Bargaining Power and Industry Dependence in Mergers


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Logistics of Today’s Presentation

• Introduction: Shenjie Xu
• Data and Methodology: Zhongyi Wang
• Results: Xuemeng Qi, Xin Qiao
• Conclusions, applications and concerns: Yi Zhu
Introduction

• Prior literatures studied the separate returns to bidders and targets in mergers
• Little evidence suggesting the gains are divided by bargaining power
• This paper propose a new hypothesis: based on product market relationships to explain the division of gains
Why is bargaining power important in mergers?

How do we define bargaining powers?

How do we measure bargaining powers?

Why is bargaining power important?

• A merger->single largest transaction->both parties put leading priority->negotiation impacts the market for corporate control
Bargaining power and Dependence

• Dependence plays a crucial role
• Bargaining theory indicates that degree to which one firm depends on another is inversely related to its bargaining power
• This paper: the bargaining power of a target is inversely related to its dependency on an acquirer->its product market interactions

Differentiate Between Two categories of mergers

• Horizontal mergers
• Non-horizontal mergers: vertical supplier-customer relationship
Dependency Relationships in Vertical Mergers

• Situations of dependence:
• Supplier could threaten to withhold its product to customer->dependence of the customer on the supplier is greater
• Customer purchases account for a large portion of the total sales of suppliers->suppliers rely more on customers
• Equally dependent on each other

Dependency Relationships in Horizontal Mergers

• Focusing on competitive intensity
• A target’s bargaining power depend on acquirers threats to:
  • Increase prices in the input market or
  • Decrease prices in the output market
• In this paper, threat of a price war is used to convey bargaining power
How to measure bargaining power (dependency)?

- For horizontal mergers, we focus on the ability to threaten a price war.
- The determinants of the credibility and magnitude of a price war threat:
  - The degree of similarity: same forces to determine revenues and costs.
  - The economic strength: market share and ROA.
  - The relative size of the firms: the smaller, the more dangerous.

- For vertical mergers:
- Industry input-output data provided by U.S. Census Bureau.
- For each industry pair:
  
  \[
  \frac{\text{one industry's inputs cost}}{\text{another industry's outputs revenue}} \]

  \[
  \frac{\text{each customer industry's purchases}}{\text{total revenue of a supplying industry}}
  \]

- Also account for market share as a mitigating factor while industry effects fixed.
Payoffs to Relative Bargaining Power

- Target premiums
- A New Measure: difference in dollar gains between the target and the bidder

Differences from Prior Work

- This is the first study to propose that inter-industry dependence between targets and bidders helps to explain bargaining power
- This paper explains relative bargaining power rather than simply targets gains->using measures of the division of gains based on the difference between target and acquirer abnormal dollar returns and the probability of a price improvement during renegotiation
Data and Methodology

Data

- From SDC (Securities Data Corporation) U.S. M&A database
- Between 1985 and 2004
- Transaction value of at least $1M
- Acquirer Ownership: <50% of target before (?) and 100% after
Measure: Division of Gain

- Target premium: value of transaction divided by market value of target (50 trading days before announcement)
- Difference in abnormal dollar returns:
  \[ \text{Difference} = \frac{\text{target abnormal $ returns} - \text{acquirer abnormal $ returns}}{\text{MV}_{\text{acq}} + \text{MV}_{\text{tgt}}} \]
  Denoted as \( \Delta \$ \text{CAR} \)

Measure: Product Market Dependence

- Vertical Mergers

Relative importance of Supplier to Customer: \( V_s = \frac{\$ \text{Supplier Input}}{\text{Total $ Customer Output}} \)

Relative importance of Customer to Supplier: \( V_c = \frac{\$ \text{Customer’s Purchases}}{\text{Total $ Supplier’s Sales}} \)
Vs=7.66%, Vc=0.48%

Relevant Industries

- Vertical: Vc or Vs for either target or acquire is >1%
- Horizontal: all shared 4-digit SIC codes
Measure: Product Market Dependence

- Horizontal Mergers
- Measure the degree to which a merging firm would be harmed by a pricing war
- Relative inputs: market power, ROA and correlation in stock returns

\[ R_{\text{Acquirer},t} = \beta_0 + \beta_1 R_{M,t} + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 UMD_t + \beta_5 R_{\text{Target},t} + \epsilon_t \]

- \( \beta_5 \): proxy for common risks between two firms
- Larger \( \beta_5 \) implies lesser target bargaining power

Other Factors

- Termination fee (greater bargaining power for targets)
- Bidder competition
- Asset liquidity
- Industry merger wave (dummy variable)
- Price collar (dummy variable)
- Tender offers (dummy variable)
Results

• Non-horizontal mergers
• Horizontal mergers

Empirical Results on Target Gains in Non-Horizontal Mergers

• The cross-sectional determination applied both the premium and the normalized difference in abnormal dollar gains between acquirers and targets as dependent variables in least squares regressions
• 4 explanatory variables (the measures of product market dependence)
A positive relationship between the premium paid to the target and the acquirer’s dependence on the target’s input.

A negative relationship with premiums exist when the target’s use of the acquirer’s input, targets are customers and acquirers are suppliers.

Hypothesis #1: The greater is an acquirer’s dependence on a target’s supply, the larger will be the share of gains to the target.
A positive relationship in dollar returns between targets to an acquirer’s usage of target inputs
A negative relationship to the fraction of purchases by the acquirer industry relative to the total sales in the target’s industry.

Hypothesis #2: The more dependent targets upon the purchases of acquirer industry customers, the less targets gain in merger dollars relative to acquirers.

The coefficient on toeholds and target leverage is significant.
- Larger toeholds reduce premiums, but target leverage increases premiums.

The coefficient on market share, collar, tender offer/termination fee dummies, and the number of bidders are insignificant in all specifications.
Vertical merger and further thoughts

• Target gains is positively related to the percentage of target industry inputs used in the acquirer industry’s output.
• When acquirers supply to targets, the ratio of acquirer industry input to target industry output is negatively related to target gains.
• These results imply that the importance of a supply of inputs affects the bargaining positions of the merging firms, and hence, the returns from the merger.

Horizontal Merger
Measurement of Horizontal Dependency Relations

- The **vulnerability to pricing war** of both sides in merging activities
  - The relative size of target to acquirer
  - The target market share
  - ROA (economic strength)
  - The correlation of acquirer and target stock returns controlling for market wide risk factors

\[ R_{\text{Acquirer},t} = \beta_0 + \beta_1 R_{M,t} + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 UMD_t + \beta_5 R_{\text{Target},t} + \epsilon_t \]

Three Regressions

- Basic
- Add-in factors related to pricing war
- Add more dummy variables

**Large target commend smaller premium than do smaller targets but gain more in dollar value**
Hypothesis 1: Clear Size effect: larger target relative to acquirers receive higher premiums and larger dollar gain relative to targets

<table>
<thead>
<tr>
<th>Premium (1)</th>
<th>ΔSCRAR (2)</th>
<th>Premium (3)</th>
<th>ΔSCRAR (4)</th>
<th>Premium (5)</th>
<th>ΔSCRAR (6)</th>
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</thead>
<tbody>
<tr>
<td>Target NYSE percentile market equity</td>
<td>-0.004***</td>
<td>0.010***</td>
<td>-0.006***</td>
<td>0.0001</td>
<td>-0.009***</td>
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<tr>
<td>Target NYSE percentile prior returns</td>
<td>-0.001***</td>
<td>0.000</td>
<td>-0.007</td>
<td>-0.002***</td>
<td>-0.0005</td>
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<tr>
<td>Acquirer NYSE percentile market equity</td>
<td>0.001***</td>
<td>-0.008***</td>
<td>0.002***</td>
<td>0.0005</td>
<td>0.000</td>
</tr>
<tr>
<td>Acquirer NYSE percentile prior returns</td>
<td>0.002***</td>
<td>0.006***</td>
<td>0.0016***</td>
<td>0.0005***</td>
<td>0.009***</td>
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<tr>
<td>Majority cash dummy</td>
<td>-0.008***</td>
<td>0.0002</td>
<td>-0.008***</td>
<td>0.0075</td>
<td>-0.0035**</td>
</tr>
<tr>
<td>Majority stock dummy</td>
<td>-0.008***</td>
<td>0.0007</td>
<td>-0.0292***</td>
<td>0.0039***</td>
<td>-0.0395***</td>
</tr>
<tr>
<td>Acquirer market share (%)</td>
<td>0.0059</td>
<td>0.0006</td>
<td>-0.0091***</td>
<td>-0.0091***</td>
<td>0.0000</td>
</tr>
<tr>
<td>Target market share (%)</td>
<td>0.0045</td>
<td>0.0016*</td>
<td>0.0038</td>
<td>0.0016***</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Relative value = 0.2044*** 0.0857*** 0.2081*** 0.0613***

Acquirer & target return correlation = -0.0048*** -0.0006 -0.0009*** -0.0009***

Hypothesis 2: the Higher the correlation of stock returns, the lower the premium the target receives and the excess target dollar gains

Hypothesis 3:
- Although the acquirer ROA is positively related to premium
- The target ROA is positively related to dollar gains

Economic strength increases bargaining power
Renegotiation and Industry Dependence of Horizontal Merger

<table>
<thead>
<tr>
<th>Logistic regressions</th>
<th>Change in probability of outcome (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
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<tr>
<td>Target NYSE percentile market equity</td>
<td>0.0041</td>
</tr>
<tr>
<td>Target NYSE percentile prior returns</td>
<td>-0.0002</td>
</tr>
<tr>
<td>Acquirer NYSE percentile market equity</td>
<td>-0.0009</td>
</tr>
<tr>
<td>Acquirer NYSE percentile prior returns</td>
<td>-0.0009</td>
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<tr>
<td>Majority cash dummy</td>
<td>0.5012</td>
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<tr>
<td>Majority stock dummy</td>
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<tr>
<td>Target market share (%)</td>
<td>-0.0033</td>
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<tr>
<td>Acquirer market share (%)</td>
<td>0.0288</td>
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<tr>
<td>Relative value</td>
<td>-0.0265</td>
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<tr>
<td>Acquirer &amp; target return correlation</td>
<td>-0.0914</td>
</tr>
<tr>
<td>T mkt share x return corr.</td>
<td>-0.1841</td>
</tr>
<tr>
<td>A mkt share x return corr.</td>
<td>0.1479</td>
</tr>
<tr>
<td>Relative value x return corr.</td>
<td>3.8745***</td>
</tr>
</tbody>
</table>

Most are not statically significant

Relative size mitigates the threat of a price war

- So in horizontal mergers, target that are larger relative to the acquirers,
- have higher ROAs, and
- have returns that are less correlated with the acquirer’s returns

- command significantly higher premiums and excess dollar returns
Questions & Further Study

• Pricing is not the only factor of horizontal bargaining power. (First-mover-advantage, regulations, access to scarce resources)
• Given the hypothesis are true, bargaining power may be the reason of merger decisions (esp. for small firms in a changing industry)
• Concern about the value of mergers for large targets is merger the best choice for firms with large bargaining power?

Applications and Concerns
SoftBank VS. DISH For Sprint

Our number is 21% superior to the offer of DISH.
-Masayoshi Son, Chairman & CEO, SoftBank Corp.

SoftBank Vs. DISH

• Synergy: scale, market, expertise, cost saving
• Financing: Leverage/Time value
• Partnering
• Governance
SoftBank Vs. DISH

<table>
<thead>
<tr>
<th></th>
<th>Sprint</th>
<th>SoftBank</th>
<th>dish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ticker</td>
<td>S (NYSE)</td>
<td>9984 (TSE)</td>
<td>DISH(NasdaqGS)</td>
</tr>
<tr>
<td>Industry</td>
<td>Wireless Telecom</td>
<td>Wireless Telecom</td>
<td>Cable and Satellite</td>
</tr>
<tr>
<td>SiC codes</td>
<td>4812/4813</td>
<td>4812/6719</td>
<td>4841</td>
</tr>
<tr>
<td>ROA(12/31/2013)</td>
<td>1.50%</td>
<td>8.20%</td>
<td>8.60%</td>
</tr>
<tr>
<td>Market Value(mm)</td>
<td>21256</td>
<td>57822</td>
<td>17742</td>
</tr>
<tr>
<td>Revenue(12/312012)(mm)</td>
<td>35404</td>
<td>34797</td>
<td>14267</td>
</tr>
<tr>
<td>Industry IO</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Market Share</td>
<td>10%</td>
<td>1st in Japan</td>
<td>13%</td>
</tr>
<tr>
<td>Offer</td>
<td>$20 billion(for 70% shares)</td>
<td>$25.5 billion (for 100% shares)</td>
<td></td>
</tr>
</tbody>
</table>

Application Concerns

- A bigger piece vs. a bigger cake
- Vertical bidders vs. horizontal bidders
- 70% shares vs. 100% shares
- Size power vs. entry barriers
- Bargaining power vs. switching cost
Q&A