Information Risk Management and IT Executives’ Structural Status in a Top Management Team

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Research Background & Motivation

- **Information as a critical asset in a firm**
- **Legislative Compliance Requirements**
  - Section 404 of SOX, GLBA and HIPAA
- **The Final Responsibility for Information Risk Management rests with Top Executives**
  - IT executives on enterprise-wide collaboration for deploying controls across all functions.
  - IT executive authority, compensation and membership in a TMT as a key ingredient for information risk management.

Hypotheses

- **IT executive involvement in a Top Management Team (TMT)**
  - **H1a and H1b**: IT executives’ direct membership in a TMT decreases information breaches & IT Internal Control Weaknesses

- **Compensation Levels**
  - **H2a and H2b**: The higher the compensation, the higher performance in information risk management.
  - **H2c**: A salary-based contract with task uncertainty of information risk has a larger positive effect on information risk management.

- **Pay Difference as Strong motivation**
  - **H3a and H3b**: When IT executives’ compensation levels are larger than those of non-IT executives within a firm, a firm’s performance in information risk management increases.
  - **H3c**: Pay difference in an Incentive-based contract has a larger positive effect on information risk management.

- **Turnover**
  - **H4a and H4b**: High IT executive turnover may disrupt organizational continuity of IS strategy and hurt firm performance in information risk management.

Results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Model(1)</th>
<th>Model(2)</th>
<th>Model(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a Information breaches</td>
<td>Supported</td>
<td>0.366 (0.215)</td>
<td></td>
</tr>
<tr>
<td>H1b IT internal control weakness</td>
<td>Supported</td>
<td>-0.725 (0.317)</td>
<td></td>
</tr>
<tr>
<td>H2a Information breaches</td>
<td>Supported</td>
<td>-0.37 (1.373)</td>
<td></td>
</tr>
<tr>
<td>H2b IT internal control weakness</td>
<td>Supported</td>
<td>-0.37 (1.373)</td>
<td></td>
</tr>
<tr>
<td>H2c Salary-based contracts</td>
<td>Supported</td>
<td>47.36 (15.29)</td>
<td>6.81 (3.663)</td>
</tr>
<tr>
<td>H3a Information breaches</td>
<td>Supported</td>
<td>-1.74 (15.29)</td>
<td></td>
</tr>
<tr>
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<td>Supported</td>
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<td>H3c Salary-based contracts</td>
<td>Supported</td>
<td>6.81 (3.663)</td>
<td></td>
</tr>
<tr>
<td>H4a Information breaches</td>
<td>Supported</td>
<td>1.04 (0.329)</td>
<td></td>
</tr>
<tr>
<td>H4b IT internal control weakness</td>
<td>Supported</td>
<td>1.47 (0.505)</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion

- **The positive effect of IT executives’ direct relationship with top executives**
- **The lager effect of IT executive compensation in a salary-based contract with task uncertainty of information risk**
- **The lager effect of pay difference between IT and non-IT executives in an Incentive-based contract with task uncertainty of information risk**
- **The importance of organizational continuity of IS strategy in information risk management**

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IT executive involvement in TMTs

- **Compensation Structure**
  - Behavior-based
  - Outcome-based

- **Pay Difference between IT and non-IT executives**
  - Behavior-based
  - Outcome-based

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Research Method: Logistic Regressions

- **Logistic Regression Model**: 0 = 0 + 1X1 + 2X2 + 3X3 + 4X4 + 5X5 + 6X6 + 7X7 + 8X8 + 9X9 + 10X10

- **Data Collection**
  - **Measuring Firms’ Performance in Information Risk Management**
    - Information breach incidents (2003 ~ 2008)
    - Public firms’ 232 breaches among 577 incidents
    - News wire: Lexis/Nexis, Cnet, Zdnet
    - IT internal control weaknesses (2004 ~ 2008)
    - Audit Analytics in WRDS (Section 404)
    - 153 IT internal control weaknesses in public firms
  - **Executive compensation and other information**
    - Execu Comp in WRDS for the S&P 1500

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IT executive compensation Models (2) and (3)

- **Hypothesis**
  - H3: Information breaches
  - H4: IT internal control weakness

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Pay Difference Model (2) and (3)

- **Hypothesis**
  - H5: Pay difference between IT and non-IT executives

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Research Model

- **IT executives Involvement in a TMT**
  - Compensation Structure
    - Behavior-based
    - Outcome-based

- **Pay Difference**
  - IT executive Turnover
    - Continuous

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Descriptive Statistics

- **Firms’ Breaches and ITICW**
  - Information breaches: Salary-based contracts
  - IT internal control weaknesses: Outcome-based

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