What do we really measure?
The role of non-content related data for the ESG score of a company
Samuel Drempetic, Christian Klein, Bernhard Zwergel

PRI Academic Network Conference 2017
Dr. Bernhard Zwergel

Fachgebiet für BWL, insbes. Unternehmensfinanzierung
Prof. Dr. Christian Klein
Introduction

ESG score in 2015
grouped by Sector and Market Capitalization

Data Sets
- Other Sectors
- Extractive Industry Sector

Mean of ESG score

Market Capitalization in Quartile

1. Quartile
- Other Sectors: 38.6
- Extractive Industry Sector: 45.8
- Market Capitalization: 1050

2. Quartile
- Other Sectors: 39.9
- Extractive Industry Sector: 51.4
- Market Capitalization: 1246

3. Quartile
- Other Sectors: 48.3
- Extractive Industry Sector: 59.1
- Market Capitalization: 1247

4. Quartile
- Other Sectors: 65.3
- Extractive Industry Sector: 70.8
- Market Capitalization: 1238

Dr. Bernhard Zwergel

What do we really measure?
What we can say about the data base of CSP?

- Companies with good ESG scores and rankings have offences in the ESG context. (Entine 2003, Seele&Chesney 2016)

- ESG ratings are not convergent in their results. (Chatterji et al. 2014)

- Every company can be in any sustainable index. It only depends on the ESG rating agency, that you choose. (Hawkens 2004)

- Missing standardization: (State Street Global Advisors 2017)
  - How can ESG performance across companies be compared?
  - Barrier for investors to use sustainable measures as investment criteria.
### Operationalization

\[
ESG_{i,t} = \alpha + \beta_1 Size_{i,t-1} + \beta_2 DA_{i,t} + \beta_3 RPD_{i,t} + \beta_4 ControlVariables_{i,t} + \epsilon_{i,t}
\]

**Resources for Providing ESG Data (RPD)**

**Data Availability (DA)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESG</td>
<td>ESG</td>
</tr>
<tr>
<td>SIZE</td>
<td>EMP</td>
</tr>
<tr>
<td>SIZE</td>
<td>TA</td>
</tr>
<tr>
<td>SIZE</td>
<td>MCAP</td>
</tr>
<tr>
<td>DA</td>
<td>Data Availability</td>
</tr>
<tr>
<td>RPD</td>
<td>SusRepNG</td>
</tr>
<tr>
<td>RPD</td>
<td>GRI</td>
</tr>
<tr>
<td>RPD</td>
<td>Committee</td>
</tr>
</tbody>
</table>

- **ESG**: Environmental, Social and Corporate Governance Pilar of ASSET4 (without Economic)
- **EMP**: Number of Employees (lag and log)
- **TA**: Total Assets (lag and log)
- **MCAP**: Market Capitalization (lag and log)
- **Data Availability**: Index; Number of Indicators without NA (not available) to Number of Indicators in total of ASSET4; percent
- **SusRepNG**: Dummy; “Does the company publish a separate sustainability report or publish a section in its annual report on sustainability?” (minus dummy variable GRI)
- **GRI**: Dummy; “Is the company's sustainability report published in accordance with the GRI guidelines?”
- **Committee**: Dummy; “Does the company have a CSR committee or team?”
### Panel Regression

<table>
<thead>
<tr>
<th>ESG Score</th>
<th>(1) pooled</th>
<th>(2) random effects</th>
<th>(3) fixed effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMP</td>
<td>1.880***</td>
<td>2.545***</td>
<td>1.942***</td>
</tr>
<tr>
<td>MCAP</td>
<td>2.925***</td>
<td>2.482***</td>
<td>1.360***</td>
</tr>
<tr>
<td>TA</td>
<td>2.383***</td>
<td>2.644***</td>
<td>2.118***</td>
</tr>
<tr>
<td>DA</td>
<td>2.721***</td>
<td>2.979***</td>
<td>1.526***</td>
</tr>
<tr>
<td>Committee</td>
<td>9.689***</td>
<td>9.054***</td>
<td>5.249***</td>
</tr>
<tr>
<td>SusRepNG</td>
<td>9.453***</td>
<td>8.886***</td>
<td>7.442***</td>
</tr>
<tr>
<td>GRI</td>
<td>12.640***</td>
<td>10.418***</td>
<td>10.042***</td>
</tr>
</tbody>
</table>

Control Variables (EPS, ROIC, Leverage, OPM, Income Country, ISO_140XX) … … …

Constant: -186.94*** -214.82*** -225.22*** -106.57*** -124.47*** -131.47***

<table>
<thead>
<tr>
<th>N</th>
<th>27,969</th>
<th>27,969</th>
<th>27,969</th>
<th>27,969</th>
<th>27,969</th>
<th>27,969</th>
<th>27,969</th>
<th>27,969</th>
<th>27,969</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adj. R²</td>
<td>0.682</td>
<td>0.690</td>
<td>0.690</td>
<td>0.455</td>
<td>0.455</td>
<td>0.456</td>
<td>0.318</td>
<td>0.319</td>
<td>0.319</td>
</tr>
<tr>
<td>F Statistic</td>
<td>5,003.56***</td>
<td>5,185.57***</td>
<td>5,193.38***</td>
<td>1,925.03***</td>
<td>1,923.59***</td>
<td>1,933.37***</td>
<td>1,414.86***</td>
<td>1,416.04***</td>
<td>1,416.17***</td>
</tr>
</tbody>
</table>

**H4:** DA influences ESG positively

**H5:** RPD influences ESG positively

**H6:** SIZE influences ESG positively
Structural Equation Modeling (SEM)

**“Does the company have a CSR committee or team?” (Dummy)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>H1: SIZE influences RPD positively</th>
<th>H2: RPD influences DA positively</th>
<th>H3: SIZE influences DA positively</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Employees (log)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RPD</td>
<td></td>
<td>0.06*** (0.001)</td>
<td>0.48*** (0.010)</td>
<td>13.27*** (0.178)</td>
</tr>
<tr>
<td>DA</td>
<td></td>
<td>3.43*** (0.038)</td>
<td>3.31*** (0.022)</td>
<td></td>
</tr>
<tr>
<td>ESG</td>
<td>(ENV+SOC+GOV)/3 (Score)</td>
<td>2.35*** (0.045)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Data Availability Index:** Indicators without NA / all indicators in ASSET4 data base

**H1:** SIZE influences RPD positively

**H2:** RPD influences DA positively

**H3:** SIZE influences DA positively
Discussion

Size, data availability (DA) and resources for providing ESG data (RPD) have a great impact on ASSET4 ESG scores

– Larger companies have more resources (e.g. institutionalized reporting) for providing data and are under greater third party scrutiny
  → higher data availability in ASSET4
  → higher ESG score (independent of the value of the variable)

Finally we cannot answer empirically, whether

– larger companies are more sustainable (compared to smaller companies)
  or whether
– smaller companies are at a disadvantage with Asset4 ratings

At the end of the day: What do we really measure?

Thank you for your attention!

Dr. Bernhard Zwergel