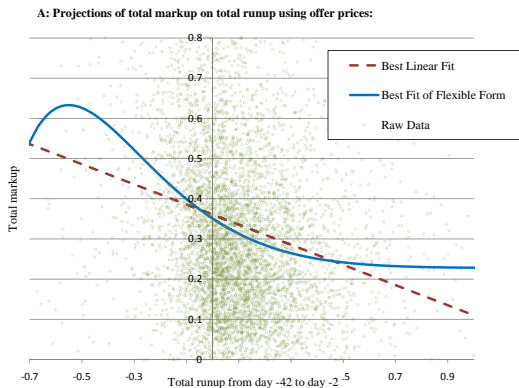


Figure 6A: Projections of bidder gains on target runup without feedback

A: Bidder does not transfer runup V_R to target

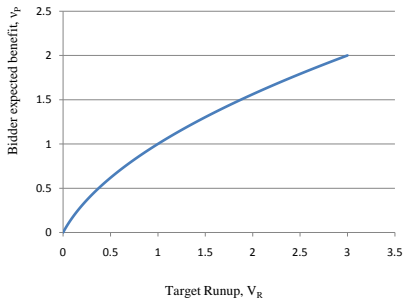


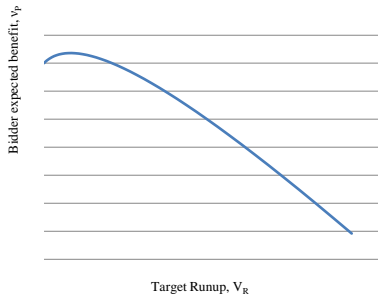
Figure 6B: Projections of bidder gains on target runup with feedback and rational bidding

B: Bidder transfers V_R to the target but bids only on beneficial deals (alters the bid threshold K)



Figure 6C: Projections of bidder gains on target runup with feedback but not rational bidding

C: Bidder transfers V_R to the target but does not alter the bid threshold K (suboptimal behavior).



Dep var: Bidder CAR[-42,1]	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-0.116 (0.091)	-0.116 (0.102)	-0.110 (0.979)	-0.114 (0.102)	-0.097 (0.486)	-0.099 (0.288)
<i>Total Target Runup</i> $V_R = \frac{P_{-2}}{P_{-42}} - 1$	0.049 (0.006)	0.054 (0.003)				
<i>Net Target Runup</i> $V_{RT} = \frac{P_{-2}}{P_{-42}} - \frac{M_{-2}}{M_{-42}}$			0.078 (0.000)	0.082 (0.000)		
<i>Augmented Target Runup</i> $V_R = (\frac{P_{-2}}{P_{-42}} - 1) + R_0$					0.049 (0.006)	
<i>Market Model Target Runup</i> $V_{RT} = CAR(-42, 2)$						0.148 (0.000)
Control variables	no	yes	no	yes	no	no
Adjusted R^2	0.019	0.025	0.019	0.049	0.043	0.049
N	3,691	3,689	3,660	3,691	3,624	3,623

Figure 6A: Projections of bidder gains on target runup without feedback

A: Bidder does not transfer runup V_R to target

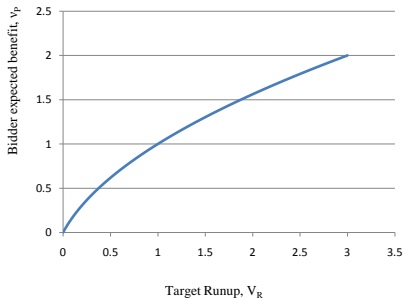
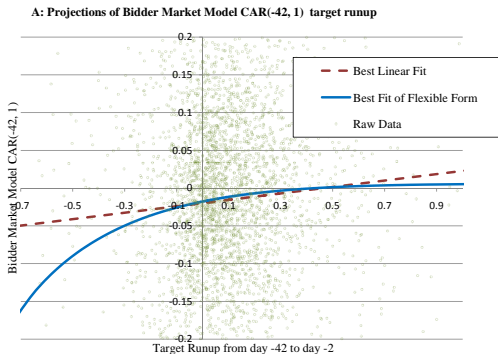


Figure 7A: Bidder gain on target runup



Conclusions: We show that...

- With deal anticipation, projection of markups on runups is nonlinear
- Empirical projections are nonlinear and consistent with deal anticipation in the runup
- Empirical projections are inconsistent with a transfer of the target runup to the target
- Projections of bidder gains on target runup yield positive slope, as predicted under deal anticipation
- Bidders raise the offer price with the market runup prior to the initial bid
- Toehold acquisitions in the runup period fuel runups but *lowers* offer premiums