24th XBRL International Conference

“Transparency: with Available, Reliable, Comparable and Re-usable Data”

March 20-22, 2012
Abu Dhabi, UAE

Academic Track: “Capital Market Implications of XBRL Adoption”,
S. Nurwahyu Harahap,
March 22, 2012
RESEARCH GAP

1. Studies of XBRL from the accounting discipline is very limited
2. In its comment on SEC’s XBRL Voluntary Filing Program, American Accounting Association (AAA) urged the academic community to conduct studies on this program, including capital market implications of the XBRL voluntary filings (Debreceny et al., 2005).
3. Debreceny and Gray (2001)
   a. proposed 2 research agendas:
      • identification of characteristics of the voluntary adopters of XBRL
      • identification of impact of voluntarily XBRL adoption
   b. Suggested employment of theories and research approaches of the voluntary disclosure literature
4. In its release, SEC expresses its belief that financial information in XBRL format enables more efficient and effective retrieval, research, and analysis of financial information. It will lead to more analyst coverage and higher investor interest in registrants’ securities. Overall, these will result in increased liquidity in the market and lower the cost of capital (SEC, 2007). Need empirical support
5. Studies on quality of disclosure mainly focus on the content of disclosure, not the format. There is no evidence that higher disclosure quality in terms of more accessibility has the same capital market effects as the increase in disclosure content.
RESEARCH QUESTION

- What are the capital market implications of voluntary and mandatory XBRL adoption?
  - Information asymmetry
  - Number of Analyst Following
  - Cost of Capital
XBRL adoption in US

- February 3, 2005: SEC established a voluntary program for registrants to file supplemental financial information using XBRL through EDGAR
- Up to Dec 31, 2008: 25 firms and investment funds participated in the program.
LITERATURE REVIEW

- Tan and Shon (2009): volunteers of SEC’s XBRL Filing Program experienced an increase in analyst following and a decrease in information asymmetry subsequent to their XBRL filing for the first time.

- Yoon et al. (2011): found a significant negative association between XBRL adoption and information asymmetry in Korean Stock Market.

- Extension:
  - Impact of XBRL adoption on cost of capital
  - Impact of mandatory adoption
LITERATURE REVIEW

- Voluntary disclosure generally associates with reduced information asymmetry, increased following by financial analysts, and reduction in the cost of capital (Healy and Palepu, 2001).

- Mandatory disclosure results in
  (i) more information production by analyst that leads to reduction in information asymmetry (Bushee et al., 2004; Gintschel and Markov, 2004; Chiyachantana et al., 2004),
  (ii) positive abnormal returns for large firms (Chhaochharia and Grinstein, 2007; Wu and Zimmerman, 2009).
Agency Theory

XBRL improves the quality of financial information

Lower information acquisition cost

Less information asymmetry

More analyst following

Lower Cost of Capital
Hypothesis

- **H1**: XBRL adopters experience **decrease in information asymmetry** after the XBRL adoption.
- **H2**: XBRL adopters experience **increase in numbers of analysts following** after the XBRL adoption.
- **H3**: Lower information asymmetry due to XBRL adoption decreases cost of capital.
- **H4**: Higher analyst following due to XBRL adoption decreases cost of capital.
- **H5**: XBRL adopters experience **decrease in cost of equity capital** after the XBRL adoption.
RESEARCH FRAMEWORK

XBRL REPORTING  \(\rightarrow\) Higher Quality of Financial Information

- H1: Lower Information Asymmetry
- H2: Higher Analysts Following
- H3: Lower Cost of Equity

H5: \(\leftarrow\)
Regression model (H1), voluntary adoption:

\[ \Delta \text{ASYMMETRY}_t = \beta_0 + \beta_1 \text{DISC} + \beta_2 \text{XBLR}_t + \beta_3 \Delta \text{SIZE}_t + \beta_4 \Delta E_{-VOL}_t + \beta_5 \Delta \text{RE-CORR}_t + \beta_6 \Delta E_{-SURP}_t \]  (1)

where,

- ASYMMETRY = Information asymmetry, measured as:
  - DISPERSION: standard deviation of inter analyst EPS forecast, deflated by closing stock price in t−1
  - ACCURACY: difference between forecast and actual EPS, deflated by closing stock price deflated by closing stock price in t−1
- \( \Delta \text{ASYMMETRY}_t = \text{ASYMMETRY}_t - \text{ASYMMETRY}_{t-1} \) as in Botosan and Harris (2000) that investigate the impact of changes in frequency of segment disclosure
- XBRL = 1 for firms participating in SEC’s voluntary XBRL program, 0 otherwise
Regression model (H1) cont:

\[ \Delta \text{ASYMMETRY}_t = \beta_0 + \beta_1 \text{DISC} + \beta_2 \text{XBLR}_t + \beta_3 \Delta \text{SIZE}_t + \beta_4 \Delta \text{E_VOL}_t + \beta_5 \Delta \text{RE_CORR}_t + \beta_6 \Delta \text{E_SURP}_t \] (1)

DISC, SIZE, E_VOL, RE_CORR and E_SURP serve as control variables as in Lang and Lundholm (1996)

where,

- DISC = S&P ranking, 1 for high-ranked firms, 0 otherwise
- SIZE = Ln of Total Assets
- E_VOL = standard dev of ROE over previous 5 years
- RE_CORR = correlation between annual stock returns and ROE over last 5 years
- E_SURP = absolute value of difference between EPS in year t and t–1, deflated by closing stock price in t–1
Regression model (H2), voluntary adoption:

\[
\Delta NAF_t = \beta_0 + \beta_1 \text{DISC} + \beta_2 \text{XBLR}_t + \beta_3 \text{CG} + \beta_4 \Delta \text{SIZE}_t \\
+ \beta_5 \Delta \text{E_VOL}_t + \beta_6 \Delta \text{RE_CORR}_t
\]

(2)

where,

- NAF = number of analysts following the firms
- CG = Corporate Governance score

an additional control variable as in Lang et al. (2003) that find analysts are less likely to follow firms with potential incentives to withhold or manipulate information

- All other variables are as previously defined
Regression model (H3 and H4), voluntary adoption:

\[
\Delta \text{CoE}_t = \beta_0 + \beta_1 \text{E}_{\Delta \text{ASYMMETRY}}_t + \beta_2 \text{E}_{\Delta \text{NAF}}_t + \beta_3 \text{DISC} + \beta_4 \Delta \text{Size}_t
\]

(3)

where,

- \text{CoE} = \text{Cost of Equity Capital, measured as Beta}
- \text{E}_{\Delta \text{ASYMMETRY}} = \text{fitted value of } \Delta \text{ASYMMETRY} \text{ obtained from eq (1)}
- \text{E}_{\Delta \text{NAF}} = \text{fitted value of } \Delta \text{NAF} \text{ obtained from eq (2)}
- \text{DISC and SIZE serve as control variables as in Botosan (1997).}
Regression model (H5), voluntary adoption:
\[ \Delta \text{CoE}_t = \beta_0 + \beta_1 \Delta \text{ASYMMETRY}_t + \beta_2 \Delta \text{NAF}_t + \beta_3 \text{DISC} + \beta_4 XBLR_t + \beta_5 \Delta \text{SIZE}_t \]  

(4)

Similar to Model (3) except that XBLR enters the equation as independent variable to test its direct impact to CoE, while \( \Delta \text{ASYMMETRY} \) and \( \Delta \text{NAF} \) as control variables
RESEARCH METHOD

Regression model to (H1 – H5), mandatory adoption:

\[
\Delta \text{ASYMMETRY}_t = \beta_0 + \beta_1 XBLR_{\text{adopt}} + \beta_2 \Delta \text{SIZE}_t \\
+ \beta_3 \Delta \text{E_VOL}_t + \beta_4 \Delta \text{RE_CORR}_t + \beta_5 \Delta \text{E_ SURP}_t 
\]  

(5)

\[
\Delta \text{NAF}_t = \beta_0 + \beta_1 XBLR_{\text{adopt}} + \beta_2 \Delta \text{SIZE}_t + \beta_3 \Delta \text{E_VOL}_t \\
+ \beta_4 \Delta \text{RE_CORR}_t
\]  

(6)

\[
\Delta \text{CoE}_t = \beta_0 + \beta_1 \Delta \text{ASYMMETRY}_t + \beta_2 \Delta \text{NAF}_t + \beta_3 \text{DISC} \\
+ \beta_4 XBLR_{\text{adopt}} + \beta_4 \Delta \text{SIZE}_t
\]  

(7)

Similar to Model 1–4 except the definition of XBLR variable as all companies in the sample are mandated to adopt XBRL, \( XBLR_{\text{adopt}} = 1 \) in the year of adoption (2009), 0 for 2007&2008.
RESEARCH METHOD: Source of Data

- SEC’s website: to identify participants of XBRL program [http://viewerprototype1.com/viewer](http://viewerprototype1.com/viewer)

- Institutional Shareholder Services (ISS): CG score data, 2003 – 2005 (available at [www.robinson.gsu.edu/accountancy/gov_score.html](http://www.robinson.gsu.edu/accountancy/gov_score.html))

RESEARCH METHOD: Source of Data (cont)

- OSIRIS: financial data
- I/B/E/S: analysts following, analyst forecast data, and actual EPS
- Value Line: stock price, returns and beta data (available at www.damodaran.com)
RESEARCH METHOD: Sample Selection

<table>
<thead>
<tr>
<th>Data Requirement</th>
<th>Total samples</th>
<th>Sub Sample</th>
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<tr>
<td></td>
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<td>XBRL</td>
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<td>S&amp;P original data</td>
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<td>Bank and insurance</td>
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<td>No beta data</td>
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<td>Firm years (2005-2008): voluntary model</td>
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<td>188</td>
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<tr>
<td>Firm years (2007-2009): mandatory model</td>
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<td>141</td>
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### Impacts on Information Asymmetry: Correlation Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>ΔDISP&lt;sub&gt;t&lt;/sub&gt;</th>
<th>ΔACC&lt;sub&gt;t&lt;/sub&gt;</th>
<th>DISC</th>
<th>XBRL</th>
<th>ΔSIZE&lt;sub&gt;t&lt;/sub&gt;</th>
<th>ΔE_VOL&lt;sub&gt;t&lt;/sub&gt;</th>
<th>ΔRE_CORR&lt;sub&gt;t&lt;/sub&gt;</th>
<th>ΔSURP&lt;sub&gt;t&lt;/sub&gt;</th>
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</table>

*** significant at the 0.01 level (1-tailed).

** significant at the 0.05 level (1-tailed).
Impacts on Information Asymmetry: regression analysis

Model (1): $\Delta\text{DISP}_t = \beta_0 + \beta_1 \text{DISC} + \beta_2 \text{XBLR}_t + \beta_3 \Delta\text{SIZE}_t + \beta_4 \Delta\text{E_VOL}_t + \beta_5 \Delta\text{RE CORR}_t + \beta_6 \Delta\text{SURP}_t$

<table>
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<tr>
<th>Variables</th>
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<th>t-value</th>
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<td>1.0199</td>
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<tr>
<td>$\Delta\text{E_VOL}_t$</td>
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<td>0.353580 ***</td>
<td>2.8218</td>
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<tr>
<td>$\Delta\text{RE CORR}_t$</td>
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<td>0.067819 ***</td>
<td>3.0615</td>
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<tr>
<td>$\Delta\text{SURP}_t$</td>
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<tr>
<td>Constant</td>
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<td>0.002197 **</td>
<td>1.9630</td>
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</tbody>
</table>

R2               | 0.0942          |
Adj. R2          | 0.0888          |
F                | 17.4804 ***     |
Durbin-Watson    | 2.1837          |

*** significant at the 0.01 level (1-tailed).
** significant at the 0.05 level (1-tailed).
* significant at the 0.10 level (1-tailed).
Impacts of voluntary adoption on Information Asymmetry: discussion

- XBRL does not have significant correlation with both measures of information asymmetry: $\Delta$DISP and $\Delta$ACC
- XBRL does not significant relationship to $\Delta$DISP
- Additional test using $\Delta$ ACC arrives in consistent result (H1 is not supported)
- Contrary to Tan and Shon (2009) that used bid–ask spread as measure of information asymmetry
Impacts of voluntary adoption on Information Asymmetry: discussion

possible explanations:

- XBRL filings contain multiple errors (Bartley et al., 2009)
- users, analysts in particular, are not aware of XBRL’s potential to improve the quality of financial information (CFA Institute, 2008)
- measures based on analysts forecast misstate the degree of information asymmetry (Clarke and Shastri, 2000)
Impacts on NAF: correlation analysis

<table>
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<tr>
<th>Variables</th>
<th>ΔNAF&lt;sub&gt;t&lt;/sub&gt;</th>
<th>DISC</th>
<th>XBRL</th>
<th>CG</th>
<th>ΔSIZE&lt;sub&gt;t&lt;/sub&gt;</th>
<th>ΔE_VOL&lt;sub&gt;t&lt;/sub&gt;</th>
<th>ΔRE_CORR&lt;sub&gt;t&lt;/sub&gt;</th>
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<td>-.005</td>
<td>.091**</td>
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<td>.110**</td>
<td>-.009</td>
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<td>CG</td>
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<td>1</td>
<td>-.196**</td>
<td>-.121**</td>
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<td></td>
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<td>.063*</td>
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<tr>
<td>ΔRE_CORR&lt;sub&gt;t&lt;/sub&gt;</td>
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<td></td>
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</tbody>
</table>

*** significant at the 0.01 level (1-tailed).
** significant at the 0.05 level (1-tailed).
Impacts on NAF: \textit{regression analysis}

Model (2): \[ \Delta NAF_t = \beta_0 + \beta_1 \text{DISC} + \beta_2 \text{XBRL} + \beta_3 \text{CG} + \beta_4 \Delta \text{SIZE}_t + \beta_5 \Delta \text{E_VOL}_t + \beta_6 \Delta \text{RE_CORR}_t \]

<table>
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<tr>
<th>Variables</th>
<th>Predicted Sign</th>
<th>Coefficient</th>
<th>t-value</th>
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<td>\Delta \text{SIZE}_t</td>
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<td>\Delta \text{E_VOL}_t</td>
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<td>\Delta \text{RE_CORR}_t</td>
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<td>-0.4308</td>
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</table>

\begin{align*}
\text{R}^2 & = 0.0127 \\
\text{Adj. R}^2 & = 0.0069 \\
F & = 2.1685 \quad ** \\
\text{Durbin-Watson} & = 2.3828 \\
\end{align*}

*** significant at the 0.01 level (1-tailed).  
** significant at the 0.05 level (1-tailed).  
* significant at the 0.10 level (1-tailed).
Impactsof Voluntary Adoption on NAF: *discussion*

- DISC: quality of disclosure is a factor that attract analyst attention (Lang & Lundholm, 1996; Francis et al., 1998; Healy et al., 1999)
- further increase in quality of disclosure by providing financial info in XBRL format does not increase NAF
- analysts have not used XBRL to support their analyses, therefore they do no put special interest to firms adopting XBRL
- Contrary to Tan and Shon (2009) that use absolute NAF as dependent variable instead of change
Additional Analysis of model (1) and (2)

- Separation between early and late adopters

\[ \Delta \text{ASYMMETRY}_t = \beta_0 + \beta_1 \text{DISC} + \beta_2 \text{XBLR}_{\text{early}} + \beta_3 \text{XBLR}_{\text{late}} + \beta_4 \Delta \text{SIZE}_t + \beta_5 \Delta \text{E_VOL}_t + \beta_6 \Delta \text{RE CORR}_t + \beta_7 \Delta \text{SURP}_t \]

\[ \Delta \text{NAF}_t = \beta_0 + \beta_1 \text{DISC} + \beta_2 \text{XBLR}_{\text{early}} + \beta_3 \text{XBLR}_{\text{late}} + \beta_4 \text{CG} + \beta_5 \Delta \text{SIZE}_t + \beta_6 \Delta \text{E_VOL}_t + \beta_7 \Delta \text{RE_CORR}_t \]

consistent with the results of the original model: XBRL voluntary adoption does not reduce information asymmetry or increase NAF
Additional Analysis of model (1) and (2)

- Impact in adoption year only

\[
\Delta \text{ASYMMETRY}_t = \beta_0 + \beta_1 \text{DISC} + \beta_2 XBLR_{\text{year}} + \beta_3 \Delta \text{SIZE}_t + \beta_4 \Delta \text{E_VOL}_t + \beta_5 \Delta \text{RE CORR}_t + \beta_6 \Delta \text{SURP}_t
\]

\[
\Delta \text{NAF}_t = \beta_0 + \beta_1 \text{DISC} + \beta_2 XBLR_{\text{year}} + \beta_3 \text{CG} + \beta_4 \Delta \text{SIZE}_t + \beta_5 \Delta \text{E_VOL}_t + \beta_6 \Delta \text{RE\_CORR}_t
\]

consistent with the results of the original model (2) and (3): XBRL voluntary adoption does not reduce information asymmetry or increase NAF
Addition of moderating variables

\[ \Delta \text{ASYMMETRY}_t = \beta_0 + \beta_1 \text{DISC} + \beta_2 \text{XBLR}_t + \beta_3 \Delta \text{SIZE}_t + \beta_4 \Delta \text{E_VOL}_t + \beta_5 \Delta \text{RE\_CORR}_t + \beta_6 \Delta \text{SURP}_t + \beta_7 \text{ASYMMETRY}_t + \beta_8 \text{XBRL}_t \ast \text{ASYMMETRY}_t \]

\[ \Delta \text{NAF}_t = \beta_0 + \beta_1 \text{DISC} + \beta_2 \text{XBLR}_t + \beta_3 \text{CG} + \beta_4 \Delta \text{SIZE}_t + \beta_5 \Delta \text{E_VOL}_t + \beta_6 \Delta \text{RE\_CORR}_t + \beta_7 \text{NAF}_t + \beta_8 \text{XBRL}_t \ast \text{NAF}_t \] (2a)

results: XBRL voluntary adoption does not reduce information asymmetry
### Additional Analysis of model (1) and (2)

#### Model (2a)

<table>
<thead>
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<th>Variables</th>
<th>Predicted Sign</th>
<th>Coefficient</th>
<th>t-value</th>
</tr>
</thead>
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<td>DISC</td>
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<td>-0.7863</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>R²</td>
<td>0.0127</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.0069</td>
</tr>
<tr>
<td>F</td>
<td>2.1685 **</td>
</tr>
<tr>
<td>Durbin-Watson</td>
<td>2.3828</td>
</tr>
</tbody>
</table>

*** significant at the 0.01 level (1-tailed).

** significant at the 0.05 level (1-tailed).

* significant at the 0.10 level (1-tailed).

The impact of XBRL adoption on ΔNAF is moderated by the level of NAF. Adopters with relatively high NAF experience smaller NAF increase, implying that the impact of XBRL adoption to NAF applies only to adopters with relatively low NAF.
# Impacts on Cost of Equity Capital: correlation analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>ΔCOEt</th>
<th>ΔDISPrt</th>
<th>ΔACCt</th>
<th>ΔNAFt</th>
<th>DISC</th>
<th>XBRL</th>
<th>ΔSIZEt</th>
</tr>
</thead>
<tbody>
<tr>
<td>ΔCOEt</td>
<td>1</td>
<td>-.003</td>
<td>.014</td>
<td>.036</td>
<td>.030</td>
<td>-0.075**</td>
<td>-.031</td>
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<tr>
<td>ΔDISPrt</td>
<td></td>
<td>1</td>
<td>.610**</td>
<td>-.059*</td>
<td>-.046</td>
<td>.042</td>
<td>-.168**</td>
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<tr>
<td>ΔACCt</td>
<td></td>
<td></td>
<td>1</td>
<td>-.016</td>
<td>-.029</td>
<td>.042</td>
<td>-.161**</td>
</tr>
<tr>
<td>ΔNAFt</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>.037</td>
<td>-.023</td>
<td>.091**</td>
</tr>
<tr>
<td>DISC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>.050</td>
<td>-.020</td>
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<tr>
<td>XBRL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>-0.009</td>
</tr>
<tr>
<td>ΔSIZEt</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

*** significant at the 0.01 level (1-tailed).

** significant at the 0.05 level (1-tailed).
Impacts on Cost of Equity Capital: *Regression Analysis*

Model (4): \( \Delta COE_t = \beta_0 + \beta_1 \Delta ASYMMETRY_t + \beta_2 \Delta NAF_t + \beta_3 \text{DISC} + \beta_4 \text{XBRL}_t + \beta_5 \Delta \text{SIZE}_t \)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Predicted Sign</th>
<th>Coefficient</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \Delta \text{DISP}_t )</td>
<td>+</td>
<td>-0.0286</td>
<td>-0.0417</td>
</tr>
<tr>
<td>( \Delta \text{NAF}_t )</td>
<td>-</td>
<td>0.0018*</td>
<td>1.3117</td>
</tr>
<tr>
<td>DISC</td>
<td>-</td>
<td>0.0098*</td>
<td>1.4560</td>
</tr>
<tr>
<td>XBRL(_t)</td>
<td>-</td>
<td>-0.0390***</td>
<td>-2.4377</td>
</tr>
<tr>
<td>( \Delta \text{SIZE}_t )</td>
<td>-</td>
<td>-0.0335</td>
<td>-1.0173</td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>-0.0229*</td>
<td>-1.4459</td>
</tr>
</tbody>
</table>

| R2            | 0.0090         |
| Adj. R2       | 0.0041         |
| F             | 1.8418*        |
| Durbin-Watson | 2.1159         |

*** significant at the 0.01 level (1-tailed).
** significant at the 0.05 level (1-tailed).
* significant at the 0.10 level (1-tailed).
Impacts of Voluntary Adoption on CoE: *discussion*

- Voluntary participation may be perceived as firms’ willingness to improve the quality of disclosure so that inventors’ confidence on these firms increase. Investors may reduce their risk premiums on the stock, thus lowering the firms’ cost of capital (Li & Pinsker, 2005).
<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Impact</th>
<th>Expected sign</th>
<th>Voluntary</th>
<th>Mandatory</th>
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</thead>
<tbody>
<tr>
<td>H12</td>
<td>Information Asymmetry</td>
<td>-</td>
<td>X</td>
<td>V</td>
</tr>
<tr>
<td>H13</td>
<td>Number of Analysts Following</td>
<td>+</td>
<td>X V*</td>
<td>V</td>
</tr>
<tr>
<td>H16</td>
<td>Cost of Equity</td>
<td>-</td>
<td>V</td>
<td>X*</td>
</tr>
</tbody>
</table>

V = Accepted, X = Rejected, V* = applies to adopters with previous low NAF, X* = significant, sign +
Impacts of Mandatory Adoption: discussion

- When XBRL becomes mandatory, it associates to lower information asymmetry and higher NAF, implying that analysts postpone using XBRL until it is mandatory, when more firms file their financial information in XBRL format.

- Contrary to voluntary adoption that associates to lower CoE, mandatory adoption associates to higher CoE, which may represent markets’ perception on the higher risk of XBRL mandatory adoption.
CONCLUSION

- Impacts of XBRL voluntary adoption
  - No support for hypotheses that XBRL adoption results in lower information asymmetry and higher number of analyst following.
  - Increase in NAF applies only to firms with previous low NAF
  - Support for direct impact on reduction of cost of capital.

- Impacts of XBRL mandatory adoption
  - Mandatory adoption associates to reduction of information asymmetry, increased analysts following, and increased cost of capital.
IMPLICATION

Academic

- contributes to limited number of XBRL research, particularly in accounting discipline
- providing evidences on the impacts of XBRL adoption
- integrates previous studies on disclosure and studies in the use of technology for financial reporting.
Regulator

- promote the fact that voluntary adopters enjoy decrease in cost of capital.
- offer incentives for voluntary adoptions. As many firms participate in voluntary program, XBRL adoption impact on analysts following takes place.
Regulator

- Once XBRL becomes mandatory, cost of capital increase, implying market’s perception that XBRL adoption associates to higher risk.
- Regulators may start with voluntary program and conduct careful evaluation before mandating XBRL adoption. XBRL adoption in two phases may minimize the negative impact such as higher info asymmetry.
LIMITATION

- Due to constraint in data availability, measurement of CG and DISC variables is based on outdated data, with the assumption that these data remain constant until 2008.
- Constraint in availability of longitudinal data does not differentiate the extent of disclosure prepared in XBRL format. Extent of XBRL adoption may have different impact
Thank You

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