Crowd Sourcing in Capital Formation: An Empirical Investigation

by
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Research Goal

- Empirically examine the effects of **entrepreneurial reputation** on capital raising process.

- We use a setting, Kickstarter, that overcomes some of the obstacles of trying to use bank or VC data.
# Financial Institutions in Capital Formation

<table>
<thead>
<tr>
<th>Bank</th>
<th>Venture Capitalist</th>
<th>Crowd Funder</th>
</tr>
</thead>
</table>
| • Entrepreneur issues: Debt  
• Bank provides:  
  • Origination  
  • Collateral  
  • Credit History  
• Ex Post Audit/Monitoring | • Entrepreneur issues: Equity  
• VC provides:  
  • Expertise and active monitoring  
  • Network/Keiretsu benefits | • Entrepreneur issues: nil (Rewards)  
• CF provides:  
  • Information on quality of project and entrepreneur  
  • Market research |
Research Setting

• Entrepreneurs are obligated to provide each promised reward; yet, since average pledges are small, such promises are somewhat impractical to enforce legally.

  – Kickstarter represents a market where reputation formation should matter.

  – Without a mechanism such as reputation development incentive to aid enforcement, it would be difficult for such contracts to exist.
Key Advantages

• Prior evidence has amassed mainly on institutions’ reputations rather than the entrepreneurs’.

• Prior evidence is generally biased toward successes. In contrast, Kickstarter records and discloses a history of prior successes and failures for each entrepreneur, and so it allows a more direct approach to exploration of reputation formation.

• Kickstarter offers two dimensions of prior performance that can be observed at shorter frequencies.
  – fundamentals are less likely to change the shorter the time period, which leads to a cleaner investigation
Findings

• Entrepreneur’s reputation acquisition positively affects capital formation:
  – Better funding outcomes
  – Quicker project funding

• For first time entrepreneurs, higher prior reputation of entrepreneur has positive effects in terms of both degree and speed of success
Empirical Setting: A Robot Is Born
Reputation Formation Proxy

Romo - The Smartphone Robot for Everyone
by Romotive

1,089 backers
$170,034 pledged of $100,000 goal
$100,000 goal
seconds to go

Romo is back with a brand new bot! Romo is an affordable, personal robot that uses your iDevice as his brain.

"With Romo I anticipate great things." - The Wall Street Journal

"Little robot buddies seem to be the way of the future." - MOTL News

Pledge $25 or more
28 backers
1Heart Robots Tee. Get your robot gear on with one Romotive "1Heart Robots" t-shirt. Major nerd cred.
Estimated delivery: Nov 2012
Empirical Setting: Proxies for Reputation

• Reputation Formation (Kickstarter activity)
  – Previous Project Funding Outcome:
    • Number of Previously funded projects
    • Number of Previously unfunded projects
  – Previous Backer Satisfaction:
    Number of Positive Comments
    \[\frac{\text{Negative Comments} + \text{Positive comments}}{\cancel{\text{Negative Comments} + \text{Positive comments}}}\]

• Prior Reputation before coming to Kickstarter
  – Direct Wikipedia page
  – Indirect mention on Wikipedia page
Empirical Setting: Reputation Proxy
Can Wikipedia Indicate Prior Reputation?

• Wikipedia? Can’t one just insert an invented life story there?
  – No
    • Content of a Wikipedia page must be verifiable and notable--
      References to blogs, personal websites, Facebook and YouTube are
      unsuitable

– There is active screening.
  • Since September 2009, there have been 37,296 accepted submissions
    of new page listings and over 57,000 declined proposals

– Full history disclosure of all editing on every page
  • Wikipedia provides the exact time of original page creation and all
    subsequent updates
Empirical Setting: Entrepreneur Characteristics

Kickstarter Experience:
- Number of projects created

Social Capital:
- Number of Facebook friends
- Number of projects backed

Country
Empirical Setting: Project & Reward Characteristics

- Funding goal
- Funding period
- Video Indicator
- Average estimated time to delivery
- Strategic Pricing
- Limit on quantity
- Average number of words used to describe the reward

Romo - The Smartphone Robot for Everyone
by Romotive

1,089 backers
$170,034 pledged of $100,000 goal
$100,000 goal
2 seconds to go

Funding period
Oct 16 2012 - Nov 15 2012 (30 days)

Pledge $25 or more
- 28 backers
  - I Heart Robots Tee. Get your robot gear on with one Romotive "I Heart Robots" t-shirt. Major nerd cred.
  - Estimated delivery: Nov 2012

Romotive is back with a brand new bot! Romo is an affordable, personal robot that uses your iDevice as his brain.

"With Romo I anticipate great things." - The Wall Street Journal

"Little robot buddies seem to be the way of the future." - MSN Now
Kickstarter Since 2009

• $1.04 billion has been pledged by over 5.8 million backers (of which 1.7 million are repeat backers)

• 58,857 successful projects received a total of $891 million; 44% of the proposed projects were successful

• 60 projects raised over $1 million, and the most funded project (the Pebble) raised over $10 million in its 30-day listing
Empirical Setting: Sample Construction

- Extracted directly from the Kickstarter website on a daily basis. All projects initiated from 3\(^\text{rd}\) May 2013 to 23\(^\text{rd}\) May 2013 (2826 in total)

- Sub-sample of 1403 projects launched by 1394 entrepreneurs with funding goals over the median ($5,500), excluding public art

- For these 1403 projects, $25 million was pledged by 290,000 backers; 36% of proposed projects reached their funding goals and received a total of $ 22 million
### Empirical setting: Summary Statistics

#### Funding Performance

<table>
<thead>
<tr>
<th></th>
<th>Funded=1</th>
<th></th>
<th></th>
<th>Not Funded=0</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>MEAN</td>
<td>STD</td>
<td>N</td>
<td>MEAN</td>
<td>STD</td>
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<tr>
<td>Amount Pledged</td>
<td>503</td>
<td>43,927</td>
<td>128,226</td>
<td>900</td>
<td>3,077</td>
<td>11,138</td>
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<tr>
<td>Subscription Ratio</td>
<td>503</td>
<td>1.95</td>
<td>4.18</td>
<td>900</td>
<td>0.11</td>
<td>0.16</td>
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<tr>
<td>Days Taken To Get Funded</td>
<td>503</td>
<td>24</td>
<td>13</td>
<td>900</td>
<td>74</td>
<td>141</td>
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<tr>
<td>Dollar Contributed Per Backer</td>
<td>503</td>
<td>129</td>
<td>142</td>
<td>900</td>
<td>74</td>
<td>141</td>
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</table>

#### Prior Reputation

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<tr>
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<tbody>
<tr>
<td>Pre-existing Reputation (Direct wiki Page)</td>
<td>503</td>
<td>0.15</td>
<td>0.35</td>
<td>900</td>
<td>0.01</td>
<td>0.13</td>
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<td>Pre-existing Reputation (Indirect wiki page)</td>
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<td>0.07</td>
<td>0.25</td>
<td>900</td>
<td>0.01</td>
<td>0.09</td>
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#### Reputation Formation

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<tr>
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<th>Not Funded=0</th>
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<tbody>
<tr>
<td>Previous Funding Indicator (Funded )</td>
<td>503</td>
<td>0.28</td>
<td>0.86</td>
<td>900</td>
<td>0.04</td>
<td>0.23</td>
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<tr>
<td>Previous Funding Indicator (Failed)</td>
<td>503</td>
<td>0.06</td>
<td>0.26</td>
<td>900</td>
<td>0.16</td>
<td>0.50</td>
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<tr>
<td>Previous Positive Comments ratio</td>
<td>95</td>
<td>25%</td>
<td>0.39</td>
<td>82</td>
<td>3%</td>
<td>0.15</td>
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#### Entrepreneur Characteristics

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<tr>
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<th>Not Funded=0</th>
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<tr>
<td>Social Networking (Facebook Friends)</td>
<td>503</td>
<td>678</td>
<td>1,000</td>
<td>900</td>
<td>453</td>
<td>786</td>
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<td>Number of Project Backed on KS</td>
<td>503</td>
<td>6</td>
<td>14</td>
<td>900</td>
<td>2</td>
<td>5</td>
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Question 1: Are reputation-related proxies important to the likelihood that a project is funded?

<table>
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<tr>
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<th>Full Sample</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>(T)</td>
<td>(T)</td>
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<tr>
<td><strong>Pre-existing Reputation</strong></td>
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<tr>
<td>WIKI Indicator (Direct)</td>
<td>0.481***</td>
<td>0.460***</td>
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<td></td>
<td>(11.06)</td>
<td>(11.91)</td>
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<tr>
<td>WIKI Indicator (Indirect)</td>
<td>0.538***</td>
<td>0.521***</td>
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<tr>
<td></td>
<td>(7.297)</td>
<td>(7.013)</td>
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<tr>
<td><strong>Reputation acquisition</strong></td>
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<tr>
<td>Previous Funded Project</td>
<td>0.231***</td>
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<tr>
<td></td>
<td>(2.730)</td>
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<td>Previous Failed Project</td>
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<tr>
<td></td>
<td>(-2.932)</td>
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<tr>
<td>Previous Backer Satisfaction</td>
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<tr>
<td><strong>Entrepreneur Characteristics</strong></td>
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<td>Kickstarter Experience</td>
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<tr>
<td></td>
<td>(1.474)</td>
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<tr>
<td>Social Networking</td>
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<td>1.74e-05</td>
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</tr>
<tr>
<td></td>
<td>(1.537)</td>
<td>(1.490)</td>
<td></td>
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<tr>
<td>Number of Projects Backed</td>
<td>0.0110***</td>
<td>0.0114***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5.137)</td>
<td>(3.810)</td>
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<tr>
<td>Country</td>
<td>0.0649</td>
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<td><strong>Project Characteristics</strong></td>
<td>YES</td>
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<td><strong>Reward Characteristics</strong></td>
<td>YES</td>
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<td>Observations</td>
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<tr>
<td>Pseudo R2</td>
<td>0.174</td>
<td>0.192</td>
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</tr>
</tbody>
</table>
Question 2: Are reputation-related proxies important to the speed with which a project is funded?
Conclusion

• We offer empirical evidence that entrepreneur reputation affects capital formation outcomes favorably in terms of both degree and speed.

• Data from crowd funder Kickstarter is a new resource for investigation of capital formation and contracting theories.

• As more credit providers are using non-traditional social media data to decide whether to provide the loans, this paper may shed some light from that angle as well.