Corporate Environmental Performance, Disclosure and Leverage: An Integrated Approach

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Leverage/Environmental Performance

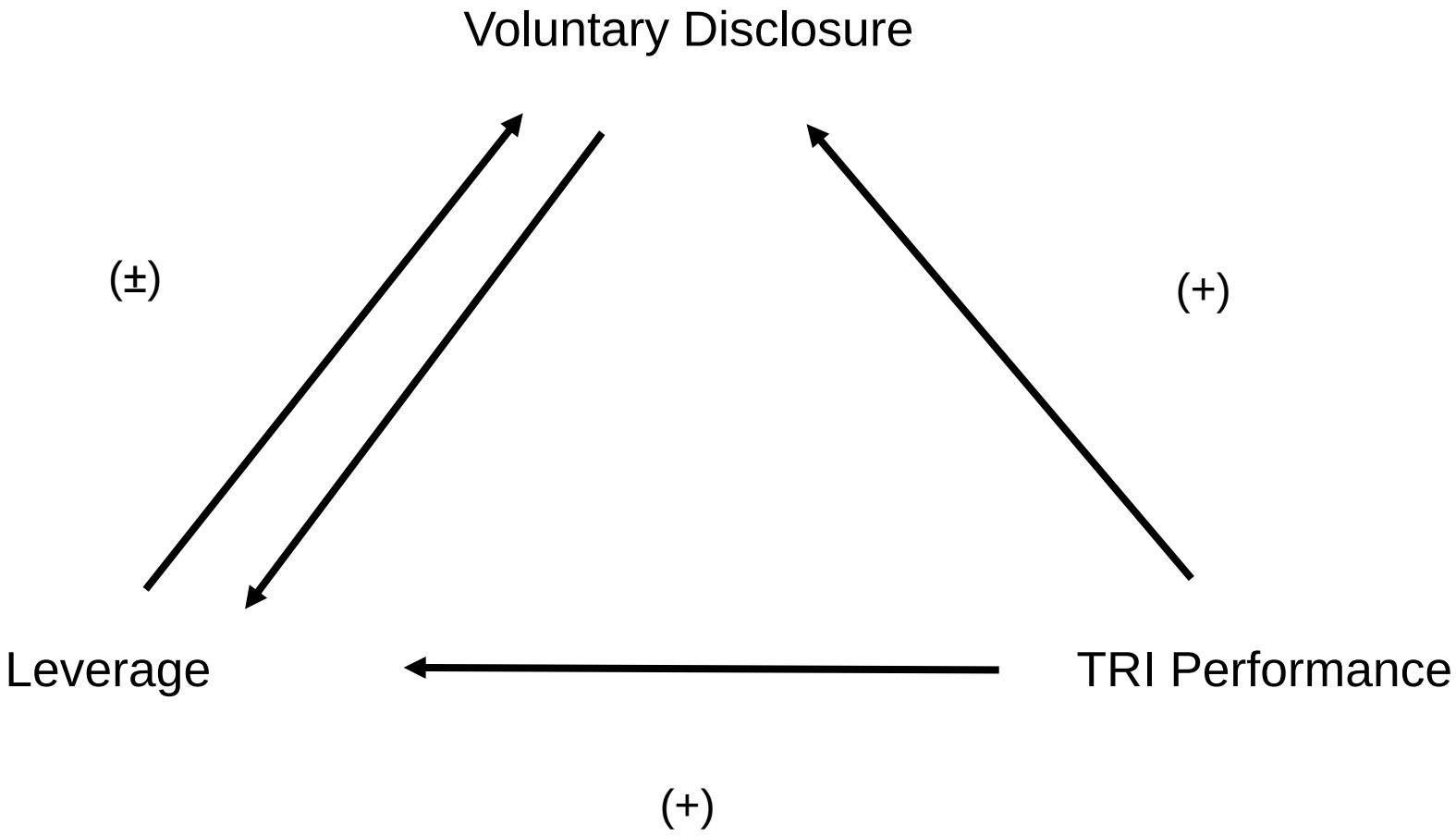
- Poor environmental performance:
  - Regulatory risk
  - High compliance and potential remediation costs
  - Indicate inefficiencies in production processes (Nehrt 1996) and innovation (Porter and van der Linde 1995)
- This causes volatility in future cash flows
  - Lower debt due to bankruptcy risk (Kraus and Litzenberger 1973)
  - Lower tax benefits of debt (Frank and Goyal 2009)
  - Represent un-recorded liabilities which affect debt capacity (Barth and McNichols 1994)

Voluntary Disclosure/Env. Perform

- Firms with better performance tend to disclose more information voluntarily to differentiate from poor performers (Dye 1985, Verrechia 1983)
- Clarkson et al. (2008) supports this prediction
- Delmas and Blass (2010) does not

Leverage/Voluntary Disclosure

- Higher leverage entails higher agency and monitoring costs – voluntary disclosure reduces the costs (Fama and Miller 1972, Alsaeed 2006)
  - Empirical results are mixed
- Disclosure quality impacts cost of equity capital (Botoson 1997, Leuz and Verrecchia 2000) and reduces information asymmetry (Healy and Palepu 1993, 1995)


Voluntary Disclosure
(±)
(+)
Leverage
TRI Performance
(+)

Empirical Model

$$Leverage_{it} = \beta_0 + \beta_1 Environmental\,Performance_{it} + \beta_2 Environmental\ Disclosure_{it} + \beta_3 Market\ to\ Book_{it} + \beta_4 \mathrm{Return\ on\ Assets}_{it} + \beta_5 \log(Total\ Assets)_{it} + \beta_6 Tangibility_{it} + \beta_7 Non\ Debt\ Tax\ Shields_{it} + \varepsilon_{it}$$

$$Environmental\ Disclosure_{it} = \gamma_0 + \gamma_1 Environmental\ Performance_{it} + \gamma_2 Market\,to\,Book_{it} + \gamma_3 Leverage_{It} + \gamma_4 \mathrm{Return\ on\ Assets}_{it} + \gamma_5 \log(Total\ Assets)_{it} + \gamma_6 Newness_{it} + \gamma_7 Capital\ Intensity_{it} + \varepsilon_{it}$$

Measures and Sample

- Environmental Performance – TRI totals
- Leverage – Debt/Debt+Equity+Preferred
- Disclosure – Clarkson, et al. (2008)

- Electric Utilities (SIC 49) – 2001 to 2007
  - Nearly all revenues from U.S.
  - Chemical emissions are relatively similar
  - Clustered analysis by company (49) (Wooldridge 2002, 2003)

Results

When simultaneity is considered:

- Environmental Performance is positively associated with leverage
- Environmental Performance is positively associated with Voluntary Disclosure
- Leverage is negatively associated with Voluntary Disclosure
  - Higher equity financing relative to debt is associated with higher disclosure

But…

- TRI is only one measure of environmental performance
- Leverage is only one financial choice variable
- Environmental reports are only one method of environmental disclosures
  - 10-Ks do have some voluntary disclosures
- Results for electric utilities may not reflect other industries