Research
Links between Startups and Venture capital
Chinese SMEs (Jingsong Lv, 2015)

- Account for **94.15%** of all Chinese enterprises.
- Create product and service worth **60%** of China’s GDP.
- Pay **50%** of the total national tax
- Complete **65%** patents and **80%** new product development
- Unfortunately, Chinese SMEs can not get loans from Banks in China.
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Background

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Most banks in China are state-owned and bad debt will affect officials’ political promotions.

Where banks loans go? State-owned Companies, Companies with big name and Designated Companies by Local Government.


Private Banks? Threat to Central Government

Other method? State-owned companies have loans with 6% interest rate and give it to small companies with 10% interest rate.
Why?

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Reason One: Venture Capital Advantages

Venture Capital provide value-added Service

- Reduce agency problem (Chemmanur et al., 2011; Kaplan and Strömberg, 2004; Sorensen, 2007)
- Generate more patents (Tian and Wang, 2014; Lerner et al., 2011)
- Reduce earning management (Katz, 2009; Hochberg, 2012)
- Help SMEs enter local networks (Hochberg et al., 2010)
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Reason Two: Government’s Support

Policy Level

- Nontradable shares reform in (2006) - Shares
- Revision of Partnership Law of PRC (2007) - VC Structure
- Second-board Market (2009) - Open Market
- National Equities Exchange and Quotations (Third market 2014)
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Strategy Level-19th Congress of the Chinese Communist Party

- Turning China Into A Nation Of Innovators
- State-Backed Great Leap Forward In Technology
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Reason Three: VC/PE Development in China

Four Stages

- Stage One - Government direct investment (1986-1998): Still state-owned Companies
- Stage Two - U.S. VC experience (1999-2005): Borrow experiences from US VCs and pay a very high price
- Stage Three - Rapid growing (2006-2011): Native Chinese leave foreign VCs and start their own business in China
- Stage Four - Hard Supervisory (2012-): IPO pause in 2012, Anti-corruption Campaign, Bo Xilai scandal
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My Research

Focus on

- Market: Second-board Market
- Methodology: Social Network Analysis
- Basic Question: What will Social ties between the Chinese Venture capital and startups affect?
From the Market Side: Second-board Market

Chinese Second-board Market (Similar to NASDAQ)

(a) Audit Firms
(b) Law Firms
(c) Underwriters

Companies need “certain” intermediaries’ help to go public. Are these firms really powerful?
From the VC Side: VC Investment networks

Network Science

Assumptions

Modeling

Result

Reference

Zijiang Yang 11 / 23
Previous literature

Sociology

- Chinese interact with people based on different relationship (Hwang, 1987)
- Reciprocity (Benedict, 1986; Gouldner, 1960)

Economics - Property Rights and Social Network

- Relationship is kind of specific assets (Zengquan Li, 2017)
- Structural hole theory (Granovetter, 1973; Burt, 1992)
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Basic Assumptions

Assumption one: Social ties between company’s director of board and venture capital partner will affect venture capital’s value-added services.

Assumption Two: The social ties will benefit the two sides.
Modeling

Model One: Venture Capital’s Exit return through IPO (Annually)

\[ IRR_i = \beta_0 + \beta_1 \text{School\_tie}_i + \beta_2 \text{controls} + \epsilon \]

Model Two: Company’s Earning Management Level

\[ DA_{it}/A_{it-1} = \beta_0 + \beta_1 \text{School\_Tie}_i + \beta_2 \text{Controls}_i + \epsilon \]
### Model 1

<table>
<thead>
<tr>
<th></th>
<th>是否具有校友关系对IRR的影响</th>
<th>个人效应还是网络效应对IRR影响</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td><strong>School_Tie</strong></td>
<td>0.32290***</td>
<td>0.322537***</td>
</tr>
<tr>
<td></td>
<td>(0.13552)</td>
<td>(0.139192)</td>
</tr>
<tr>
<td><strong>School_Tie_Individual</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>School_Tie_Network</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Register</strong></td>
<td>0.101672</td>
<td>0.107568</td>
</tr>
<tr>
<td></td>
<td>(0.108598)</td>
<td>(0.107757)</td>
</tr>
<tr>
<td><strong>Exit_ratio</strong></td>
<td>0.183600</td>
<td>0.187255</td>
</tr>
<tr>
<td></td>
<td>(0.144713)</td>
<td>(0.143249)</td>
</tr>
<tr>
<td><strong>In(Total Assets)</strong></td>
<td>-0.076185</td>
<td>-0.087510</td>
</tr>
<tr>
<td></td>
<td>(0.116077)</td>
<td>(0.115599)</td>
</tr>
<tr>
<td><strong>Sales_growth</strong></td>
<td>-0.035851</td>
<td>-0.033673</td>
</tr>
<tr>
<td></td>
<td>(0.033661)</td>
<td>(0.033491)</td>
</tr>
<tr>
<td><strong>Leverage</strong></td>
<td>1.440551***</td>
<td>1.439613***</td>
</tr>
<tr>
<td></td>
<td>(0.455598)</td>
<td>(0.453424)</td>
</tr>
<tr>
<td><strong>Cash</strong></td>
<td>2.064167</td>
<td>2.047998***</td>
</tr>
<tr>
<td></td>
<td>(0.507340)</td>
<td>(0.505013)</td>
</tr>
<tr>
<td><strong>Year Fixed Effect</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Industry Fixed Effect</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Number of Observations</strong></td>
<td>508</td>
<td>495</td>
</tr>
<tr>
<td><strong>Adjusted R square</strong></td>
<td>21.97%</td>
<td>16.793%</td>
</tr>
</tbody>
</table>

注：*，**，***分别表示 10%，5%，1%水平下显著
## Model 2

<table>
<thead>
<tr>
<th></th>
<th>OLS 回归</th>
<th></th>
<th>Heckman 两阶段回归</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>阶定期之前</td>
<td>阶定期之后</td>
<td>第一阶段</td>
<td>第二阶段</td>
</tr>
<tr>
<td>DA</td>
<td>-0.0152** (0.0083)</td>
<td>-0.0164** (0.0080)</td>
<td>0.0824 (0.1307)</td>
<td>-0.0318*** (0.0101)</td>
</tr>
<tr>
<td>School_Tie</td>
<td>-0.0079 (0.0077)</td>
<td>-0.0060 (0.0078)</td>
<td>0.03481*** (0.0086)</td>
<td>0.0168 (0.1974)</td>
</tr>
<tr>
<td>In(Total Assets)</td>
<td>0.0339*** (0.0086)</td>
<td>0.0142 (0.0105)</td>
<td>-0.0117 (0.0103)</td>
<td>0.0536 (0.1983)</td>
</tr>
<tr>
<td>In(Sales)</td>
<td>-0.0107 (0.0103)</td>
<td>-0.0018 (0.0099)</td>
<td>0.1579 (0.0103)</td>
<td>-0.0824 (0.1794)</td>
</tr>
<tr>
<td>Leverage</td>
<td>-0.0250 (0.0270)</td>
<td>0.0313 (0.0366)</td>
<td>0.4056* (0.0269)</td>
<td>0.6688 (0.1759)</td>
</tr>
<tr>
<td>Sales_growth</td>
<td>0.0013 (0.0021)</td>
<td>-0.00197 (0.0025)</td>
<td>0.04589 (0.0389)</td>
<td>-0.00545 (0.0495)</td>
</tr>
<tr>
<td>RNOA</td>
<td>0.0001 (0.00018)</td>
<td>0.00079 (0.0014)</td>
<td>0.00029 (0.00021)</td>
<td>-0.00545 (0.0495)</td>
</tr>
<tr>
<td>Q_quick</td>
<td>0.00000075 (0.000066)</td>
<td>-0.00016 (0.00058)</td>
<td>0.00000014 (0.000066)</td>
<td>-0.00225 (0.0272)</td>
</tr>
<tr>
<td>Op_cycle</td>
<td>0.0000016 (0.000011)</td>
<td>-0.0000012 (0.000025)</td>
<td>0.000000985 (0.0000178013)</td>
<td>0.0000016560 (0.0000011242)</td>
</tr>
<tr>
<td>Cash</td>
<td>-0.0993*** (0.0271)</td>
<td>-0.0086 (0.0267)</td>
<td>1.0136** (0.0406)</td>
<td>-0.1027*** (0.02703)</td>
</tr>
<tr>
<td>CAPEX</td>
<td>-0.1885*** (0.0606)</td>
<td>-0.03399 (0.07538)</td>
<td>1.8532** (0.0682)</td>
<td>-0.1660*** (0.0603)</td>
</tr>
<tr>
<td>Loss</td>
<td>0.01095 (0.0328)</td>
<td>-0.0008 (0.0221)</td>
<td>0.4503 (0.4729)</td>
<td>0.01485 (0.03274)</td>
</tr>
<tr>
<td>IMR</td>
<td>0.0361** (0.0145)</td>
<td>0.0061 (0.0046)</td>
<td>0.0001 (0.0001)</td>
<td>0.0001 (0.0001)</td>
</tr>
</tbody>
</table>

注：*、**、*** 分别表示 10%、5%、1%的显著水平。
### Conclusion

<table>
<thead>
<tr>
<th>序号</th>
<th>学校名称</th>
<th>键对数</th>
<th>占总样本比例</th>
<th>累计占比</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>清华大学</td>
<td>28704</td>
<td>36.41%</td>
<td>36.41%</td>
</tr>
<tr>
<td>2</td>
<td>北京大学</td>
<td>12675</td>
<td>16.08%</td>
<td>52.49%</td>
</tr>
<tr>
<td>3</td>
<td>中国人民大学</td>
<td>4165</td>
<td>5.28%</td>
<td>57.77%</td>
</tr>
<tr>
<td>4</td>
<td>浙江大学</td>
<td>3960</td>
<td>5.02%</td>
<td>62.79%</td>
</tr>
<tr>
<td>5</td>
<td>复旦大学</td>
<td>3478</td>
<td>4.41%</td>
<td>67.2%</td>
</tr>
<tr>
<td>6</td>
<td>上海交通大学</td>
<td>2295</td>
<td>2.91%</td>
<td>70.11%</td>
</tr>
<tr>
<td>7</td>
<td>武汉大学</td>
<td>2175</td>
<td>2.76%</td>
<td>72.87%</td>
</tr>
<tr>
<td>8</td>
<td>中欧国际工商学院</td>
<td>1856</td>
<td>2.35%</td>
<td>75.22%</td>
</tr>
<tr>
<td>9</td>
<td>西安交通大学</td>
<td>1577</td>
<td>2.00%</td>
<td>77.22%</td>
</tr>
<tr>
<td>10</td>
<td>南开大学</td>
<td>1326</td>
<td>1.68%</td>
<td>78.9%</td>
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<tr>
<td>11</td>
<td>华中科技大学</td>
<td>1290</td>
<td>1.64%</td>
<td>80.54%</td>
</tr>
<tr>
<td>12</td>
<td>厦门大学</td>
<td>1170</td>
<td>1.48%</td>
<td>82.02%</td>
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<tr>
<td>13</td>
<td>哈尔滨工业大学</td>
<td>960</td>
<td>1.22%</td>
<td>83.24%</td>
</tr>
<tr>
<td>14</td>
<td>长江商学院</td>
<td>874</td>
<td>1.11%</td>
<td>84.35%</td>
</tr>
<tr>
<td>15</td>
<td>上海财经大学</td>
<td>800</td>
<td>1.01%</td>
<td>85.36%</td>
</tr>
</tbody>
</table>

表 5.1 校友关系前十五位

图 5.1 校友网络图


Thank You

Listing corporate governance and venture capital investment mechanism from perspective of alumni relations