The relationship between gender diversity and employee representation at the board level and non-financial performance – A cross-country study

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Agenda

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2. Prior Literature & Hypotheses
3. Methodology
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5. Conclusion & Discussion

1. Motivation

1. Employee representation rights at board level
   - differ across countries (existing in most non-Anglo-Saxon countries with a two-tier board system (e.g. Austria, Netherlands, Norway, Denmark, Germany, Slovenia, Czech Rep.)
   - Some firms and countries (e.g. U.S., EU) eye employee representation with suspicion (Lobel & Lofaso, 2013; Sick & Pütz, 2015)
   - Employees are expected to be interested in social and sustainability related activities
2. Gender diversity is positively related to CSR ratings (Bear et al., 2010) and women are more concerned with environmental issues than men (e.g. Diamantopoulos et al., 2013; Mainieri et al., 1997)

→ Do employee representatives and female board members positively affect CSR and environmental performance due to their similar social preferences?

2. Prior Literature & Hypotheses

Employee representation & sustainability

- Agency Theory: Codetermination is a cost factor and inefficient for decision-makings (Jensen & Meckling, 1979)
- However, codetermination could decrease asymmetric information between the management and shareholders (Gerum & Wagner, 1998), by contributing insider knowledge (Fauver & Fuerst, 2006; Overland & Samani (2014)
- Enhancing the firm‘s environmental and CSR performance would:
  - protect employees’ interests & increase employees’ identification with the firm (Vitols, 2011)
  - increase external prestige (Kim et al., 2010) and reduce cost of capital (Dhaliwal et al., 20011)
- ***H_1:*** *One-third employee representation at the board level is positively related to a firm’s CSR and environmental performance*

2. Prior Literature & Hypotheses

Gender diversity & sustainability

- More female board members enhance critical board processes including decision-making (Bear et al., 2010) and reduction of communication barriers as the minority voice becomes more assertive (Konrad, Kramer, & Erkut, 2008; Kramer, Konrad, Erkut, & Hooper, 2006)
- Prior studies have shown that Women's social preferences depend more on the situation than men's (Croson & Gneezy, 2009; Williams, 2003)
- ***H_2:*** *High gender diversity at the board level is positively related to a firm's CSR and environmental performance even after controlling for employee representation as another diversity dimension (stakeholder diversity)*

3. Methodology

- Sample
  - Listed firms from OECD states (excluding emerging countries like Mexico, Chile and Turkey) where CSR data is available
- Data
  - Financial data → COMPUSTAT GLOBAL
  - CSR Performance → ASSET4/MSC ESG STATS
  - Information on bord level employee representation is hand-collected
  - Gender diversity → ASSET4

  → We end up with 24,485 firm-quarter observations between 2001 and 2014

3. Methodology

To test our hypotheses (H_1 and H_2), our model is based on Dhaliwal et al. (2011):

$$A4_CSR_{i,t+1}/A4_ENV_{i,t+1} = \beta_0 + \beta_1 GENDIV_{i,t} + \beta_2 LABOR + \beta_3 ROA_{i,t} + \beta_4 TOBINQ_{i,t} + \beta_5 LEVERAGE_{i,t} + \beta_6 LIQUIDITY_{i,t} + \beta_7 SIZE_{i,t} + \beta_8 LITIGATION_{i,t} + \beta_9 COMPETITION_{i,t} + \beta_{10} GLOBAL_{i,t} + \beta_{11} FIN_{i,t} + \beta_{12} ABS_EM_{i,t} + \beta_{13} CORPGOV_{i,t} + \sum TIME_{i,t} + \sum INDUSTRY_{i,t} + \sum STATE_{i,t} + \varepsilon_{i,t}$$

$A4_CSR_{i,t+1}$ = continuous variable reflecting the Thomson Reuters ASSET4 score in four areas: economic, environment, social and corporate governance of firm *i* in time *t*.

$A4_ENV_{i,t+1}$ = the solely environmental pillar of Thomson Reuters ASSET4

$GENDIV_{i,t}$ = a continuous variable reflecting the proportion of women on the board of directors

$LABOR_{i,t}$ = equal to 1, if firms have minimum one-third labor representatives at supervisory board level, and zero otherwise.

4. Results

Descriptive statistics

Panel A: firm-quarter observations VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) p25	(6) p50	(7) p75	(8) max
Dependent variables								
$A4_CSR_{i,t}$	22,485	0.63	0.28	0.04	0.42	0.73	0.88	0.96
$A4_ENV_{i,t}$	22,485	0.66	0.28	0.09	0.41	0.78	0.91	0.97
$MSCI_CSR_{i,t}$	22,485	4.44	1.61	1.00	3.00	4.00	6.00	7.00
$MSCI_ENV_{i,t}$	22,485	2.31	1.88	1.1	1.4	1.60	1.70	10.00
Variables of interest								
$GENDIV_{i,t}$	22,485	0.09	0.11	0.00	0.00	0.07	0.17	0.43
$MIN3FEM_{i,t}$ (>=3)	22,485	0.15	0.35	0.00	0.00	0.00	0.00	1.00
$LABOR_{i,t}$	22,485	0.10	0.30	0.00	0.00	0.00	0.00	1.00
$FEMEMP_{i,t}$	22,485	0.01	0.03	0.00	0.00	0.00	0.00	0.19
Control variables								
$LIQUIDITY_{i,t}$	22,485	7.59	1.75	-0.16	7.20	8.02	8.58	10.00
$ROA_{i,t}$	22,485	0.01	0.02	-0.07	0.00	0.01	0.02	0.10
$TOBINQ_{i,t}$	22,485	1.03	1.99	0.06	0.38	0.52	0.67	10.00
$LEVERAGE_{i,t}$	22,485	0.57	0.22	0.03	0.43	0.58	0.72	1.00
$SIZE_{i,t}$	22,485	23.36	2.80	18.52	21.23	22.59	25.49	30.99
$LITIGATION_{i,t}$	22,485	0.18	0.39	0.00	0.00	0.00	0.00	1.00
$FIN_{i,t}$	22,485	0.17	0.80	-2.79	-0.00	0.00	0.54	4.77
$GLOBAL_{i,t}$	22,485	0.50	0.50	0.00	0.00	0.00	1.00	1.00
$ABS_EM_{i,t}$	22,485	0.00	0.07	-0.29	-0.02	0.00	0.02	0.30
$COMPETITION_{i,t}$	22,485	-0.28	0.26	-1.00	-0.35	-0.17	-0.11	0.00
$CORPGOV_{i,t}$	22,485	2.97	2.52	0.00	1.40	1.60	5.00	10.00

4. Results

Main Regression results

VARIABLES	(1) $A4_CSR_{i,t+1}$	(2) $A4_ENV_{i,t+1}$	(3) $A4_CSR_{i,t+1}$	(4) $A4_ENV_{i,t+1}$	(5) $A4_CSR_{i,t+1}$	(6) $A4_ENV_{i,t+1}$
$LABOR_{i,t}$	0.095***	0.087***			0.088***	0.081***
	(0.016)	(0.016)			(0.016)	(0.016)
$GENDIV_{i,t}$			0.409***	0.358***	0.004***	0.004***
TIME FE	Yes	Yes	Yes	Yes	Yes	Yes
STATE FE	Yes	Yes	Yes	Yes	Yes	Yes
INDUSTRY FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	22,484	21,283	22,484	21,283	22,484	21,283
Adj. R-squared	0.378	0.371	0.044	0.392	0.393	0.382

- Control variables are untabulated
- **Main Results:** H1 and H2 are confirmed: both variables of interest are positively related to the firm's CSR and environmental performance .

4. Results

Additional Analysis I: Critical mass of three women at board level

VARIABLES	(1) A4_ CSRit+1	(2) A4_ ENV$_i$t+1	(3) MSCI_ CSR$_i$t+1	(4) MSCI_ ENV$_i$t+1
LABOR$_{i,t}$	0.091***	0.083***	0.590***	0.315**
	(0.016)	(0.016)	(0.102)	(0.139)
MIN3FEM$_{i,t}$	0.027***	0.027***	0.219***	0.271***
	(0.004)	(0.005)	(0.033)	(0.048)
TIME FE	Yes	Yes	Yes	Yes
STATE FE	Yes	Yes	Yes	Yes
INDUSTRY FE	Yes	Yes	Yes	Yes
Observations	22,484	21,283	21,283	21,283
Adj. R-squared	0.379	0.372	0.154	0.046

MIN3FEM is equal to one if the number of women on the board is three or above, and zero otherwise

Results

The presence of a critical mass of three women at board level is positively related to the firm's CSR and environmental performance .

4. Results

Additional Analysis II: Female employee representatives

VARIABLES	(1) $A4_CSR_{i,t+1}$	(2) $A4_ENV_{i,t+1}$	(3) $MSCI_CSR_{it+1}$	(4) $MSCI_ENV_{it+1}$
$FEMEMP_{i,t}$	0.319***	0.212***	3.282***	3.715***
	(0.067)	(0.069)	(0.450)	(0.710)
TIME FE	Yes	Yes	Yes	Yes
STATE FE	Yes	Yes	Yes	Yes
INDUSTRY FE	Yes	Yes	Yes	Yes
Observations	22,484	21,283	21,283	21,283
Adj. R-squared	0.378	0.371	0.152	0.045

FEMEMP *represents the proportion of female employee representatives to total board members.*

Results

- The presence of female emplyoee representatives is positively related to the dependent variables.

4. Results

Sensitivity checks

- Using another dataset (MSCI ESG former KLD)
- Excluded firms from Japan, U.S., Sweden, Germany and years of financial crisis 2007 and 2008
- Sample Split between One-tier and two-tier board systems
- No Non-linear relationship
- GMM Estimation which reduces the risk of endogeneity
- Matched sample of similar firms
- Interaction term → no evidence for a substitutional relationship between the two diversity dimensions

➢ Results for our main hypotheses remain the same

5. Conclusion & Limitations

- We consider the two dimensions of board diversity and show that
  - One-third labor representation and gender diversity at the board level is positively related to the firm's environmental and CSR performance
  - Three female board members constitute the critical mass at the board level
- We reduced limitations such as endogeneity issues or systematic differences and Corporate governance systems between Anglo-Saxon and Non-Anglo-Saxon countries
- This paper has larger implications for
  - legislators and firms who seek to regulate CSR activtities indirectly or
  - firms our regulators who eye labor representation or gender diversity with suspicion

Thank you for your attention

References I

- Bear, S., Rahman, N., Post, C., 2010. The impact of board diversity and gender composition on corporate social responsibility and firm reputation. J. Bus. Ethics 97, 207–221.
- Diamantopoulos, A., Schlegelmilch, B.B., Sinkovics, R.R., Bohlen, G.M., 2003. Can socio-demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation. J. Bus. Res. 56, 465–480.
- Dhaliwal, D.S., Li, O.Z., Tsang, A., Yang, Y.G., 2011. Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. Account. Rev. 86, 59–100.
- Fauver, L., Fuerst, M.E., 2006. Does good corporate governance include employee representation? Evidence from German corporate boards. J. Financ. Econ. 82, 673–710.
- Gerum, E., Wagner, H., 1998. Economics of labor co-determination in view of corporate governance. Comp. Corp. Gov. State Art Emerg. Res. Oxf. Univ. Press UK 341–360.
- Kramer, V.W., Konrad, A.M., Erkut, S., Hooper, M.J., 2006. Critical mass on corporate boards: Why three or more women enhance governance. Wellesley Centers for Women.

References II

- Konrad, A.M., Kramer, V., Erkut, S., 2008. Critical Mass: The Impact of Three or More Women on Corporate Boards. Organ. Dyn. 37, 145–164.
- Kim, H.-R., Lee, M., Lee, H.-T., Kim, N.-M., 2010. Corporate social responsibility and employee–company identification. J. Bus. Ethics 95, 557–569.
- Lobel, O., Lofaso, M.A., 2013. System of Employee Representation at the Enterprise: The US Report. Syst. Empl. Represent. Enterp. Comp. Study, WVU Law Research Paper. (Croson & Gneezy, 2009; Williams, 2003)
- Mainieri, T., Barnett, E.G., Valdero, T.R., Unipan, J.B., Oskamp, S., 1997. Green buying: The influence of environmental concern on consumer behavior. J. Soc. Psychol. 137, 189–204.
- Overland, C., Samani, N., 2016. The sheep watching the shepherd: The monitoring performance of boards with employee representatives.
- Vitols, K., 2011. Nachhaltigkeit, Unternehmensverantwortung, Mitbestimmung: ein Literaturbericht zur Debatte über CSR. edition sigma.

Back up

Variable definition I

Variable	Definition
$A4_CSR_{i,t}$	The CSR score ranks firms' CSR performance in economic, environmental, social and governance factors (Source: Thomson Reuters ASSET4).
$A4_ENV_{i,t}$	Thomson Reuters ASSET4's environmental score reflects how well a company uses best management practices to avoid environmental risks and capitalize on environmental opportunities in order to generate long-term shareholder value (Source: Thomson Reuters ASSET4).
$ABS_EM_{i,t}$	We use the absolute value of abnormal accruals from the modified (Jones, 1991) model, based on Dechow et al., 1995), to proxy for earnings quality (Francis et al., 2008) (Source: Compustat).
$AVGGR_{i,t}$	$AVGGR_{i,t}$ is the three-years-average of *growth in sales (sales t0 divided by sales t-1)*.
$AVGLEV_{i,t}$	$AVGLEV_{i,t}$ is the three-year average of $LEVERAGE_{i,t.}$
$AVGLIQ_{i,t}$	$AVGLIQ_{i,t}$ is the three-years-average of $LIQUIDITY_{i,t}$.
$AVGSIZE_{i,t}$	$AVGSIZE_{i,t}$ is the three-year average of $SIZE_{i,t}$.
$COMPETITION_{i,t}$	This index is computed as the sum of the squared fractions of sales of the 50 largest firms in an industry (industries are defined based on the two-digit SIC codes). In cases where there are fewer than 50 firms in an industry, we use all firms in the industry to calculate market shares (Source: Compustat).
$FIN_{i,t}$	*FIN* is measured as the sale of common and preferred shares minus the purchase of common and preferred shares plus the long-term debt issuance minus the long-term debt reduction (Richardson, Teoh, & Wysocki (2004) (Source: Compustat).
$GLOBAL_{i,t}$	Indicator variable that equals 1 if a firm reports foreign income, and 0 otherwise (Source: Compustat).
$GENDIV_{i,t}$	Proportion of women on board of directors. Continuous variable that represents the level of board gender diversity (0-100 percent) (Source: ASSET 4 database).
$LABOR_{i,t}$	Indicator variable that equals 1 if a firm has at least one-third labor representation on supervisory board, and 0 if the board does not include any labor representatives (Source: Hand collected from annual reports).
$LEVERAGE_{i,t}$	We define *LEVERAGE* as the ratio of total debt divided by total assets. (Source: Compustat).
$CORPGOV_{i,t}$	The governmental pillar scores are on an integer scale ranging from 0 to 1 and are interpreted as a metric variable. (Source: MSC ESG).

Variable definition II

Variable	*Definition*
$LITIGATION_{i,t}$	Indicator variable that equals 1 if a firm operates in a high-litigation industry (SIC codes of 2833– 2836, 3570–3577, 3600–3674, 5200–5961, and 7370), and 0 otherwise (Francis et al., 1994; Matsumoto, 2002) (Source: Compustat).
$LIQUIDITY_{i,t}$	Our liquidity measure, LIQUIDITY, is the ratio of the number of shares traded in the year to the total shares outstanding at the year-end (Source: Compustat).
$MAX2FEM_{i,t}$	Indicator variable that equals 1 if a firm has zero but maximum 2 women on supervisory board, and 0 otherwise; Number of Women = GENDIV * board size (Source: Asset 4).
$MIN3FEM_{i,t}$	Indicator variable that equals 1 if a firm has three or more women on supervisory board, and 0 otherwise; Number of Women = *GENDIV* * board size (Source: Asset 4).
$MSCI_CSR_{i,t}$	The alphabetical scores of MSCI ESG are uniformly transformed to an integer scale ranging from 1 (Score C) to 7 (Score AAA) and are interpreted as a metric variable. MSCI ranks firms' CSR performance in Environmental, Social And Governance (ESG) factors (Source: MSC ESG).
$MSCI_ENV_{i,t}$	The environmental pillar scores are integer scale ranging from 0 to 1 and are interpreted as a metric variable. (Source: MSC ESG).
$ROA_{i,t}$	Return on assets (ROA), computed as income before extraordinary items scaled by total assets at the beginning of each year (Source: Compustat).
$SIZE_{i,t}$	Natural logarithm of the market value of common equity at the beginning of each year. (Source: Compustat).
$TIME_{i,t;}$ $STATE_{i,t}$ $INDUSTRY_{i,t;}$	In all specifications, we include time (either quarterly or yearly), industry and country indicators to control for potential time, industry and country effects
$TREATED_{i,t}$	Indicator variable equal to 1 in the pre-period, which are two years before and the post-period, which are three years after a firm's gender diversity score exceeds the 60 percent threshold as provided by the Asset 4 database.
$TOBINQ_{i,t}$	*TOBINQ* is Tobin's Q, defined as the market value of common equity plus the book value of preferred stock, book value of long-term debt and current liabilities, scaled by the book value of total assets (Source: Compustat).

Codetermination levels across OECD states

Level	Scope of codetermination	OECD states
0	No labor representation or voting rights at board level in the private sector.	Australia, Belgium, Canada, Estonia, Greece, Ireland, Iceland, Japan, Latvia, Lithuania, New Zealand, South Korea, Switzerland, United Kingdom, USA, Spain, Mexico, Chile, Israel, Italy, Portugal, France (until 2013), Turkey.
1	Employee representation with up to one-third of all board members including voting rights.	Finland, Poland, France (since 2013), Sweden, Hungary.
2	Obligatory employee representatives on (supervisory) boards with at least one-third voting rights in the private sector.	Czech Republic (until 2014), Austria, Netherlands, Slovak Republic, Norway, Denmark, Germany, Slovenia, Luxembourg.

Own overview is based on European Trade Union Institute's (ETUI, 2014) data and information provided by the German Hans-Böckler-Stiftung (2004) and Conchon et al. (2015), Höpner (2004, 2007) and Niedenhoff (2005).