DeeperReflexionModel

Kinif Pierrick

28 mars 2018

Miroshnychenko, Barontini, and Testa (2017)

Variables

Dependent Variables: Two indicators of corporate financial performance (CFP) :

1. Tobin's Q (Y1)
2. ROE (Y2)

Independent variables: Four indicators of Corporate Environmental Performance (CEP) :

1. Internal Pollution Prevention index (X1)
2. Green Supply Chain Management Index (X2)
3. Green Product Index (X3)
4. ISO 14001 (X4)

Control Variables:

1. Financial leverage (X5)
2. Sales Growth (x6)
3. Firm size (X7)
4. Country (X8)
5. Industry Sector (X9)
6. Year dummies

DataBase

The final sample includes 3490 publicly-traded firms from 58 countries and 19 industrial sectors covering the period from 2002 till 2014 inclusively

Hypotheses

H1: Internal PP practices have a positive impact on CFP

H2: Green Supply Chain Management have a positive impact on CFP

H3: Green Product Development Practices have a positive impact on CFP

H4: ISO 14001 adoption has a positive impact on CFP

$$Per_{it} = \beta_0 + \beta_1(PPI_{it-1}) + \beta_2(GSCMI_{it-1}) + \beta_3(GPI_{it-1})$$
$$+ \beta_4(ISO_{it-1}) + \beta_5(Controls_{it-1}) + d_t + c_i + i_i + \varepsilon_{it} \quad (1)$$

where Per_{it} is a proxy of CFP (measured as Tobin's q or ROE), PPI_{it-1} is a proxy for a firm's pollution prevention, $GSCMI_{it-1}$ is a proxy for a firm's green supply chain management, GPI_{it-1} is a proxy for a firm's green product development, ISO_{it-1} is a proxy for a firm's environmental management standards, $Controls_{it-1}$ is a vector of control variables that include financial leverage (total debt-to-total assets ratio), sales growth (difference of logs of net sales) and firm size (the natural logarithm of total assets). d_t, c_i and i_i represent time, country and industry dummies. ε_{it} is an error term.

Figure 1: Econometric Model

Methodology

- **OLS estimators** has been adopted to estimate the main explanatory model. The authors estimate the OLS regression in micro pnael using the **Huber-White sandwich estimators** to account for the heteroscedasticity problem (Long et Erwin 200)

- A series of **univariate tests** (i.e. Independent sample t-test with unequal variances and of Wilkinson rank-sum test) have been performed to compare whether the mean differences and median differences in green practices and in financial performance European Countries and the rest of the world are statistically significant

- **Correlation** for key variables had been measured. They calculated as well the **variance inflation factors** (VIF) of all the independent and control variables to test **the effects of multicollinearity** in the regression analysis.

- They performed 10 models of regression analyses. Model 1 and 2 was performed using both Tobin's q and ROE as CFP proxies and included only X1 and control variables. They did the same for X2, X3 et X4. Model 9 (Y1) and 10 (Y2) contained all variables, namely x1 –> x4 + control variables.

- In order to test the robustness of their model they also performed a **sensitivity analysis**. See paper for further details.

Results

1. H1, H2 and H3 were verified. Besides the major drivers of CFP at the firm level are internal green practices (PP and GSCM) while external green practices (GDP) play a secondary role in determining CFP.

2. The present study clearly reveals that green practices are related to company's future market value, as well as future firm profitability, confirming the general theorization that CEP has a significant positive impact on CFP (Ambec and Lanoie, 2008).

3. Sales Growth is strongly and positively related to CFP in all the models

4. Leverage Ratio influence negatively CFP

5. Firm size is negatively associated with CFP and this effect is more pronounced for Tobin's Q than for ROE

Jasper van Huijgevoort (2017)

Delmas, Nairn-Birch, and Lim (2015)

Variables

Dependent Variables:

CFP indicators :

1. ROA (Y1)
2. Tobin's Q (Y2)

Independent Variables:

CEP indicators:

1. Total greenhouse gas emissions (X1)
2. Water abstraction (X2)
3. General Waste (X3)
4. Volatile Organic compounds (X4)
5. Heavy metals (X5)
6. Natural resources (X6)

Nb: Authors applied log transformations to all of the 6 IV to adjust for the skewed distribution.

Control Variables:

1. KLD concerns (X7)
2. KLD strengths (X8)
3. Disclosure (X9)
4. Growth (X10)
5. Leverage (X11)
6. Capital Intensity (X12)
7. Firm size (X13)

Nb: X10–> X13 is log

Hypotheses

H1: All else equals, the more a firm decreases GHG emissions the lower its short-term financial performance (i.e. ROA)

H2: All else equals, the more a firm decreases carbon emissions the more positive the investors' perceptions of future market performance (i.e. Tobin's Q)

DataBase

1095 US firms corporations from 2004 to 2008

Methodology

- Panel data analyses with fixed effect model (i.e. Haumsman test rejected the random effects model in favor of the fixed effects model for both Y1 and Y2)

- Statistics descriptive (meann sd, min, max + variable description) see table 1 and table 3 (by industry sector) **Note to myself: it could be interesting to take the same layout than table 1 for my thesis**

- Matrix of correlation

- They made 2 models for their fixed effect Regression Analysis (i.e. one for each dependent variable).

Note to myself: I could make a mix between the methodology of dalmas et al2015 and the one of Miroshnychenko2017, namely in my case it will be 6 models: model 1; Regress only green performance variables (+ cv's) on CFP ROA, model 2; Regress only green performance variables (+ cv's) on CFP Tobin's Q, model 3; Regress only green initiatives variables (+ cv's) on CFP ROA, model 4; regress only green initiatives variables (+ cv's) on CFP tobin's q, model 5; Regress all variables (+ cv's) on CFP ROA and finaly model 6; regress all variables (+ cv's) on CFP Tobin's Q.

Results

- Investing in proactive environmental strategies might be costly in the short term, yet profitable in the long term

-

References

Delmas, Magali A., Nicholas Nairn-Birch, and Jinghui Lim. 2015. "Dynamics of Environmental and Financial Performance: The Case of Greenhouse Gas Emissions." *Organization & Environment* 28 (4): 374–93. https://pdfs.semanticscholar.org/cbe5/48cbdb9e569de3c79bad22f1f02442374ac8.pdf.

Jasper van Huijgevoort. 2017. "The Relationship Between ESG Factors and the Corporate Financial Performance: A Study for European Small Capitalization Firms." Universiteit Van Tilburg. http://finance-ideas.nl/wp-content/uploads/2017/11/thesis-jpc.-van-huijgevoort.pdf.

Miroshnychenko, Ivan, Roberto Barontini, and Francesco Testa. 2017. "Green Practices and Financial Performance: A Global Outlook." *Journal of Cleaner Production* 147 (Supplement C): 340–51. doi:10.1016/j.jclepro.2017.01.058.