The Reliance of External Auditors on Internal Audit’s Use of Continuous Audit

Irina Mălăescu
Steve Sutton, PhD
Purpose

• Evaluate the impact of IA’s adoption of CA on the degree of reliance external auditors place on IA’s work

• AS No. 5 – auditors encouraged to use work already performed by IA
Importance

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From John Verver and Shane Grimm (ACL), “Integrating Analytics into Audit Risk and Compliance”
Contribution

• For practice:
  – Companies and managers -> improve effectiveness of Internal Control
  – Investors
  – Employees
  – Stakeholders

• For research:
  – CA + MW literature -> understand the presence of this technology in Internal Audit environments
Motivation

• Continuous audit technology research:
  - large majority have adopted or plan to adopt CA
    (PwC 2006, IIA 2009)
  - CA/CM in the initiation phase (Vasarhelyi et al 2012)
  - increases in automation of IT processes and controls (Protiviti 2013)

• How willing are auditors to rely on automated control systems and internal auditors’ use of CA?
• Will reliance increase with evidence collected through CA technologies vs. human monitoring?
Hypothesis 1

- \( H1a: \) The external auditor will rely more on internal audit work in a continuous audit environment than a traditional audit environment.
- \( H1b: \) The external auditor will rely less on internal audit work when a prior year audit reports a material weakness over internal controls.
- \( H1c: \) The differential effect of the internal audit testing approach (CA versus traditional) on external auditor’s reliance on internal audit work will be lower in the presence of a prior year material weakness than in the absence of a prior year material weakness.
Hypothesis 2

• H2a: The external auditor will budget fewer hours for the audit of a high complexity account in a continuous audit environment than a traditional audit environment.

• H2b: The external auditor will budget more hours for the audit of a high complexity account when the prior year audit identified a material weakness over internal controls.

• H2c: A continuous audit environment will provide the largest reduction in budgeted audit hours for the valuation of a high complexity account when the prior year audit identified effective internal controls.
Hypothesis 3

- **H3a**: The external auditor will budget fewer audit hours for the engagement in a continuous audit environment than a traditional audit environment.

- **H3b**: The external auditor will budget more audit hours for the engagement when the prior year audit identified a material weakness over internal controls.

- **H3c**: A continuous audit environment will provide a smaller reduction in budgeted audit hours for the engagement when the prior year audit identified a material weakness over internal controls.
Experimental Design

• 2 x 2 between subjects design
  – Target: Big 4 auditors with at least 3 yrs. experience
  – 87 usable responses
  – Incentive: $5 Starbucks or Amazon gift card

• Treatment conditions:
  – Frequency of internal audit testing: continuous audit or traditional audit
  – Prior material weakness: present vs. absent
Experimental Task (I)

• Adapted from Glover et al. (2008)

• Continuing client case:
  – Background information: business, industry, and management
  – Prior year audit report on effectiveness of internal controls (complex account)
  – Current internal control environment (complex account)
Experimental Task (II)

• Dependent Variables:
  – auditor reliance
  – $\Delta$ budgeted audit hours for complex account
  – $\Delta$ budgeted audit hours for engagement

• Manipulation checks

• Demographic information
H1: Reliance on Work Performed by IA

DV Coding: (0 = No reliance, 5 = Moderate reliance, 10 = Extensive reliance)
H1: External auditor reliance

<table>
<thead>
<tr>
<th>RELIANCE ON IA WORK - Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F-Ratio</th>
<th>p-value (one tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Audit</td>
<td>1</td>
<td>40.943</td>
<td>.058</td>
<td>.008</td>
</tr>
<tr>
<td>Material Weakness</td>
<td>1</td>
<td>2.740</td>
<td>.405</td>
<td>.263</td>
</tr>
<tr>
<td>Continuous Audit * Material Weakness</td>
<td>1</td>
<td>26.286</td>
<td>.889</td>
<td>.026</td>
</tr>
</tbody>
</table>

H1a supported
H1b not supported
H1c supported
# With-in subjects effects Analysis

<table>
<thead>
<tr>
<th>RELIANCE ON IA WORK</th>
<th>t-statistic</th>
<th>p-value (one tail)</th>
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<tr>
<td>Planned Comparisons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA – Material Weakness &gt; Traditional Audit – Material Weakness</td>
<td>.348</td>
<td>.365</td>
</tr>
<tr>
<td>CA – Material No Weakness &gt; Traditional Audit – No Material Weakness</td>
<td>3.117</td>
<td>.002</td>
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H1: Reliance on Work Performed by IA

 DV Coding: (0 = No reliance, 5 = Moderate reliance, 10 = Extensive reliance)
H2: Adjustment of Audit Hours Budgeted for Valuing Inventory
H2: Budget adjustment for the audit of a high complexity account

<table>
<thead>
<tr>
<th>BUDGET COMPLEX ACCOUNT – Source</th>
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<th>F-Ratio</th>
<th>p-value (one tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Audit</td>
<td>1</td>
<td>4.621</td>
<td>1.006</td>
<td>.160</td>
</tr>
<tr>
<td>Material Weakness</td>
<td>1</td>
<td>20.080</td>
<td>4.373</td>
<td>.020</td>
</tr>
<tr>
<td>Continuous Audit * Material Weakness</td>
<td>1</td>
<td>.059</td>
<td>.013</td>
<td>.455</td>
</tr>
</tbody>
</table>

**H2a not supported**

**H2b supported**
H2c. A continuous audit environment will provide the largest reduction in budgeted audit hours for the valuation of a high complexity account when the prior year audit identified effective internal controls.

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<tr>
<th>BUDGET COMPLEX ACCOUNT Planned Comparison</th>
<th>t-statistic</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CA-NoMW &lt; CA-MW, Traditional-NoMW, Traditional-MW (+3,-1,-1,-1)</td>
<td>1.830</td>
<td>.036</td>
</tr>
</tbody>
</table>

H2c supported
H2: Adjustment of Audit Hours Budgeted for Valuing Inventory
H3: Adjustment of Audit Hours For Current Year’s Engagement

DV Coding: (-100-0 = % Decrease, 0-100 = % Increase)
**H3: Budget adjustment for the overall audit**

<table>
<thead>
<tr>
<th>OVERALL BUDGET ADJUSTMENT - Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F-Ratio</th>
<th>p-value (one tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Audit</td>
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<td>2289.491</td>
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<td>.090</td>
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<tr>
<td>Material Weakness</td>
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<td>2475.671</td>
<td>1.981</td>
<td>.082</td>
</tr>
<tr>
<td>Continuous Audit * Material Weakness</td>
<td>1</td>
<td>1533.425</td>
<td>1.227</td>
<td>.136</td>
</tr>
</tbody>
</table>

H3a supported

H3b supported
H3c. A continuous audit environment will provide a smaller reduction in budgeted audit hours for the engagement when the prior year audit identified a material weakness over internal controls.

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<td>Traditional Audit – No Material Weakness</td>
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**BUDGET COMPLEX ACCOUNT**

Planned Comparison

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</thead>
<tbody>
<tr>
<td>CA-NoMW &lt; CA-MW, Traditional-NoMW, Traditional-MW (+3,-1,-1,-1)</td>
<td>2.208</td>
<td>.015</td>
</tr>
</tbody>
</table>

H3c supported
H3: Adjustment of Audit Hours For Current Year’s Engagement

DV Coding: (-100-0 = % Decrease, 0-100 = % Increase)
Conclusion

• CA implementation => behavioral effects on external auditors’ decision processes
• Results consistent with regulatory guidelines
• Higher reliance in an automated setting (CA)
• CA benefits diminish – companies with history of control deficiencies
• Lowest budgeted hours when CA + No MW
Discussion

• MW => additional work scheduled
• CA system:
  – hours for increased efficiency
  + hours for robustness and design assessment

• Year-over-year increase in audit fees (Protiviti)
• Short term vs. long term effects
Importance

↑ More automated environments
↑ Improved auditor reliance
↓ Possible budget reduction
↓ Lower audit fees

• Understand the effects of implementing CA technology in Internal Audit settings
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