Capital Market Financing to Firms

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Motivation

• Capital markets developed substantially since 1990
  – Equity market capitalization (%GDP) rose
  – From 35% to 84% for median developed country
  – From 17% to 59% for median emerging country
  – Debt market markets increased even more than equity markets
  – Annual amount raised through equity or bonds (%GDP) almost doubled for median country, early 1990s-late 2000s
Questions

• Many expectations about the development of capital markets

• Also many concerns, especially about growth in debt financing
  – IMF (GFSR), BIS Quarterly Reviews, IADB, World Bank next
  – Academic papers
  – Press reports, notably The Economist

• Yet, basic questions linger about how firms use markets
  1. Which firms use capital markets?
  2. What happens to firm growth when they raise capital?
  3. Do firms use capital markets to borrow long term?
  4. What are the policy issues going forward?
Outline

• Basic questions

  1. Which firms use capital markets?
  2. What happens to firm growth when they raise capital?
  3. Do firms use capital markets to borrow long term?
  4. What are the policy issues going forward?
Financial markets size

Size of Financial System: Developed Countries

Financial Systems as a % of GDP – Median Country

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank Claims on Private Sector</td>
<td>81%</td>
<td>84%</td>
<td>107%</td>
<td>117%</td>
</tr>
<tr>
<td>Equity Market Capitalization</td>
<td>35%</td>
<td>64%</td>
<td>75%</td>
<td>84%</td>
</tr>
<tr>
<td>Bond Market Capitalization</td>
<td>27%</td>
<td>31%</td>
<td>38%</td>
<td>41%</td>
</tr>
</tbody>
</table>
Financial markets size

Size of Financial System: Emerging Countries

Financial Systems as a % of GDP – Median Country

- Bank Claims on Private Sector:
  - 1991-1995: 28%
  - 1996-2000: 30%
  - 2001-2005: 25%
  - 2006-2011: 36%

- Equity Market Capitalization:
  - 1991-1995: 17%
  - 1996-2000: 27%
  - 2001-2005: 37%
  - 2006-2011: 59%

- Bond Market Capitalization:
  - 1991-1995: 0%
  - 1996-2000: 2%
  - 2001-2005: 5%
  - 2006-2011: 9%
  - 2011-2016: 14%
Financial markets size

Total Amount Raised in Equity, Corporate Bond, and Syndicated Loan Markets
Developed Countries
Financial markets size

Total Amount Raised in Equity, Corporate Bond, and Syndicated Loan Markets
Developing Countries
Credit Composition

Bank financing to firms
Number of issuing firms

Issuance Activity
Number of Issuing Firms – Median Country

<table>
<thead>
<tr>
<th>Period</th>
<th>Equity Issuers</th>
<th>Bond Issuers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991-1995</td>
<td>18</td>
<td>27</td>
</tr>
<tr>
<td>1996-2000</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>2001-2005</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>2006-2011</td>
<td>23</td>
<td>22</td>
</tr>
</tbody>
</table>

Note: The number of issuing firms for each period is shown, with separate data for equity and bond issuers.
Concentration in Equity and Bond Markets

Amount Raised by the Top-5, 10, and 20 Firms – Median Country

- **Equity Markets**
  - 1991-1995: 77%, 14%, 8%
  - 1996-2000: 78%, 13%, 7%
  - 2001-2005: 93%, 14%, 11%
  - 2006-2011: 78%, 14%, 11%

- **Bond Markets**
  - 1991-1995: 10%, 12%, 11%
  - 1996-2000: 16%, 19%, 18%
  - 2001-2005: 66%, 18%, 11%
  - 2006-2011: 66%, 21%, 11%

- **Share captured by top issuing firms**
## Attributes of non-issuers vs. issuers

### Firm Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Non-issuers</th>
<th>Issuing Firms</th>
<th>Equity Issuers</th>
<th>Bond Issuers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Assets</strong></td>
<td>99,823</td>
<td>316,528 ***</td>
<td>255,701 ***</td>
<td>3,685,394 ***</td>
</tr>
<tr>
<td><strong>Sales</strong></td>
<td>73,700</td>
<td>132,457 ***</td>
<td>114,015 **</td>
<td>1,011,641 ***</td>
</tr>
<tr>
<td><strong>Number of Employees</strong></td>
<td>327</td>
<td>705 ***</td>
<td>470 ***</td>
<td>3,080 ***</td>
</tr>
<tr>
<td><strong>Asset Growth</strong></td>
<td>4.31%</td>
<td>9.29% ***</td>
<td>10.48% ***</td>
<td>9.43% ***</td>
</tr>
<tr>
<td><strong>Sales Growth</strong></td>
<td>5.48%</td>
<td>9.37% ***</td>
<td>9.48% ***</td>
<td>8.68% ***</td>
</tr>
<tr>
<td><strong>Employee Growth</strong></td>
<td>0.87%</td>
<td>4.44% ***</td>
<td>4.97% ***</td>
<td>4.18% ***</td>
</tr>
<tr>
<td><strong>Leverage</strong></td>
<td>49.36%</td>
<td>55.33% ***</td>
<td>54.18% ***</td>
<td>60.55% ***</td>
</tr>
<tr>
<td><strong>Long Term Debt/Total Liabilities</strong></td>
<td>14.75%</td>
<td>22.48% ***</td>
<td>21.50% ***</td>
<td>36.29% ***</td>
</tr>
<tr>
<td><strong>Retained Earnings/Total Assets</strong></td>
<td>5.56%</td>
<td>6.05% **</td>
<td>4.42% **</td>
<td>8.64% **</td>
</tr>
<tr>
<td><strong>ROA</strong></td>
<td>3.66%</td>
<td>3.59%</td>
<td>3.06% **</td>
<td>4.00%</td>
</tr>
<tr>
<td><strong>Firm Age (2011)</strong></td>
<td>26</td>
<td>20 ***</td>
<td>19 ***</td>
<td>32</td>
</tr>
</tbody>
</table>

| **Number of Firms** | 27,185 | 18,342 | 16,198 | 4,877 |
| **Percentage of Total Firms** | 59.71% | 40.29% | 35.58% | 10.71% |
| **No. of Observations for Total Assets** | 191,616 | 133,869 | 116,268 | 40,059 |
## Attributes of non-issuers vs. issuers

### Firm Characteristics in India

<table>
<thead>
<tr>
<th>Firm Characteristics</th>
<th>No Issues</th>
<th>Equity Issues</th>
<th>Bond Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Assets</td>
<td>8,967</td>
<td>55,633 ***</td>
<td>596,587 ***</td>
</tr>
<tr>
<td>Sales</td>
<td>9,521</td>
<td>41,918 ***</td>
<td>272,083 ***</td>
</tr>
<tr>
<td>Employees</td>
<td>837</td>
<td>2,700 ***</td>
<td>4,600 ***</td>
</tr>
<tr>
<td><strong>Growth</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Assets Growth</td>
<td>5.24%</td>
<td>15.77% ***</td>
<td>18.18% ***</td>
</tr>
<tr>
<td>Sales Growth</td>
<td>9.84%</td>
<td>17.33% ***</td>
<td>17.60% ***</td>
</tr>
<tr>
<td>Employee Growth</td>
<td>0.96%</td>
<td>3.62% ***</td>
<td>4.35% ***</td>
</tr>
<tr>
<td><strong>Capital Structure and Financial Health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-Term Debt/Total Liabilities</td>
<td>49.49%</td>
<td>56.76% ***</td>
<td>62.95% ***</td>
</tr>
<tr>
<td>Leverage</td>
<td>52.46%</td>
<td>62.17% ***</td>
<td>64.39% ***</td>
</tr>
<tr>
<td>Retained Earnings/Total Assets</td>
<td>3.69%</td>
<td>4.97% ***</td>
<td>7.08% ***</td>
</tr>
<tr>
<td><strong>Profitability</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>2.59%</td>
<td>3.61% ***</td>
<td>5.14% ***</td>
</tr>
<tr>
<td><strong>No. of Firms (Orbis database)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3,427</td>
<td>728</td>
<td>293</td>
</tr>
<tr>
<td><strong>Investment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Expenditures</td>
<td>1,754</td>
<td>4,930 ***</td>
<td>18,837 ***</td>
</tr>
<tr>
<td>Capital Expenditures/Sales</td>
<td>4.39%</td>
<td>6.40% ***</td>
<td>7.46% ***</td>
</tr>
<tr>
<td><strong>No. of Firms (Worldscope database)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,848</td>
<td>601</td>
<td>281</td>
</tr>
</tbody>
</table>
Outline

• Basic questions

  1. Which firms use capital markets?
  2. What happens to firm growth when they raise capital?
  3. Do firms use capital markets to borrow long term?
  4. What are the policy issues going forward?
Firm size distribution (FSD)

Total Assets

Log of Total Assets

Non-issuers 2003
Non-issuers 2010
Issuers 2003
Issuers 2010
Firm size distribution (FSD)

Total Assets – India, Bond Issuers

- 2003 Total Assets of Non-Issuing Companies
- 2003 Total Assets of Issuing Companies
- 2010 Total Assets of Non-Issuing Companies
- 2010 Total Assets of Issuing Companies
Firm size distribution (FSD)

Total Assets – India, Equity Issuers

- 2003 Total Assets of Non-Issuing Companies
- 2003 Total Assets of Issuing Companies
- 2010 Total Assets of Non-Issuing Companies
- 2010 Total Assets of Issuing Companies
Cumulative growth: assets

Quantile Regression Estimates Representation

Total Assets as a Proxy for Size

Cumulative Growth 2003-2010

Decile

Growth of Non-issuers
Growth of Issuers
Cumulative growth: sales

Quantile Regression Estimates Representation

Sales as a Proxy for Size

Cumulative Growth 2003-2010

Decile

1st 2nd 3rd 4th 5th 6th 7th 8th 9th

Growth of Non-issuers  Growth of Issuers
Cumulative growth: number of employees

Quantile Regression Estimates Representation

Number of Employees as a Proxy for Size

Cumulative Growth 2003-2010

Decile

1st
2nd
3rd
4th
5th
6th
7th
8th
9th

Growth of Non-issuers
Growth of Issuers
Event studies: firm dynamics around issuance

2004-2006 Issuers vs. Non-issuers

Total Assets as a Proxy for Size

-3 -2 -1 0 1 2 3
Time

-5 -4 -3 -2 -1 0 1 2 3 4 5 6
Diff. Average Growth Rate per Year (p.p.)

First Issuance  2004 Issuers  2005 Issuers  2006 Issuers
Event studies: firm dynamics around issuance

2007-2009 Issuers vs. Non-issuers

Total Assets as a Proxy for Size

First Issuance

2007 Issuers

2008 Issuers

2009 Issuers
### Firm age

<table>
<thead>
<tr>
<th>Quantile</th>
<th>Young Firms</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Decile</td>
<td>3rd Decile</td>
</tr>
<tr>
<td>Average Growth of Non-issuers</td>
<td>0.8%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Average Growth of Issuers</td>
<td>36.4%</td>
<td>21.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quantile</th>
<th>Mature Firms</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Growth of Non-issuers</td>
<td>2.7%</td>
</tr>
<tr>
<td>Average Growth of Issuers</td>
<td>13.1%</td>
<td>14.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quantile</th>
<th>Old Firms</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Growth of Non-issuers</td>
<td>3.3%</td>
</tr>
<tr>
<td>Average Growth of Issuers</td>
<td>7.5%</td>
<td>7.0%</td>
</tr>
</tbody>
</table>

**Note:** The table above compares the average growth of non-issuers and issuers across different firm age categories: Young, Mature, and Old. The growth is measured at various quantiles (1st, 3rd, 5th, 7th, 9th Decile) and the mean growth is also provided.
Outline

• Basic questions

1. Which firms use capital markets?
2. What happens to firm growth when they raise capital?
3. Do firms use capital markets to borrow long term?
4. What are the policy issues going forward?
# Maturity of debt issuances

## Summary Statistics

<table>
<thead>
<tr>
<th>Issuing Region</th>
<th>Type of Firm</th>
<th>Maturity</th>
<th>Number of Firms Issuing and Amount Raised</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Corporate Bonds</td>
<td>Syndicated Loans</td>
<td>Corporate Bonds</td>
<td>Syndicated Loans</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Years</td>
<td>Years</td>
<td>No. of Firms</td>
<td>Amount</td>
</tr>
<tr>
<td>Developed Count.</td>
<td>All Firms</td>
<td>7.6</td>
<td>4.7</td>
<td>30,395</td>
<td>53,881,229</td>
</tr>
<tr>
<td>Developing Count.</td>
<td>All Firms</td>
<td>7.9</td>
<td>7.0</td>
<td>8,392</td>
<td>4,740,184</td>
</tr>
<tr>
<td>Developed Countries</td>
<td>Non-financials</td>
<td>10.2</td>
<td>5.0</td>
<td>64%</td>
<td>36%</td>
</tr>
<tr>
<td></td>
<td>Financials</td>
<td>6.2</td>
<td>3.8</td>
<td>36%</td>
<td>64%</td>
</tr>
<tr>
<td>Developing Countries</td>
<td>Non-financials</td>
<td>8.0</td>
<td>7.7</td>
<td>56%</td>
<td>51%</td>
</tr>
<tr>
<td></td>
<td>Financials</td>
<td>7.9</td>
<td>4.6</td>
<td>44%</td>
<td>49%</td>
</tr>
</tbody>
</table>
Maturity of debt issuances

Cumulative Distribution Functions
Developed versus Developing Countries: Corporate Bonds

<table>
<thead>
<tr>
<th>Type of Country</th>
<th>(i) Bonds</th>
<th>(ii) S. Loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed Countries</td>
<td>7.6</td>
<td>4.7</td>
</tr>
<tr>
<td>Developing Countries</td>
<td>7.9</td>
<td>7.0</td>
</tr>
</tbody>
</table>
Maturity of debt issuances

Cumulative Distribution Functions
Developed versus Developing Countries: Syndicated Loans

<table>
<thead>
<tr>
<th>Type of Country</th>
<th>(i) Bonds</th>
<th>(ii) S. Loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed Countries</td>
<td>7.6</td>
<td>4.7</td>
</tr>
<tr>
<td>Developing Countries</td>
<td>7.9</td>
<td>7.0</td>
</tr>
</tbody>
</table>
Maturity of debt issuances

Syndicated Loans and Primary Use of Proceeds

- Acquisition Financing and LBO
- General Corporate Purposes & Working Capital
- Others
- Project Finance
- Refinancing

- Developed countries, share
- Developing countries, share
- Developed countries, maturity
- Developing countries, maturity
Maturity of debt issuances

Cumulative Distribution Functions
Corporate Bonds

<table>
<thead>
<tr>
<th>Type of Country</th>
<th>Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed</td>
<td>10.2</td>
</tr>
<tr>
<td>Developing - Domestic</td>
<td>6.8</td>
</tr>
<tr>
<td>Developing - International</td>
<td>10.1</td>
</tr>
</tbody>
</table>
The Global Financial Crisis and the Evolution of Debt Issuance

Developed Countries

Developing Countries

GFC (global financial crisis)
The Global Financial Crisis and Debt Maturity
Aggregate Patterns

Developed Countries

Developing Countries

Corresponding labels and legends provided in the diagram.
Firms borrowing long term

Size-Maturity Distribution
Corporate Bond Issuers

Developed Countries
No. of firms per decile ≈ 3,145

Developing Countries
No. of firms per decile ≈ 742

Firm size decile
Maturity in years
Amount raised, % of the total

Domestic bonds, % of the total
Maturity, domestic
International bonds, % of the total
Maturity, international
Outline

• Basic questions

1. Which firms use capital markets?
2. What happens to firm growth when they raise capital?
3. Do firms use capital markets to borrow long term?
4. What are the policy issues going forward?
Sum up

1. For the median country only a small number of large firms issue equity, bonds, or even syndicated loans
2. Bond issuers particularly large
3. Growth in the intensive margin, not the extensive one
4. Issuers grow faster than non-issuers in terms of assets, sales, and employment
5. The additional growth of issuers (relative to non-issuers) is particularly pronounced among smaller firms
6. Debt markets providing relatively long-term financing, especially to firms accessing markets
7. Fair amount of substitution during the GFC, for firms that could access markets
Policy discussion

• Bonds versus equity
  – Bond issuers tend to be larger than equity issuers
  – Conflicts with the view that smaller and more opaque firms tap bond markets before raising funds through equity issuances
  – Don’t focus just on bonds (also dominated mostly by public sector)

• Capital structure
  – Not the only factor that changes when firms issue
  – Issuances associated with an immediate and enduring boost in size
  – Issuers grow comparatively rapidly in the year they issue securities
  – This growth does not simply represent an increase in corporate assets: sales and the number of employees grow, too
  – Issuance related to changes in the real side of firms
Policy discussion

- Capital markets and growth
  - Direct, positive connection between issuance and firm growth
  - It is not just the availability of well-functioning securities markets that fosters the growth of listed firms

- Firm size distribution (FSD) and financial constraints
  - Among issuers, smaller firms grow faster; among non-issuers, larger firms grow faster than smaller firms
  - The boost in growth when issuing is consistent with view that financial constraints constrain growth of firms, even large ones
  - Financial constraints seem especially binding for smaller firms
Policy discussion

- Effects of capital market development
  - For most countries, only a few large firms issue securities and grow
  - Capital market development around the world has not, in general, involved smaller firms issuing securities to fuel growth
  - Among large firms, need to understand which ones use markets
  - As securities markets develop, the extensive margin among listed firms might expand, so smaller listed firms might participate more

- What drives the changes in firm dynamics at issuance?
  - Supply side? Shocks to capital markets?
  - Demand side?
  - That firms grow more rapidly before issuing suggests that more business opportunities might propel them to raise capital, and grow
Policy discussion

• Fostering capital markets directly benefits few, large firms
  – Effects on smaller firms, if any, still need to be understood and quantified

• But don’t rely just on banks
  – That’s not where the growth in financing has taken place
  – They have moved away from corporate financing
  – Switch in the type of companies they serve?

• If goal is to serve smaller firms, don’t rely just on the typical institutional investors
  – DC pension funds and mutual funds invest in large, liquid firms
  – Constant monitoring pushes them to safer assets
  – Perhaps insurance companies or investors with longer horizons
  – But those investors also rely on capital markets as exit strategy
Policy discussion

• Regarding long-term funds
• For firms that use markets, no clear problem of access
• Developing countries rely more on international markets to obtain long-term funds
  – Effort to compensate for the underdevelopment of their domestic markets
  – Beneficial because they complement domestic markets by allowing firms to access a wider set of investors
  – But more vulnerability to currency mismatches and crises in international markets
Policy discussion

• Not all firms borrow at the long end of the maturity spectrum
  – The largest firms issue most of the bonds and loans
  – … have access to international markets
  – … and are the ones issuing at the long end of the maturity spectrum

• Global financial crisis
  – Syndicated loan markets collapsed, except for developing countries domestically
  – Large firms with access to bond markets could substitute from banks to bonds and maintain the maturity at issuance
  – During the post-crisis, higher propensity to issue bonds, especially in developing countries—Unconventional monetary policies?
Policy discussion

- To foster finance, might help to reduce the costs associated with the issuance process and further develop domestic markets
  - But this is difficult to achieve and not always in the hands of policy makers, especially in competitive markets
- Reliance on only one type of instrument (bonds, syndicated loans) or market (domestic, international) for long-term projects is risky
  - Countries can become susceptible to shocks
  - Countries would be better off with more complete financial markets, especially for smaller firms
- Importance of complementarities across instruments and markets: more work needed
Thank you!