The Effect of Mandatory Information Disclosure on Financial Constraints

Felipe Cabezon

USC Marshall

January 5, 2019
Should information disclosure be mandatory or voluntary?

- Literature: mandatory INCREASE of information disclosure.
- This paper: mandatory disclosure of SAME PIECE of information.

Advantage of voluntary disclosure:
- Signaling

Advantage of mandatory disclosure:
- Future disclosure is guaranteed
  (Diamond (1985), Ben-Porath, Dekel, and Lipman (2017))
Effects on firm’s ability to raise external finance

- Financial constraints are very sensitive to asymmetries of information.
  - Signaling reduces adverse selection.
  - Permanent disclosure reduces agency problems.

\[ \Delta^+ \text{Adverse Selection (signaling is shut down)} \]
\[ \Delta^- \text{Agency problem (permanent disclosure)} \]

This paper: natural experiment that changed the same piece of disclosed information from voluntary to mandatory.

- Effect on firm’s financial constraints.
Quasi-natural Experiment
SEC’s New Disclosure Rules

▶ In February of 2008, the SEC eliminated the “small business” reporting form: 10-KSB

▶ 10-KSB versus regular 10-K:
  ▶ different disclosure system
  ▶ reduced disclosure requirements

“Eliminating the ‘SB’ forms will mitigate any perceived notion that smaller companies are currently reporting under a completely different and inferior disclosure framework.”

(Smaller Reporting Company Regulatory Relief and Simplification; Final Rule)
Quasi-natural Experiment

- Form 10-KSB: public float \(< \$25\) million
- Some firms below $25M reported regular 10-K
  - voluntary report of a more informative form
- In 2008 the SEC eliminated SB forms: all firms report 10-K
- Voluntary disclosure became mandatory
Diff-in-Diff estimation

- Treated: firms below $25 million that reported 10-K in 2007
- Control: firms above $25 in 2007 (always reported 10-K)

The figure shows a graphic representation of the experiment. Before 2008, firms with public float below $25 million were allowed to report the 10KSB form. After 2008, every firm, regardless its size, has to report standard 10K. Treated firms are those that always used 10K but had the chance to report 10KSB before 2008 (the blue box). The control firms are those that always reported 10K as well, but did not have the chance to report the 10KSB before 2008 because they had a public float above $25 million (the red box).
Diff-in-Diff estimation

- Treated: firms below $25 million that reported 10-K in 2007
- Control: firms above $25 in 2007 (always reported 10-K)

Figure 1: 10KSB Experiment: Graphical Representation

The figure shows a graphic representation of the experiment. Before 2008, firms with public float below $25 million were allowed to report the 10KSB form. After 2008, every firm, regardless its size, has to report standard 10K. Treated firms are those that always used 10K but had the chance to report 10KSB before 2008 (the blue box). The control firms are those that always reported 10K as well, but did not have the chance to report the 10KSB before 2008 because they had a public float above $25 million (the red box).
**Diff-in-Diff estimation**

- **Treated:** firms below $25 million that reported 10-K in 2007
- **Control:** firms above $25 million in 2007 (always reported 10-K)

The figure shows a graphic representation of the experiment. Before 2008, firms with public float below $25 million were allowed to report the 10KSB form. After 2008, every firm, regardless of size, has to report standard 10K. Treated firms are those that always used 10K but had the chance to report 10KSB before 2008 (the blue box). The control firms are those that always reported 10K as well but did not have the chance to report the 10KSB before 2008 because they had a public float above $25 million (the red box).
Diff-in-Diff estimation

- Treated: firms below $25 million that reported 10-K in 2007
- Control: firms above $25 in 2007 (always reported 10-K)
Specification

\[ FC_{it} = \alpha + \beta \text{TREATEDxPOST2008}_{it} + \delta_1 \text{CONTROLS}_{it-1} + \mu_i + \gamma_t + \epsilon_{it} \]

  - Debt constraints
  - Equity constraints

- Treated group: 140 firms
  Control group: 144 firms

- Controls: size, age, market to book, profitability, tangibility.
Main Results
Financial Constraints

\[ FC_{it} = \alpha + \beta \text{TREATEDxPOST2008}_{it} + \delta_1 \text{CONTROLS}_{it-1} + \mu_i + \gamma_t + \epsilon_{it} \]

<table>
<thead>
<tr>
<th></th>
<th>Debt Constraints</th>
<th>Equity Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>TREATEDxPOST2008</td>
<td>-0.013** (0.050)</td>
<td>-0.016** (0.022)</td>
</tr>
<tr>
<td></td>
<td>-0.018** (0.017)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.019** (0.037)</td>
<td>0.021** (0.023)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.018* (0.065)</td>
</tr>
<tr>
<td>Observations</td>
<td>1,650</td>
<td>1,586</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.036</td>
<td>0.054</td>
</tr>
<tr>
<td></td>
<td>0.067</td>
<td>0.028</td>
</tr>
<tr>
<td></td>
<td>0.042</td>
<td>0.055</td>
</tr>
<tr>
<td>Controls</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Firm FE</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Year FE</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Entropy balance</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>
Debt Constraints

![Graph showing debt constraints over years for treated and control groups.](image)
Equity Constraints

The graph shows the equity constraints (residuals) for the treated and control groups over the years 1995 to 2015. The residuals are plotted on the y-axis, ranging from -0.1 to 0.4. The x-axis represents the years from 1995 to 2015. The treated group is represented by blue dots, and the control group by red dots. The graph indicates fluctuations in equity constraints over the years, with peaks and troughs that may suggest changes in the treated and control groups over time.
Issuance (Leary and Roberts (2005))

- Debt issuance: 1 if firm issues debt.
- Equity issuance: 1 if firm issues equity.

\[
\text{Issuance}_{it} = \alpha + \beta \ TREATED \times \text{POST2008}_{it} + \delta_1 \ \text{CONTROLS}_{it-1} + \mu_i + \gamma_t + \epsilon_{it}
\]

<table>
<thead>
<tr>
<th></th>
<th>Total debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>TREATED × POST2008</td>
<td>0.130*** (0.004)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Observations</th>
<th>R-squared</th>
<th>Controls</th>
<th>Firm FE</th>
<th>Year FE</th>
<th>Entropy balance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,769</td>
<td>0.016</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>1,767</td>
<td>0.024</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>1,738</td>
<td>0.026</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

- Increase in debt issuance
- No effect on equity issuance
Investment

- CAPX/sales
- XRD/sales

\[ \text{INV}_{it} = \alpha + \beta \ TREATED \times \text{POST2008}_{it} + \delta_1 \ \text{CONTROLS}_{it-1} + \mu_i + \gamma_t + \epsilon_{it} \]

<table>
<thead>
<tr>
<th></th>
<th>CAPX/sales</th>
<th>R&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td>TREATED \times \text{POST2008}</td>
<td>0.047* (0.058)</td>
<td>0.042** (0.050)</td>
</tr>
<tr>
<td></td>
<td>0.086* (0.055)</td>
<td>0.065 (0.653)</td>
</tr>
<tr>
<td></td>
<td>0.063 (0.676)</td>
<td>0.146 (0.659)</td>
</tr>
</tbody>
</table>

|                              | 1,843            | 1,780             |
|                              | 1,744            | 1,843             |
|                              | 1,744            | 1,744             |
| R-squared                    | 0.005            | 0.010             |
|                              | 0.039            | 0.012             |
|                              | 0.012            | 0.024             |
|                              | 0.071            |                   |
| Controls                     | NO               | YES               |
|                              | YES              | YES               |
|                              | NO               | YES               |
| Firm FE                      | YES              | YES               |
| Year FE                      | YES              | YES               |
| Entropy balance              | NO               | NO                |
|                              | YES              | NO                |
|                              | NO               | YES               |

- Increase of investment in capital, plant, and equipment.
- No effect on R&D
Interpretation
Interpretation

The figure shows a graphic representation of the experiment. Before 2008, firms with public float below $25 million were allowed to report the 10KSB form. After 2008, every firm, regardless its size, has to report standard 10K. Treated firms are those that always used 10K but had the chance to report 10KSB before 2008 (the blue box). The control firms are those that always reported 10K as well, but did not have the chance to report the 10KSB before 2008 because they had a public float above $25 million (the red box).
The figure shows a graphic representation of the experiment. Before 2008, firms with public float below $25 million were allowed to report the 10KSB form. After 2008, every firm, regardless its size, has to report standard 10K. Treated firms are those that always used 10K but had the chance to report 10KSB before 2008 (the blue box). The control firms are those that always reported 10K as well, but did not have the chance to report the 10KSB before 2008 because they had a public float above $25 million (the red box).
Interpretation

Figure 1: 10KSB Experiment: Graphical Representation

The figure shows a graphic representation of the experiment. Before 2008, firms with public float below $25 million were allowed to report the 10KSB form. After 2008, every firm, regardless of its size, has to report standard 10K. Treated firms are those that always used 10K but had the chance to report 10KSB before 2008 (the blue box). The control firms are those that always reported 10K as well, but did not have the chance to report the 10KSB before 2008 because they had a public float above $25 million (the red box).
Interpretation

- **Voluntary setting: signaling**
  - Adverse selection problem

- **Mandatory setting: credible long-term disclosure policy**
  - Agency problem

- **Empirical results:**
  - Debt is more sensitive to agency problem *(Jensen and Meckling (1976))*
  - Equity is more sensitive to adverse selection *(Myers and Majluf (1984))*
Supporting evidence

- Effect on equity constraints (increase) is stronger when signaling seems to be more important.
  - Private information in stock prices is low (Chen, Goldstein and Jiang (2006))
  - Innovative firms
  - High product market similarity (Hoberg and Phillips (2016))

- Effect on debt constraints (decrease) is stronger when guaranteed future disclosure is more important.
  - Long-term debt
  - High proprietary cost of future disclosure
Conclusion
Voluntary Disclosure $\Rightarrow$ Mandatory Disclosure

- Firms became more equity-constrained but less debt-constrained.
  - Effect on equity constraints: stronger when signaling is important.
  - Effect on debt constraints: stronger when commitment is important.

- A plausible interpretation:
  - equity-holders are more sensitive to adverse selection
  - debt-holders care primarily about moral hazard

- Public policy implications:
  - Innovative and opaque firms: voluntary regime
  - Firms investing in tangible capital: mandatory regime

- All these results only apply for small firms!