

Research article

Substitutes or complements? The role of the board in moderating the relationship between board diversity and earnings management

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Supplementary

Appendix A

Table A.1. List and definition of variables.

| Variables | Definition |
|---------------------------|--|
| <i>Dependent variable</i> | |
| EM | Earnings management |
| - AEM | - Accruals earnings management by |
| • AEM1 | • Modified Jones model (Dechow et al., 1995) |
| • AEM2 | • Modified performance-matched model (Kothari et al., 2005; Raman & Shahrur, 2008) |
| • AEM3 | • Modified accruals quality model (Dechow & Dichev, 2002; Francis et al., 2005; McNichols, 2002) |
| - REM | - Real earnings management by Ghaleb et al. (2020); Liao and Ouyang (2019); Roychowdhury (2006) |

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| Variables | Definition |
|--------------------------------------|---|
| • REM1 | • Aggregate REM is computed by the sum of abnormal cash flow and abnormal discretionary expenses |
| • REM2 | • Aggregate REM is computed by the sum of abnormal discretionary expenses and abnormal production |
| • REM3 | • Aggregate REM is computed by the sum of abnormal cash flow, abnormal discretionary expenses and abnormal production |
| <i>Experimental variables</i> | |
| Diversity | Board diversity (Bell et al., 1978, 2011) |
| - Surface | Board's surface level diversity consists of gender, and age |
| - Deep | Board's deep level diversity consists of education, tenure, experience and expertise |
| <i>Instrumental variables</i> | |
| Female employee | Percentage of female employee |
| Board size | The number of directors on the Board |
| <i>Moderators</i> | |
| Monitoring | Boards' monitoring role |
| Advisory | Boards' advisory role |
| <i>Control variables</i> | |
| Firm size | Log of market capitalization |
| Firm age | The number of years of existence |
| ROA | Return on Assets |
| Firm growth | Annual percentage in sales |
| Z-Score | Altman Z-score |
| IFRS | Accounting Standard (dummy variable; 1 if the firm applies IFRS; otherwise, 0) |
| Big4 | Big4 auditor (dummy variable; 1 if the firm uses one of the big four audit firms as the auditor; otherwise, 0) |
| E | Error term |



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