Nascent Markets: Understanding the success and failure of new stock markets

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What we do

- Analyze (determinants of) success of 59 newly established ("nascent") stock markets since 1975
- Why do we care?
  - Academic debate on financial development
    - "finance and growth" literature
    - "financial development" literature
      - Structural factors (e.g., demography, legal origin, political system)
      - Policy factors (e.g., economic conditions, regulation/enforcement)
  - Policy debate on financial market design
- However, we know little about "nascent markets"
  - Out-of-sample evidence on financial development
This project: Nascent Markets

Number of stock exchanges worldwide
Stock markets opened before 1975

Source: own data collection based on www.world-exchanges.org and exchange websites
Stock markets opened after 1975

53 countries
112 countries
49 countries
(14 have plans to establish an exchange)

Source: own data collection based on www.world-exchanges.org and exchange websites
Sample

- Exchange opened before 1975: 53 countries
- Exchange re-opened after 1975:
  - 1 exchange: 10 countries
  - 2 or more exchanges: 4 countries
- Exchange opened after 1975:
  - 1 exchange: 70 countries
  - 2 or more exchanges: 5 countries
  - regional exchange: 23 countries
- Currently:
  - no exchange 49 countries
  - plans to open exchange 14 countries
Nascent Markets: 3 examples

- Prague Stock Exchange, Czech Republic. (Re)opened 1993.
Early development: 3 examples
Research questions

A. How do nascent markets evolve?
   – Development and correlations between three “success measures”:
     • # of listings
     • market cap / GDP
     • turnover

B. Which nascent markets succeed?
   – Cluster analysis; initial conditions
   – Necessary condition analysis

C. What explains nascent market success?
   – Cross-sectional / panel regressions
A. How do nascent markets evolve?

red line = avg measure x-axis; black line = slope regression

After 1-5 years: 41 countries
After 16-20 years: 53 countries
A. How do nascent markets evolve?

• Dispersed starting point
  – Market cap independent of # of listings & turnover

• Non-linear development
  – Only market cap consistently increases

• Clearer delineation of “success” over time
  – Correlations 3 measures increase
  – Correlations level out after 16-20 years
B. Which nascent markets succeed?

- Cluster analysis
  - k-means method (Hartigan and Wong, 1979)
  - Evaluation 16-20 years after establishment
  - 3 success measures (standardized)
  - 2 clusters (“most successful” and “least successful”)

- Necessary Condition Analysis (Dul, 2016)
B. Which nascent markets succeed?

Cluster analysis
Success after 16-20 years
34 markets
Our aim: explain this!

Swaziland Stock Exchange
Opened 1990

Shanghai Stock Exchange
Opened 1990
Geographic distribution

Cluster 1 (most successful markets)
Cluster 2 (least successful markets)
Initial conditions (1-5 years)
## Initial conditions

<table>
<thead>
<tr>
<th></th>
<th>Mean “most successful” cluster</th>
<th>Mean “least successful” cluster</th>
<th>% difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># of Listings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-20y</td>
<td>0.51</td>
<td>0.28</td>
<td>82.1***</td>
</tr>
<tr>
<td>1-5y</td>
<td>0.52</td>
<td>0.36</td>
<td>44.4**</td>
</tr>
<tr>
<td><strong>Market cap</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-20y</td>
<td>0.77</td>
<td>0.59</td>
<td>30.5***</td>
</tr>
<tr>
<td>1-5y</td>
<td>0.50</td>
<td>0.46</td>
<td>8.7</td>
</tr>
<tr>
<td><strong>Turnover</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-20y</td>
<td>0.71</td>
<td>0.26</td>
<td>173.1***</td>
</tr>
<tr>
<td>1-5y</td>
<td>0.54</td>
<td>0.27</td>
<td>100***</td>
</tr>
</tbody>
</table>
Necessary condition analysis

Effect size:
CE-FDH – 0.34++
CR-FDH – 0.32++
## NCA – effect sizes

<table>
<thead>
<tr>
<th></th>
<th># of Listings 16-20y</th>
<th>Market cap 16-20y</th>
<th>Turnover 16-20y</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Listings 1-5y</td>
<td>0.34++</td>
<td>0.06</td>
<td>0.27+</td>
</tr>
<tr>
<td>Market cap 1-5y</td>
<td>0.07</td>
<td>0.13+</td>
<td>0.08</td>
</tr>
<tr>
<td>Turnover 1-5y</td>
<td>0.25+</td>
<td>0.05</td>
<td>0.27+</td>
</tr>
</tbody>
</table>
B. Which nascent markets succeed?

• Cluster analysis
  – Success prediction difficult after 1-5 years
  – Some markets thrive in first 5 years, but perish later
  – Opposite not true!

• Necessary Condition Analysis
  – minimum initial # of listings and turnover are necessary condition for success
  – Initial level of market cap not critical
C. What explains nascent market success?

- “Initial conditions” and “dynamic conditions”:
  - Economic (GDP, inflation)
  - Political (democracy, corruption)
  - Legal (rule of law, legal origin)
  - Financial (bank development, bank concentration)
  - Demand for capital (MSME, relative size of industries)
  - Supply of capital (institutional investors, savings)
  - Openness (exports, imports)
  - Cultural (individuality, trust)
  - Geographic (natural resources)
  - Motivation of establishment (privatization, private initiative)
  - Previous experience (re-opened exchange)
  - Market structure (technology, trading rules)
  - Regional factors (nearby exchanges)
## Cross-sectional regressions

<table>
<thead>
<tr>
<th></th>
<th># of Listings 11-15y</th>
<th>Market cap 11-15y</th>
<th>Turnover 11-15y</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial success measures ((t_0)):</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of Listings</td>
<td>0.23</td>
<td>-0.17</td>
<td>0.04</td>
</tr>
<tr>
<td>Market cap</td>
<td>-0.11</td>
<td>0.44***</td>
<td>0.15</td>
</tr>
<tr>
<td>Turnover</td>
<td>0.26</td>
<td>-0.01</td>
<td>0.35</td>
</tr>
<tr>
<td><strong>Initial conditions ((t_0)):</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank sector size</td>
<td>0.73**</td>
<td>0.40**</td>
<td>0.71**</td>
</tr>
<tr>
<td>Democracy</td>
<td>-0.00</td>
<td>-0.00</td>
<td>-0.04</td>
</tr>
<tr>
<td>Civil law</td>
<td>0.80</td>
<td>0.10</td>
<td>0.14</td>
</tr>
<tr>
<td>Population</td>
<td>-0.18</td>
<td>-0.01</td>
<td>0.10</td>
</tr>
<tr>
<td>GDP pc</td>
<td>-0.72**</td>
<td>-0.19</td>
<td>-0.10</td>
</tr>
<tr>
<td>World GDP growth</td>
<td>0.11</td>
<td>0.23</td>
<td>0.00</td>
</tr>
<tr>
<td># observations</td>
<td>28</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>(R^2)</td>
<td>0.65</td>
<td>0.67</td>
<td>0.63</td>
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</tbody>
</table>
## Panel regressions

### Initial conditions ($t_0$):

<table>
<thead>
<tr>
<th></th>
<th># of Listings</th>
<th>Market cap</th>
<th>Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank sector size</td>
<td>0.43*</td>
<td>0.26*</td>
<td>0.53***</td>
</tr>
<tr>
<td>Democracy</td>
<td>0.04</td>
<td>0.02</td>
<td>-0.04</td>
</tr>
<tr>
<td>Civil law</td>
<td>0.53</td>
<td>-0.83**</td>
<td>0.33</td>
</tr>
<tr>
<td>Population</td>
<td>0.07</td>
<td>0.07</td>
<td>0.13</td>
</tr>
<tr>
<td>GDP pc</td>
<td>0.30</td>
<td>0.48**</td>
<td>0.05</td>
</tr>
<tr>
<td>World GDP growth</td>
<td>-0.30</td>
<td>0.20</td>
<td>-0.32</td>
</tr>
</tbody>
</table>

### Dynamic conditions ($t-1$):

<table>
<thead>
<tr>
<th></th>
<th># of Listings</th>
<th>Market cap</th>
<th>Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP growth</td>
<td>0.04</td>
<td>-0.50</td>
<td>0.13</td>
</tr>
<tr>
<td>Private credit growth</td>
<td>-0.18</td>
<td>-0.18</td>
<td>0.79</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th># of Listings</th>
<th>Market cap</th>
<th>Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>National savings</td>
<td>0.04**</td>
<td>0.04**</td>
<td>0.03***</td>
</tr>
<tr>
<td>Trade openness</td>
<td>-0.24</td>
<td>-0.54</td>
<td>0.40</td>
</tr>
<tr>
<td>Control of corruption</td>
<td>-0.40***</td>
<td>-0.21*</td>
<td>-0.37***</td>
</tr>
<tr>
<td>Law and order</td>
<td>0.23</td>
<td>0.08</td>
<td>0.21</td>
</tr>
<tr>
<td>Insider trading laws</td>
<td>0.38</td>
<td>0.35</td>
<td>0.35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th># of listings</th>
<th># of countries</th>
<th>Controls (t-1)</th>
<th>Country/ Year F.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>199</td>
<td>30</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>234</td>
<td>34</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>198</td>
<td>30</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>233</td>
<td>34</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>184</td>
<td>28</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>219</td>
<td>33</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>
Economic significance

• **1% greater bank sector size** at establishment is associated with:
  – 1% higher # listings
  – 0.4% greater market cap/GDP
  – 0.7% higher turnover

• **1% higher national savings** is associated with:
  – 2% higher number of listings
  – 4% greater market cap/GDP
Conclusions

• Initial success, banking sector development, and national savings help explain variation is nascent market success
• Remarkably little evidence that structural factors (such as country size or legal / political institutions) matter
• Implications for policy and research
Policy implications

• Many ways to nascent market success
  – Important to secure sufficient listings and trading early on
  – Well-developed banking system at start helps success later on
  – Nascent markets thrive when savings are high
  – Control of corruption hurts listing / market cap, helps trading
  – Greater law & order helps trading activity
Thank you!