Asian Journal of Accounting Research

Number 1

1. International editorial board
2. Board characteristic and corporate environmental reporting in Nigeria
   Usman Shehu Aliyu
18. Stock return and financial performance as moderation variable in influence of
good corporate governance towards corporate value
   Sunjade, Nurulzah, Sri Rigel Handayani and Sri Mangesti Rahayu
35. Debt maturity structure, institutional ownership and accounting conservatism:
evidence from Iranian listed companies
   Mahdi Salehi and Mohsen Sehat
52. Do diligent independent directors restrain earnings management practices? Indian
   lessons for the global world
   Nimisha Kapoor and Sandeep Goel
70. The role of country tax environment on the relationship between financial
derivatives and tax avoidance
   Oktavia Oktavia, Sylvia Veronica Siregar, Ratna Wardhani and Ning Rahayu
95. The value relevance of R&D and free cash flow in an efficient investment setup:
evidence from Chinese A-listed firms
   Waqas Bin Khidmat, Man Wang and Sadia Awan
112. Financial statements disclosure on Indonesian local government websites: a quest
   of its determinant(s)
   Wahyudin Nor, Muhammad Hudaya and Rifqi Novriyandana
129. The effect of company characteristics and auditor characteristics to audit report lag
   Muhammad Rifqi Abdillah, Agus Widodo Mardijuwono and Habiburrochman Habiburrochman
145. The effects of audit client tenure, audit lag, opinion shopping, liquidity ratio, and
   leverage to the going concern audit opinion
   Ranmat Akbar Simamora and Hendargatno Hendargaradno
157. The effects of auditor switching towards abnormal return in manufacturing company
   Filmar Yunida Nawangsihi and Iswajuni Iswajuni

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Board characteristic and corporate environmental reporting in Nigeria

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Abstract

Purpose – The issue that revolves around corporate governance and corporate environmental reporting (CER) has always been an essential element deliberated upon globally. A good corporate governance mechanism instills an investor’s confidence and ensures a transparent process that facilitates more disclosures and quality reporting. Precisely, the purpose of this paper is to investigate the relationship between corporate governance variables, namely, board size, board independence, board meeting (BM), risk management committee composition and CER in Nigeria. This study utilized the data obtained from the annual reports of 24 non-financial public listed companies in the Nigeria Stock Exchange comprising three sectors, namely, industrial goods, natural resources and oil & gas for the period of 2011–2015. The model of this study is theoretically based on agency theory. In analyzing data, this study utilized panel data analysis. Based on the Hausman test, the random effect model was used to examine the effect of predictors on CER. The result indicates a positive significant relationship between board independence and CER. Similarly, a positive significant relationship between BM and CER is revealed in the study. However, there is no significant relationship between other hypothesis variables and CER. Finally, the study provides suggestions for future research and several recommendations for regulators, government and accounting professional bodies.

Design/methodology/approach – The data was analysed using statistics.

Findings – The result indicates a positive significant relationship between board independence and CER. Similarly, a positive significant relationship between BM and CER is revealed in the study. However, there is no significant relationship between other hypothesis variables and CER.

Originality/value – There are no prior studies linking risk management committee with CER.

Keywords Corporate governance, Board of Directors, Corporate environmental reporting, Risk management committee

Paper type Research paper

Introduction

Historically, the primary aim of traditional corporate reporting is to communicate economic information and measurements about the resources and performance of the company’s financial and non-financial indicators for informed decision making (ASSC, 1975). There are basically two types of corporate reporting, namely, mandatory and voluntary. While mandatory disclosure refers to the disclosure required by laws from regulatory organizations or accounting standards, the voluntary disclosure refers to the information that the company willingly chooses to disclose for different reasons.

In recent years, economic growth and development are perceived to have an adverse effect on the environment, thus it has become a matter of public concern both locally and internationally. The corporate world is increasingly being pressurized to provide more information about the effect of their operation activities on the environment (Uwalomwa, 2011). Thus, corporate environmental reporting (CER) has become an important topic of national and international discourse.

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The public demand for more CER has greatly improved, as stakeholders have become more conscious. Pramanik et al. (2008) perceived CER as a “universal issue” with a persistent demand for harmonization of environmental costs and liabilities of accounting reporting.

The corporate environmental report is established to provide environmental information, such as corporate activities in protecting and preserving the natural environment (Shearer, 2002). This report shows the organizations stride toward the environment and strategists adapted to source for alternative measures that are less harmful to the environment. The companies are expected to voluntarily establish a report of their non-financial activities that improved the well-being of human, community, workplace, market and environment.

However, Rouf (2011) argues that CER more at times does not serve the need of external users because top management of the organization are more likely to pursue their personal interests when taken managerial decisions, and the resultant effect is more disclosure gap such as the variance between actual and expected disclosure.

The choice to disclose or not to disclose more information largely depends on several factors like corporate and board characteristics (Sheila et al., 2012). Therefore, the code on corporate governance 2011 was introduced in Nigeria to facilitate quality information presented by corporate entities in Nigeria.

Universally, committee of nations, supranational organization and government have also established their concern over the environment through initiating policies and rules, such as the International Financial Reporting Standard Board (IFRSB), Global Reporting Initiative (GRI) and the Association of Chartered Certified Accountants (ACCA).

For instance, the IFRSB has introduced Financial Reporting Standard (FRS) 101 – Presentation of Financial Statements which require firms to declare their environmental information on human activities that could have an effect on the environment. Conversely, GRI is an organization established not to make a profit but to promote social, economic, environmental and sustainability through developing a framework of sustainability reporting that is widely used globally for all types of businesses, large or small. It has launched its latest framework in 2013 which is called the G4. This newly improved framework includes a harmonization with other vital global frameworks, including the Organization for Economic Cooperation and Development Guidelines for Multinational Companies, the United Nation Global Compact Principles and the United Nations Guiding Principles of Business and Human Rights.

Previously, there were several studies on CER practices in public listed companies globally with a limited number of studies conducted in Africa, especially in Nigeria. Most of the studies found that CER was done on a voluntary basis (see Ku-Ismail and Ibrahim, 2009; Joshi et al., 2011; Suttipun and Stanton, 2012).

CER among companies has increased such that studies have encouraged future prospect for mandatory disclosure of environmental information (Galani et al., 2011; Suttipun and Stanton, 2012). Recently, some countries for instance China, Denmark, The Netherlands and Norway have made CER as one of the compulsory disclosures in the company’s annual reports.

Environmental reporting issues are considered a vital component of corporate governance. This is in accordance with the new provision of code on corporate governance best practices. To the best of the researcher’s knowledge, there is no comprehensive prior study conducted in Nigeria in the context of examining risk management committee attributes relationship with CER in the three environmentally sensitive industries (Industrial goods, natural resources and Oil & gas).

Therefore, there is a need to have convergence between CER and corporate governance to ensure more environmental reporting disclosures. Irrespective of the importance of corporate governance and its possible impact on organizations to disclose more CER, there are limited studies conducted in this area (Buniamin et al., 2008). Therefore, the study
intends to ascertain whether there is any relationship between the board of directors, risk management committee and CER.

Research questions
This study seeks to find answers to the following research questions:

RQ1. Does board size (BS) influence CER in Nigeria?

RQ2. Does board independence influence CER in Nigeria?

RQ3. Does board meeting (BM) influence CER in Nigeria?

RQ4. Does risk management committee composition influence CER in Nigeria?

Research objectives
The research objectives of this study are as follows:

(1) to examine the BS influence on CER in Nigeria;
(2) to examine the board independence influence on CER in Nigeria;
(3) to examine the BM influence on CER in Nigeria; and
(4) to examine the risk management committee composition influence on CER in Nigeria.

To achieve the research objectives, four board characteristics, namely, BS, board independence, BM and risk management committee composition were chosen.

Theoretical framework
According to Deegan (2002), there is a need to explore into different theoretical perspective to understand the CER and disclosures. Different theories are complementary rather than competing to support the hypotheses (Carpenter and Feroz, 2001). Therefore, this study used agency theory to support the development of hypotheses. Agency theory posits that where there is a separation of ownership and control of a company, agency cost exists. This is due to the conflicts of interest between principal and agent (Jensen and Meckling, 1976). According to Jensen and Meckling (1976), agency costs that are being borne by managers may motivate them to voluntarily disclose corporate environmental information to reduce agency costs. Larger information asymmetry would also exist between managers and shareholders if managers do not reveal more information that would benefit the stakeholders (Gantyowati and Nugraheni, 2014).

The objective of the agency theory is to reduce “agency cost” by establishing internal controls systems. This is done in two ways: by forming a financial incentive scheme that aims at aligning principal’s and agent’s interests and governance structure where the board of directors perform audits; and performance evaluations on the managers (Alange and Steiber, 2009). From the corporate governance view, adequate monitoring mechanisms need to be established to protect shareholders from management’s conflict of interest which is called “agency cost” (Fama and Jensen, 1983). According to Peter and Romi (2015) agency theory also suggests that the board’s membership should be independent to better monitor management when disclosing sustainability information especially on the environment.

Determinant variables
This study examines board characteristics and CER disclosures. The determinant variables include four board characteristics which are: BS, board independence, BM and risk management committee composition. The study used two control variables: profitability and company size.
Based on past literature, the study developed a research framework on board of directors, risk management committee and CER using the board characteristics as presented in Figure 1.

**Hypothesis development**

Referring to the selected hypotheses variables in the latter section, the study develops four hypotheses to support the research objectives. The detail of each hypothesis is explained in the subsequent section.

**Board size**

According to Florackis (2008), the board of directors with more than seven or eight members is unlikely to be effective. This is because a larger number of people would tend to disrupt the effectiveness of communication, coordination and decision making. Thus, the end decision would be controlled by top management. However, it is not in tandem with recent studies (Janggu et al., 2014; Zubaidah et al., 2009; Buniamin et al., 2011).

Janggu et al. (2014) found a positive relationship between BS and sustainability reporting. Similarly, a study by Buniamin et al. (2011) found that BS has a positive significant influence on CER disclosure.

It is argued that BS would have a significant influence on CER. This is due to the findings of Buniamin et al. (2011) and Janggu et al. (2014) as to the influence of BS on environmental reporting, this study hypothesizes that there is a positive significant relationship between BS and the existence of environmental reporting:

**H1.** Companies with more board members are more likely to have a positive influence on environmental reporting disclosures.
Board independence
The quality of personalities who serve on the board is a pointer for effective monitoring. Board independence is perceived to be more efficient if it has more members of independent non-executive directors, they have the incentive to develop their reputation as experts (Fama and Jensen, 1983). The oversight functions performed by such members adhere more to the related approved standards, laws and regulations. This is in tandem with the agency theory view where independent board members would be able to monitor any self-interested actions by managers and lower agency cost (Peter and Romi, 2015).

Several studies (see Htay et al., 2012 and Salehuddin and Fadzil, 2013) found that the board of directors’ independence is very important in the determining the level of CER disclosures. Thus, it is argued that independent directors would influence other directors to voluntary disclose more information about the company to the stakeholders. As such, this study hypothesized that there is a positive relationship between board independence and the existence of environmental reporting disclosure:

H2. Companies with more independent board members are more likely to have a positive influence on CER.

Board meeting
BM is one of the initiatives by the board to perform its oversight function on the management (agent); this is in tandem with the agency theory in which the board members act as the principal. BM serves as a platform to share knowledge and information among experts. This is a crucial and critical resource for the organization.

Prior studies suggest that frequency of the BMs is credited to the number of meetings held annually by the board of directors. As indicated by Chen et al. (2006) BM recurrence reflects sound checking systems. Thus, implies that board practices if carried out by the recurrence of meetings influence the capacity of the board to scrutinize reports to reduce agency problems and improve more quality disclosures (Xie et al., 2003; Knechel et al., 2007). Increase scrutiny and monitoring by board decrease agency cost and information asymmetry and invariably improve quality disclosures (Chou et al., 2013). According to Conger et al. (1998) BM has a significant relationship with CER disclosures. Thus, frequent BMs would improve the quality of corporate disclosures:

H3. There is a positive relationship between the frequency of BM and CER.

Risk management committee composition
Section (10) of the Code on Corporate Governance 2011 in Nigeria provides that the board may establish risk management committee to assist the board in its oversight of risk profile, risk management and risk-reward strategy for the organization. It is a voluntary recommendation not binding on the companies. Risk is a concept used to describe future uncertainty.

Risk management has now become an integral part of corporate governance and is a link to the internal control systems. This awareness has resulted to improve board oversight functions which in turn can enhance the board governance structure, quality reporting disclosures and drastically reduce the scope of the audit committee work (Yatim, 2010).

De Lacy recommended for a separation between the audit committee and risk management committee especially for complex business industries. The complexities associated with the industries expose them to failure (Jarvis, 2005). The quality of individuals who are members of the risk management committee is an important indicator of the effective monitoring of risk matters. The risk management committee seems to be more efficient when there is quite a number of independent non-executive directors (Fama and Jensen, 1983).
Successful companies frequently exhibit a reliable emphasis on risk management. One way to successful risk management is no doubt including the majority of non-executive directors to be part of the committee. Prevention action is the best cure, and non-executive directors perceive and acknowledge how management is taking care of risks (Barde, 2009).

The non-executive directors’ risk management is essentially a problem of acting expressly ahead of time to keep a risk occasion from happening or to reduce its results when it does. The shareholders’ wealth increase if non-executive directors establish a good risk management system and effective business decisions. Methodology and business choices convey risk and a risk-reward system. The outside directors’ role in risk management issues is reflected in the guidelines and rules in numerous districts (Hassan, 2007):

\[ H4. \] There is a positive relationship between risk management committee composition and CER.

**Model of the study**

To answer the objective of the study:

\[
\text{CER}_t = \beta_0 + \beta_1 \text{BS}_t + \beta_2 \text{BL}_t + \beta_3 \text{BM}_t + \beta_4 \text{RC}_t + \beta_5 \text{ROA}_t + \beta_6 \text{TA}_t + \beta_7 D_t + \epsilon_{it}, \tag{1}
\]

where \( \beta_0 \) is constant for all entities over the period, \( \text{CER}_t = \) environmental reporting index score for the period, \( \text{BS}_t = \) total number of the board members, \( \text{BL}_t = \) the proportion of independent non-executive directors on board, \( \text{BM}_t = \) frequency of BM held in the company financial year, \( \text{RC}_t = \) the proportion of the independent non-executive directors on the risk management committee, \( \text{ROA}_t = \) net income divided by total asset for the period, \( \text{TA}(\log)_{it} = \log \) of total Asset for the period, \( D_t = \) industrial dummy variable coded 1 to oil & gas companies and 0 for others, \( \epsilon_{it} = \) error term for all companies over the period (Tables I and II).

Disclosure score for the environmental reporting index:

(1) Score description of table format.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Number of environmental reporting index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Any mention of promoting sustainability</td>
</tr>
<tr>
<td>2</td>
<td>Company’s statement of corporate commitment to environmental protection</td>
</tr>
<tr>
<td>3</td>
<td>Environmental policy formulation</td>
</tr>
<tr>
<td>4</td>
<td>Environmental management system (ISO 14001)</td>
</tr>
<tr>
<td>5</td>
<td>Efficiency of energy and water consumption</td>
</tr>
<tr>
<td>6</td>
<td>Trees planting or replanting programs and initiatives</td>
</tr>
<tr>
<td>7</td>
<td>Protection and preservation of a natural environment in areas of high biodiversity</td>
</tr>
<tr>
<td>8</td>
<td>Sustainable waste management</td>
</tr>
<tr>
<td>9</td>
<td>Reduce greenhouse gas emissions</td>
</tr>
<tr>
<td>10</td>
<td>Incorporate pollution prevention practices (e.g. reduce, recycle and reuse)</td>
</tr>
<tr>
<td>11</td>
<td>Green safe products and services</td>
</tr>
<tr>
<td>12</td>
<td>Use of environmental alternative technology in managing business production</td>
</tr>
<tr>
<td>13</td>
<td>Fines/lawsuits/noncompliance incidents related to the environment</td>
</tr>
<tr>
<td>14</td>
<td>Compliance to any laws and regulations related to the environment</td>
</tr>
<tr>
<td>15</td>
<td>Corporate fleet to use an eco-friendly vehicle</td>
</tr>
<tr>
<td>16</td>
<td>Networking with “green” stakeholder groups</td>
</tr>
<tr>
<td>17</td>
<td>Environmental budgets expenditures</td>
</tr>
<tr>
<td>18</td>
<td>Environmental education for employees and community</td>
</tr>
<tr>
<td>19</td>
<td>Environmental awards/achievements</td>
</tr>
</tbody>
</table>

Variables | Measurement | Hypothesis | Prediction
--- | --- | --- | ---
Board size | Number of board of Directors (e.g. Buniamin, 2010) | $H_1$ | Positive
Board independence | Number of non-executive directors divided by total Number of directors on Board (%) (Buniamin, 2010) | $H_2$ | Positive
Board meetings | Number of board meetings held annually (Conger et al., 1998) | $H_3$ | Positive
Risk management committee composition | RMC composition considers the extent of non-executives’ directors on the board, measured in this study as a dichotomous variable given one (1) if there exist at least one non-executive on risk management committee otherwise zero (0) (see, Michelon and Parbonetti, 2010; Kurawa and Kabara, 2014). | $H_4$ | Positive
Profitability | ROA (Naira) (e.g. Smith et al., 2007; Ong et al., 2014; Sulaiman et al., 2014) | – | Positive
Company size | Log of total asset (see, Buniamin, 2010; Buniamin et al., 2011; Joshi et al., 2011; Salehuddin and Fadail, 2013; Sulaiman et al., 2014) | – | Positive
Industrial dummy variable | 1 is coded to oil & gas companies and 0 is coded to other companies | – | –

Table II.
Summary of measurements

(2) 0 items that are not disclosed.
(3) 1 items that are disclosed in qualitative.
(4) 1 items that are disclosed in diagram or picture.
(5) 2 items that are disclosed in quantitative or financial.

Source: Adapted from Sulaiman et al. (2014)

Linear regression analysis
In the current study, the analysis of linear regression is being utilized as a statistical technique to investigate the relationships that arise amongst the dependent variable and four independent variables comprising BS, board independence, BM, risk management committee composition and the two control variables which are profitability and total asset for 24 listed firms in Nigerian oil & gas, natural resources and industrial goods. Table III reveals the analysis of result for random effects model in the study.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coef.</th>
<th>SE</th>
<th>$z$</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS</td>
<td>0.0115358</td>
<td>0.137154</td>
<td>0.84</td>
</tr>
<tr>
<td>BI</td>
<td>0.3530959</td>
<td>0.1510829</td>
<td>2.34**</td>
</tr>
<tr>
<td>BM</td>
<td>0.035602</td>
<td>0.0203326</td>
<td>1.75**</td>
</tr>
<tr>
<td>RC</td>
<td>0.0002878</td>
<td>0.0785901</td>
<td>0.00</td>
</tr>
<tr>
<td>ROA</td>
<td>0.0010162</td>
<td>0.0014494</td>
<td>0.70</td>
</tr>
<tr>
<td>TA</td>
<td>0.0712573</td>
<td>0.038754</td>
<td>1.94**</td>
</tr>
<tr>
<td>D</td>
<td>−0.0528609</td>
<td>0.0731596</td>
<td>−0.72</td>
</tr>
<tr>
<td>_cons</td>
<td>−0.4864737</td>
<td>0.2726068</td>
<td>−1.78</td>
</tr>
</tbody>
</table>

Notes: CERS, environmental reporting index; BS, total number of the board members; BI, the proportion of independent non-executive directors on board; BM, frequency of board meeting held in the company financial year; RC, the proportion of the independent non-executive directors on the risk management committee; ROA, net income divided by total asset to for every entities; TA (log), log of total Asset for the period; D, industrial dummy variable coded 1 for oil & gas companies and 0 for others. Number of obs = 120; number of group = 24; $R^2$ within = 0.5117; Wald $\chi^2$ = 21.96; Prob $>\chi^2$ = 0.0026. **0.05 level of sig.
Discussions
As shown by the outcomes in Table III, the rate of $R^2$ in the model is 0.5117. This implies that the model describes 51.17 percent of the difference in CER and is considered as an acceptable outcome.

In an additional finding, the outcomes, Table III displays the three variables in the study that are discovered to be significant with CER predictors (as being measured by CERS). The variables are board independence (BI) ($\beta = 0.3530959, p < 0.05$), BM ($\beta = 0.035602, p < 0.05$) and finally total asset (TA) ($\beta = 0.0712573, p < 0.1$).

Nevertheless, other variables such as BS ($\beta = 0.0115358, p > 0.1$) risk management committee composition (RC) ($\beta = 0.0002878, p > 0.1$) and profitability (ROA) ($\beta = 0.0010162, p > 0.1$) failed to make a significant contribution as CER predictor (CER as being measured using ERI); thus, the significance values higher than 0.1 were revealed to be statistically insignificantly related to CERS.

This suggests that board independence does influence CER based on both normal and additional analyses done on this studies. Another relationship was found between risk management committee composition and the CER (CER) which found that the variable relationship is statistically negatively insignificant as evidence by the $p$-value of 0.528 (52.8 percent). This suggests that risk management committee composition does not influence CER on companies in the oil & gas, natural resources and industrial goods sectors.

Table III shows that the BS on this regression has a clear positive effect on CER, and the outcome is insignificant. This finding did not support the first $H_1$ that there is a positive significant relationship between board size and CER.

As such, the first hypothesis that mentioned there is a positive significant relationship between the board size and CER is not supported. This result shows that an increase in board size would not increase CER. This outcome is like that found in previous studies that board size has no significant association with environmental disclosures (e.g. Wan Abdullah et al., 2012; Abdul Razak and Mustapha, 2013). This insignificant relationship agrees with most studies that find smaller board size can effectively perform better in CER (Zubaidah et al., 2009).

In addition, the study found a positive significant relationship between the board independent and CER. The findings accept $H_2$ which states that there is a positive significant relationship between the board independence and CER. Therefore, $H_2$ which reveals that there is a positive significant relationship between the board independence and CER is supported. The result discloses that if there is an increase in the number of independent non-executive directors on board, board size, more CER is reported and vice versa.

This result is like that found in several studies (e.g. Htay et al., 2012; Salehuddin and Fadzil, 2013) that board of directors’ independence is very important in the determining the level of CER disclosures. Thus, it is argued that independent directors would influence other directors to voluntary disclose more information about the company to the stakeholders.

For BM variable, this variable has a positive significant relationship on CER. The findings support $H_3$ which revealed that there is a positive significant relationship between the BM and CER. The positive value indicates that when there is an increase in the number of BMs held, more CER is reported and reverse is the case. The outcome is in tandem with previous studies (see Xie et al., 2003; Knechel et al., 2007). Thus, it implies that board practices if carried out by recurrence of meetings influence the capacity of the board to scrutinize reports to reduce agency problems and improve more quality disclosures.

Furthermore, the findings which revealed the relationship between risk management committee compositions and CER are insignificant. The findings failed to support $H_4$
which revealed that there is a positive significant relationship between the risk management committee composition and CER. The positive value indicates that when there is a decrease in the number of independent non-executive directors, more CER are reported and reverse is the case. The outcome is not in tandem with a previous study (Yatim, 2010) that a well-established risk management committee improves board oversight functions which in turn can enhance the board governance structure, quality reporting disclosures and drastically reduce the scope of the audit committee work.

Also, the study adopted two control variables which are profitability and company size. The use of profitability as a control variable is being justified by the findings of companies with various distinct characteristics. Profitability usually would be referred to as one of the indicators to measure a company’s performance. Prior studies would use profitability as their control variables to examine the relationship between financial attributes against CER (Lang and Lundolhm, 1993; Alarussi, 2009; Suttipun and Stanton, 2012). Mix results were found on profitability.

Lang and Lundolhm (1993) view companies with less profit would provide more disclosure on environmental information. Companies might use the condition of having lesser profit as a mechanism of defense toward its stakeholders that less profit means more expenses were made especially for the CER. The result in Table III shows a positive relationship, but statistically insignificant ($\beta = 0.0010162, p < 0.1$) between profitability (ROA) and CER. This was consistent with the study by Makori as mentioned earlier.

The second control variable considered was the company size. Previous studies found a positive relationship between company size and environmental disclosure such as Deegan and Gordon (1996) and Joshi et al. (2011). While size is known for being a representative for company visibility, it also represents the company capability in a financial manner to have social responsibility and environmental activities (Joshi et al., 2011). A recent study by Barbu et al. (2014) examines the mandatory reporting of environmental information in compliance with IASAFRS on three potential countries which are Germany, France and the UK. They found that company size is a relevant proxy for the influential factor against CER on a mandatory basis.

Romlah et al. (2002) and Cornier and Magnan found that large firms lean toward more disclosure of information voluntarily. Sharifah posits that a company that is visible in public has a better possibility to disclose more information to enhance its legitimacy and corporate image. Big companies are more expected to be worried about their corporate environmental performance since they are more visible to external interested parties who always demand for an improved environmental disclosure (Uwalomwa, 2011). As illustrated in Table III, the result displays a positively significant relationship between the company size (TA) and CER ($\beta = 0.0712573, p < 0.1$). This result is consistent with the ones found in previous studies (Table IV).

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Hypothesis statement</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Companies with more board members are more likely to have a positive significant influence on environmental reporting disclosures</td>
<td>Positive and insignificant</td>
</tr>
<tr>
<td>H2</td>
<td>Companies with more independent board members are more likely to have a positive significant influence on CER</td>
<td>Positive and significant</td>
</tr>
<tr>
<td>H3</td>
<td>There is a positive significant relationship between frequency of board meetings and CER</td>
<td>Positive and significant</td>
</tr>
<tr>
<td>H4</td>
<td>There is a positive significant relationship between RMC composition and corporate environmental reporting</td>
<td>Positive and insignificant</td>
</tr>
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Table IV. Summary of hypothesis testing result
Implications of the study
This research examined the relationship between corporate governance mechanisms (board size, board independence, BM and risk management committee composition) and CER in Nigeria. The findings of the study would provide invaluable insight to the government, stock market, audit firms, accounting regulators and professional bodies, as to the extent which codes on corporate governance rules and resolutions are implemented by non-financial listed companies especially oil & gas, natural resources and industrial goods sectors. Furthermore, the study provides invaluable information to the government and regulators when making new policies or deliberating on issues regarding corporate governance in relation to CER in Nigeria.

Moreover, the importance of having a good corporate governance practice should be emphasized to achieve credibility and quality disclosures. Hence, the result of the study could improve corporate governance practices by management, and corporate environmental disclosures and reporting in organizations most especially in the oil & gas, natural resources and industrial goods sectors. Finally, the result of this study expedites the need for integrating environmental issues to the investment decision of shareholders.

Limitations of the study
There are very few studies conducted on corporate governance mechanisms (board size, board independence, BM and risk management committee composition) and CER in Nigeria. However, due to the differences in environment and culture between these countries and Nigeria, the results of these studies might not be too suitable to apply in the Nigerian setting. The outcome of the study might not be applicable to all listed companies due to the focus of the research on listed companies perceive to be environmentally sensitive such as the oil & gas, natural resources and industrial goods sectors.

Recommendations for future studies
The limitations of this study have urged the following recommendations for future research:

(1) To enhance the model of this study, future research ought to incorporate other corporate governance variables like risk management committee diligence and knowledge, audit committee size and accounting background, and management ownership. Furthermore, the data for this research cover only listed companies in three sectors (oil & gas, natural resources and industrial goods). Further studies can consider all non-financial listed companies on the Nigerian stock exchange market.

(2) The data utilized for the study are originated from 24 non-financial listed companies in Nigeria with the level of their environmental disclosures. A large data set relating financial and non-financial organizations might convey a substitute model of the relationship that exists between the CER and corporate governance. The introduction of new corporate governance mechanisms might also convey extra edge-worth mixtures of the internal control mechanism.

(3) This research has added impetus to explore corporate governance with CER in a broader context. Further research could explore the relationship in more specific categories, for example, in nonprofit making organizations, government-owned companies and in family business. Since this study focused on three sectors. It would be beneficial to have a clearer understanding of corporate governance roles in other types of organizations. Such research could address the similarities and differences of the roles in different organizations and also consider the legal requirements for different organizations.

(4) Advance studies are also essential on the behavioral features of the boards. Studies in developed countries have recently started examining board processes by attending actual BMs. However, this also needs to be expanded by studies in
developing economies. There is therefore the need to go beyond the quantitative research, which yields a mixture of results, to perhaps a more qualitative approach as to how boards work. Expanding this current research into a wider study of board dynamics and decision making would be a start in developing a better understanding of corporate governance.

Future study could also explore the perception of stakeholders on corporate social reporting, as it is evidenced that there is no standard template in Nigeria that serves as a guide for the preparation of corporate social reporting. The study could have harmonized views of stakeholders on what are their expectations and areas they felt is below standard benchmark peculiar to Nigerian setting.

Conclusions
The study examines the relationship between some corporate governance variables (board size, board independence, BM and risk management committee composition) and CER has been accomplished. Based on the outcome of the panel data analysis, two variables namely board independence and BM are found to have a positive significant relationship with the CER and the other hypothesis variables are insignificant.

References


Further reading


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Stock return and financial performance as moderation variable in influence of good corporate governance towards corporate value

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Abstract
Purpose – The purpose of this paper is to evaluate how much influence good corporate governance (GCG) has on corporate value, as well as moderating effect of stock return and financial performance on the influence of GCG on corporate value.

Design/methodology/approach – This study was an explanatory study. The unit of analysis was the companies listed in LQ45 in Indonesian Stock Exchange and the sources of data were ICMD, annual report and financial reports of the companies. Indonesian Stock Exchange was selected as the setting of the study since Indonesian Stock Exchange is one of trading places for various types of companies in Indonesia, and it provides complete information on company’s financial data and stock price. The population was 84 companies listed in LQ45 in Indonesian Stock Exchange between 2010 and 2016.

Findings – The higher GCG, independent commissioners proportion, institutional managerial and public ownerships resulted in higher corporate value. MBE and PER stock return is a moderating variable in the influence of GCG on corporate value. Financial performance is moderating variable in the influence of GCG on corporate value.

Originality/value – Based on the previous studies, it may be concluded that there is a gap between the influence of GCG on corporate value and the influence of stock return on financial performance, and moderating variable is needed to evaluate the influence of GCG on company performance, more particularly stock return and financial performance. This discrepancy creates opportunity for conducting an in-depth study on those variables. Its novelty is correlation between stock return and financial performance as moderation. Previous studies used these as mediating variables. This study is going to generate different finding as it is conducted in different setting (country where this study is conducted), type of industry, research period and using different method of analysis.

Keywords Stock return, Financial performance, Good corporate governance, Corporate value

Paper type Research paper

1. Introduction
The objective of this study is to evaluate how much influence good corporate governance (GCG) has on corporate value, as well as moderating effect of stock return and financial performance on the influence of GCG on corporate value. Goal of every company is to increase the amount of money shareholders receive. Maximum corporate value will result in increasing profit for shareholders (Husnan, 2012). Agency problem is an obstacle in achieving the goal. Agency problem is derived from separation between corporate ownership and corporate management. Professional managers who do not have any share
or very little share in company are the ones responsible for running majority of large companies. As a result, these managers feel they have authority to run companies without taking shareholder’s interest into account. They are not foreign to ask for high salary and certain facilities.

Cornel and Alan mentioned three sources of agency problem: the first is manager’s tendency to ask for not only luxurious facilities and requirement but also rights to make strategic decision. The second is manager’s tendency to make risky investment. Most managers do not own any share in a company and therefore, do not have as much sense of belonging as shareholders. They do not take further consideration to use company profit for various investments. Because of their fixed salary and limited stock ownership, these managers do not spend optimum energy or pay maximum attention to run the company as much shareholders expected. The third source of agency problem is manager’s tendency to minimize risk resulting in company losing profitable investment.

Investor’s motive to make investment in stock market is to get return in the form of dividend or capital gain as well as company ownership. Prior to investment, investors will take stock return they are going to accept and corporate value into account. Stock price represents the corporate value of public companies. Higher stock price equals to higher corporate value (Husnan, 2012).

There are intensive discussions on dividend policy until recently. Arthur and David (1997) explained three basic perspectives about dividend: first, dividend policy is neither relevant nor requires specific estimation, second, the amount of dividend is linear to stock price and third, there is a negative correlation between dividend policy and stock price, meaning that lower dividend results in higher stock price. Miller and Modigliani’s (1961) dividend irrelevance theory states that dividend has zero influence on corporate value and has been a topic of some debates for the last four decades. Miller and Modigliani’s refusal on the bird in the hand theory is the cause of these debates. Black (1976) called the debate dividend puzzle that until recently has left behind some unanswered questioned, namely, why do corporation pay dividend? And why do in investors pay attention to dividend?. Some experts, for example Feldstein and Green (1983), attempted to answer Black’s question explaining that company pays dividend in order to meet or accomodate: different shareholder’s preference on tax fee from each type of shareholder and shareholder’s tendency to conduct their investment portfolio to overcome uncertainty. Bortz and Rust (1984) postulated that dividend plays a significant role for investor to create a balance between risk and return from portfolio the investors have. Bhattacharya’s (1979) dividend signaling model stated that when there is asymmetric information between company and investor, dividend becomes mechanism or instrument that provides information for shareholders (investors). According to Black and Scholes (1974), there are three types of investor, namely, investor who prefers stock with high dividend yield, investor who prefers return from dividend and capital gain and investor who prefers stock with low dividend yield.

Financial performance shows how effective and efficient an organization is in achieving its goals. Effectiveness refers to the ability of management to select accurate goal or instrument to achieve specific goals. Efficiency refers to ratio between input and output in which suitable input will result in optimum output. Increasing financial performance becomes requirement for a company in order to attract investors. Published financial statement represents financial performance of a company. Financial statement is the final outcome of accounting process carried out in order to provide information about financial condition of a company. Investors or managers use the report to make decision about investment. Financial report provides “relatively raw data.” Managers need information, instead of raw data. The significance of financial reports depends on individuals who need them or when the reports are needed.
According to Brigham et al. (2007), in order to maximize corporate value, management should make use of strength and minimize weaknesses a company has. Financial analysis shows performance difference between companies in the same industry, and company's current financial position or trend. This study helps management identifying weaknesses and finding solution to minimize or even eliminate them. Prior to making long-term investment, investor will analyze profitability, future prospect and risk of making investment a company has. Analyst needs certain indicators to make interpretation and run analysis on financial report of a company. The most frequently used indicator in financial analysis is “ratio.” Ross et al. (2009) described five kinds of frequently used financial ratio, namely, liquidity, activity, leverage, profitability and market value ratio. Brigham et al.’s (2007) return on equity (ROE) is one of the most important ratios for measuring the profitability of a company. ROE refers to net profit for shareholders divided by total shareholder equity. Shareholders expect high return from investment they made and ROE shows how much they get. High ROE will result in high stock price and activities of which purpose is to increase ROE which will also increase the stock price.

Stock market is a medium for the public to invest their money in the form of deposit, gold, piece of land or house. As an addition, public can also make investment in the form of stock or obligation. Investing in stock or obligation requires far less amount of money compared to investing in house or a piece of land. Stock market is a suitable place for people who are interested in making investment without having to spend a lot of money. Stock market will result in social welfare if it is stable, running well, has stable growth and not highly fluctuated. However, Indonesian stock market does not provide much contribution to the national economy. There are several cases that prove that the national stock market is not running well, for instance delisting issuers, price fraud and fraud that involve Duta Bank and Pikko Bank, two private banks in Indonesia (Samsul, 2006).

Both practitioners and academics agree upon the lack of awareness and understanding toward the principles of GCG as one of the reasons why Indonesian stock market does not have enough contribution toward the national economy. On the other hand, Asian Development Bank concluded two reasons that cause economic crisis in Asian countries in including Indonesia; they are ineffective in supervising the role of commissary board and audit committee of a company in protecting shareholder’s interest. It is expected that implementation of GCG in Indonesia increases professionalism and shareholder’s welfare without putting aside stakeholder’s interest.

Growing popularity of GCG in the last ten years is hard to deny. Not only is the terminology becoming more popular, but it also has been put in a respected position. First of all, GCG is one of the successful keys for company to grow, make long-term profit and win global business competition. Second, the unsuccessful implementation of GCG is believed to cause economic crisis in Asia and Latin America.

Having established Financial Services Authority or Otoritas Jasa Keuangan (OJK), Indonesia has reformed their financial sector supervision framework recently. The 2011 Decree number 21 is the regulation for the establishment of the Financial Services Authority or OJK. The new framework emphasizes on how important fundamental, sustainable and healthy financial system that is able to protect consumer and public interest is. Implementation of good practice of management is one of the main contributors to achieve the objective of the framework. Its successful implementation will result in increasing economic performance and sustainable economic growth (Muliaman, 2004).

Indonesia has participated in ASEAN Economic Zone in 2015 and therefore, there is need and motivation for Indonesian companies to improve their business activities and competitive advantage. In order to survive business competition in South East Asia, Indonesian companies should improve their management system, improve both financial and operating performance, increase investor’s level of trust and create access for investors.
Corporate governance aspects adopted Jensen and Meckling’s (1976) theory as the basis in order to create balance between management, shareholder and stakeholder’s interest. Perspectives of corporate governance actually consist of shareholder and stakeholder’s paradigm. This difference refers to understanding toward conception on purpose to establish a company that influences need for governance instrument. The perspective changes mindset of a company in which company should pay attention to shareholder and stakeholder’s interest because its activities will affect the society considering that the company has developed relationship with various organizations or institutions inside or outside the company. Therefore, trust and business ethics should become bases for this relationship.

Legal approach of corporate governance means that the key mechanism of corporate governance is protecting external investors, both shareholders and creditors, through the legal system, which can be interpreted by law and its implementation, although the reputations and ideas that managers have can assist in getting investment. Variations in law and its implementation are central to understanding why companies in some countries are more likely to get investment than other companies.

Some examples of vertical agency problem that occurs in Indonesia are asymmetric information (Alwy and Schech, 2004), profit manipulation (Herawati, 2008), excessive utilization of debt (Wiliandri, 2011) and reluctant to distribute free cash flow in dividends to shareholders (Mai, 2010). Horizontal agency problems in developing countries, including Indonesia, are caused by concentrated ownership (institutional shareholders), which further encourages controlling shareholders to expropriate minority shareholders (Alwy and Schech, 2004). In addition, the controlling shareholder can cooperate with managerial to override the interests of other shareholders or take advantage of their controlling power. On the other hand, institutional shareholders as controlling shareholders can more effectively monitor managerial behavior because they are more capable and have more professional resources than individual shareholders (Lotto, 2013).

Signaling theory states that a good company will deliberately signal the market, thus the market is expected to be able to distinguish between good and bad companies. An effective signal is one that market can capture and perceive. The quality of a company is demonstrated through GCG, which, in turn, will provide a signal by delivering the financial statements along with the corporate governance information achieved by the company in a certain period on time. The signal given by a good company is considered a good news but the signal given by a bad company is considered a bad news.

Dividend and capital gain are types of return investors are looking forward to and according to the residual theory of dividend, company establishes dividend policy after all profitable investments are financed. The paid dividend is a residual after all the profitable investment proposals have been financed (Hanafi, 2008). Companies that are still in their growth stage will require a significant amount of money to expand their business and one source of money to use is profit they have gained. If the company during its business expansion is using profit, it will reduce the amount of dividend distribution. According to Bender and Ward (2009), companies at the growth stage tend to set a relatively small dividend payout ratio compared to well-established ones.

Several previous studies discuss correlation between GCG and corporate value. Wahab et al. (2007) who observed 440 companies listed in Malaysian Stock Exchange found a significant increase in Corporate Governance Index and it had a significant influence on shareholder’s welfare measured using market to book value of equity. Connelly et al. (2012) revealed that corporate governance (Board Size, Board Independence) had a negative influence on corporate value (Tobin’s Q, ROA, Firm Size, Capital Expenditures, Financial Leverage, Corporate Index and Family Ownership). Jauhar (2014) stated that corporate governance (Independent Audit Committee Proportion, Independent Commissioner Proportion)
had a significant and positive influence on corporate value (MBR, Tobin’s Q and Closing Price). Different from Wulandari Widaryanti (2009), Sulong and dan Mat (2008) argued that GCG did not have any influence on corporate value. Based on the previous studies, it may be concluded that there is a gap between the influence of GCG on corporate value and influence of stock return toward financial performance, and moderating variable is needed to evaluate the influence of GCG on company performance, more particularly stock return and financial performance. This discrepancy creates opportunity for conducting an in-depth study on those variables. This study is basically an extended replication from the previous studies. Its novelty is correlation between stock return and financial performance as moderation. Previous studies used these as mediating variables. This study is going to generate different finding as it is conducted in different setting (country where this study is conducted), type of industry, research period and using different method of analysis. This study is conducted in public company listed in Indonesian Stock Exchange and LQ45 index between 2010 and 2016. The companies listed in the LQ45 index were selected as object of the study because their stocks will return and they have good performance and fundamental (blue chips stock). LQ45 index consists of 45 stocks selected based on several criteria and therefore, these stocks have high liquidity, market capacity, future prospect and financial condition. In addition, the companies listed in LQ45 index work in various different sectors that represent all companies listed in Indonesian Stock Exchange.

2. Conceptual framework and hypothesis building

Agency theory is applied in work contract that will regulate proportion of rights and obligations of each party while still taking into account the overall benefit. A work contract is a set of rules governing profit-sharing mechanisms, whether in the form of profits, returns or risks approved by principals and agents. It works optimally if the contract is fair, that is, it is able to keep balance between the principal and the agent that mathematically shows the optimal implementation of the agent’s obligations and granting of satisfactory special incentives/rewards from the principal to the agent. Basis of the agency theory is the proper design of contracts to align the principal and the agent’s interests when conflict of interest or agency problem occurs (Scott et al., 1997).

The limitation of the agency theory is that the theory discusses relationship between managers, owners of companies and creditors of companies in a complex environment which demands connection between various parties including employees, society and government only. Stakeholders are individuals other than owner of a company and creditors who are involved in both internal and external environment of the companies such as employees, community and the government. The concept of GCG that discusses a wider range of relationships between managers and all interested parties emerges to control a company (Arifin, 2005). La Porta et al. (1999) explained that the concept of GCG was affected by law instrument to protect interests of various parties associated with a company, more particularly minority owners. In developing countries, ownership structures tend to be concentrated where conflicts of interest between majority and minority owners occur. These conflicts of interest happen due to different interests and power imbalances resulting in the exploitation and imbalance of system (Syahroza, 2005).

Related to the agency problems, the concept of GCG is expected to become instrument to convince investors that they will gain return from their investment. Shleifer and Vishny (1997) stated that GCG focuses on how investors control managers to provide profits and behave honestly in corporate resources management. Messier et al. (2000) revealed that GCG system is required to supervise and guide managers in investing and managing corporate resources. Thus, corporate governance consists of all stakeholders, processes and activities placed to ensure the accuracy of company’s asset management.
Types of return investors expected are dividends and capital gains, and according to the residual theory of dividend, company sets dividend policy after all profitable investments are financed. Residual dividend policy thus pays dividends only if there is some amount of money left after the company marks all proposed investments that have a positive NPV (only investment policies affecting Corporate Value). This residual dividend theory is supported by Bender and Ward, who stated that companies in the growth stage tend to establish a relatively small dividend policy compared to more established companies.

Demand and offer are two elements affecting stock price. These elements are also affected by both rational and irrational variables. Examples of the rational variables are financial performance, interest level, inflation, growth level, foreign exchange rate or price of stock from other countries, while examples of the irrational variables are market rumor, peer suggestion, or dream. In general, increase and decrease of stock price occur at the same time and these will result in reverse flow when it continues for days. It proves that some errors cause an increase or decrease in stock price. When price of stock keeps increasing, it will crash in the following period. Overreaction means feeling too optimistic or pessimistic about certain event that is predicted to have an influence on performance of company in the future. It accelerates increasing or decreasing stock price that leads to mispricing in certain period. Thus, investor should take into account sharp increase or decline of stock price.

The composite stock price index (JCI) is a composite index of all types of shares listed in Indonesian Stock Exchanges. The index is issued by Indonesia Stock Exchange. Increasing composite stock price index does not necessarily mean that prices of all types of stocks are going up and, at the same time, decline in the composite stock price index does not mean that prices of all types of stocks listed on the stock exchange have decreased. The composite stock price index is a reflection of stock price fluctuation that is represented in number and is based on a certain basic rate. The basic rate is the initial index number before the market figure is formed. It is established by each stock exchange, as well as market price when the stock price index changes for the first time, either above or below the basic rate. The composite stock price index will change as stock prices in the market change. The share price index may also change due to change in the total value of basic stock rate.

Signaling theory discusses which types of signal company should give to financial report users or types of information managers should provide for owners of the company. The signal is in the form of GCG, stock return, financial performance, corporate value or other information that shows competitive advantage of a company over other companies. Objective of signaling is to eliminate asymmetric information. Asymmetric information indicates that some individuals in a company, such as management, generally have more complete information about condition, plan and future prospect of the company than other individuals such as investor, creditor and the government, who use particular indicators or facilities to evaluate the quality of the company (Gumanti, 2011). “Melalui teori sinyal, ketimpangan informasi dapat dikurangi dengan menghasilkan kualitas atau integritas informasi laporan keuangan. Untuk memastikan pihak-pihak yang berkepentingan meyakini akan keandalan informasi keuangan yang disampaikan pihak perusahaan, diperlukan opini dari pihak luar bebas memberikan pendapat tentang laporan keuangan suatu perusahaan.”

Signals are actions taken by company’s management to provide guidance for shareholders about management’s perspective on the company’s prospects. Companies with lucrative prospects will try to avoid sale of shares and strive for any new capital required in other ways, such as utilizing debt that exceeds targeted capital structure. Companies with less favorable outlooks will tend to sell their shares. Announcement of a stock’s emission by a company is generally a signal that management is not sure about company’s prospects. If a company offers new share sales more often than usual, then its stock price will go down, because it gives a negative signal which then can suppress its stock price even if the company prospects are bright.
The signaling theory suggests that a good quality company will deliberately signal the market, thus the market is expected to be able to distinguish between good and bad quality companies. Effective signal is one that market can capture and has good perception, and not easily imitated by poor quality companies. A good quality company is demonstrated through GCG. This company will then give signal by reporting its financial statements along with information about governance achieved by the company in certain period of time in a timely manner. The signal given by a good quality company is considered as a good news, whereas the signal given by a poor quality company is considered as a bad news (Figure 1).

This study has 3 hypotheses. The hypotheses and their underlying theories including previous empirical research are discussed in the following sections.

Influence of GCG toward corporate value

Agency theory is a theory that discusses how much influence GCG has on corporate value (Jensen and Meckling, 1976). This theory focuses on how to design contracts that can motivate a rational agent to act on behalf of a principal when the agent’s interest is against the principal’s interests. The assumption in this study is that company and its owners are two separate entities. The agency relationship is a contract between one or more persons as owner with another person as an agent to act in the interests of the owner, including delegating

![Conceptual framework](image-url)

**Figure 1.** Conceptual framework

decision-making authority to agent in order to maximize corporate value. If both parties (owners and agents) have a conflict of interest, where the agent does not always act in the best interests of the owner, this conflict can be minimized through agency costs, i.e. total of the owner’s supervision fees, the agency’s cost of engagement and residual loss.

Fallatah and Dickins (2012) observed the influence of corporate governance on firm value. Indicators of corporate governance were board size, independent board, independent audit committee and director stock ownership, while those for firm value were MBE and Tobin’s Q. The finding showed that the corporate governance had an influence on the firm value.

Wahyu (2013) also analyzed the influence of corporate governance on firm value. Indicators of corporate governance were proportion of non-executive director, managerial ownership, independent commissioners, independent audit and institutional ownership, while those of firm value were Tobin’s Q, PER and closing price. The finding showed that the corporate governance had a significant, positive influence on the firm value.

Jauhar (2014) conducted another study that observed the influence of corporate governance on firm value. Indicators of corporate governance were independent audit commissioner proportion and independent commissioner proportion, while indicators of firm value were MBR, closing price and Tobin’s Q. The finding showed that the corporate governance had a significant, negative influence on the firm value.

Yulianto (2014) evaluated the influence of GCG on corporate value. Indicators of GCG were managerial and institutional ownership, while those of corporate value were price book value, stock price and Tobin’s Q. The finding showed that GCG had a significant positive influence on corporate value.

Having reviewed the related theories and previous studies, it can be concluded that GCG had a significant influence on corporate value. Therefore, the first hypothesis proposed in this study states:

\[ H1. \text{ GCG had a significant influence on corporate value.} \]

Moderating effect of stock return toward financial performance

The bird in the hand theory (Gordon, 1959; Lintner, 1956), a theory that claims the influence of stock return toward corporate value, states that dividend policy will increase corporate value due to uncertainty in cash flow company in the future making dividend more interested for investor than capital gains. Some previous studies have discussed the effect of stock return on corporate value, for example Huang et al. (2011), who found out that investors should seriously assess corporate governance when making investment decisions because not only did it have a positive effect on good governance, but also was able to stabilize stock prices during the crisis. The general conclusion from this theory and previous studies is that stock return has a significant influence on corporate value. Therefore, the second hypothesis proposed in this study states:

\[ H2. \text{ Stock return is moderating variable in the influence of GCG on corporate value.} \]

Moderating effect of financial performance toward corporate value

Some theories suggest that financial performance has an influence on corporate value, namely, conduct empirical evaluation toward the asymmetry theory which states that some parties who have a close relationship to a company do not get similar information about the company’s prospect and risk. Managers usually have better information than investors, signaling theory (Ross, 1977) on types of signal a company gives for the users of its financial report or information about efforts manager has taken to achieve owner’s expectation. Information about financial performance is one type of signal company may send.
For shareholders, profit is one of the factors that determine dividend policy; higher profit will increase dividends and stock prices as the market’s response. For go public companies, corporate value is reflected in its share price. Higher stock price equals to higher corporate value (Husnan, 2012). Previous researchers have shown the influence of financial performance on corporate value. Fallatah and Dickins (2012) conducted a study that analyzed the effect of firm performance on firm value. ROA and ROE were the indicators of firm performance, while MBE and Tobin’s Q were the indicators of firm value. The finding indicated that the firm performance had influence on firm value.

Wahyu (2013) observed the influence of financial performance on firm value. Indicators of financial performance were ROI, ROE and NPM, while those of firm value were Tobin’s Q, PER and closing price. The finding showed that financial performance had a significant, positive influence on firm value. Jauhar (2014) also analyzed the influence of financial performance on firm value. Financial performance was measured using ROA and ROE, while firm value was measured using MBR, closing price and Tobin’s Q. The finding showed that financial performance had a significant, positive influence on firm value.

Marius et al. (2015) analyzed the influence of financial performance on corporate value. Financial performance was measured using ROA, ROE and NPM, while corporate value was measured using Tobin’s Q, price book value and stock return. The finding showed that in large companies with a lot of assets, financial performance had a significant, positive influence on corporate value. Therefore, general conclusion from the theories and previous studies was that financial performance had a significant influence on corporate value. Therefore, the third hypothesis proposed in this study states:

**H3. Financial performance is a moderating variable in the influence of GCG on corporate value.**

### 3. Design, methods and approach

Research is a planned and systematic process to solve particular issues or answer a set of research questions. This study was an explanatory study. The unit of analysis was the companies listed in LQ45 in Indonesian Stock Exchange and the sources of data were ICMD, annual report and financial reports of the companies. Indonesian Stock Exchange was selected as the setting of the study since Indonesian Stock Exchange is one of trading places for various types of companies in Indonesia; it provides complete information on company’s financial data and stock price.

The population was 84 companies listed in LQ45 in Indonesian Stock Exchange between 2010 and 2016. “Non-probability random sampling” was the approach used to select the samples while the sampling method was “purposive sampling,” in which criteria were used to select the samples (Solimun et al., 2017). The criteria were: companies listed in LQ45 Index between 2010 and 2016; companies that published their financial report between 2010 and 2016; companies that shared their dividend between 2010 and 2016; companies that implemented the principles of GCG. The samples were LQ45 companies listed in Indonesian Stock Exchange between 2010 and 2016 with continuous annual financial report and ICMD. The total samples were 22 companies \(\times 7\) years = 154 observation.

In this study, GCG was measured based on four indicators namely independent commissioner proportion, institutional ownership, managerial ownership and public ownership; indicators of stock return were abnormal return and dividend yields indicators of financial performance were free cash flow, return on asset and ROE indicators of corporate value were market to book value of equity and price earning ratio. The analysis instrument was WarpPLS involving structural model and moderating variable (Solimun et al., 2017).
4. Analysis result and discussion

Influence of GCG toward corporate value

H1 was rejected with coefficient line of 0.334 and P of 0.015. Direction of the influence of good corporate governance on corporate value was positive that meant higher GCG (independent commissioners proportion, institutional, managerial and public ownerships) resulted in higher corporate value (MBE and PER). It was in line with the theories and previous studies, the bases for the hypothesis (Figure 2).

Based on theoretical-academic theory, corporate governance is derived from separation between shareholders and management. Jensen and Meckling’s (1976) agency theory was derived from this concept. When there is separation between ownership and management function, agency problem occurs, in which managers as agents are given authority from shareholders to run companies based on the shareholder’s interests. Independent commissioner board shareholders appointed to supervise and advise company have yet to work effectively since the board has very little managerial ownership and is unable to balance corporate value-oriented interests. Wen Jio explained that when they have a very little share of managerial ownership, these managers and institutional shareholders tend to conduct the act of collusion to take advantage of company’s resources for their personal interests. Morck et al. (1988) stated that the consequence of giving very little proportion of managerial proportion to the managers is that they will put aside corporate value in their decision-making process.

The finding of this study confirmed findings of the previous studies on the influence of GCG on corporate value. Fallatah and Dickins’ (2012) study showed that corporate governance had an influence on firm value. In addition, Wahyu (2013) described that corporate governance had a positive influence on firm value. Jauhar’s (2014) study also showed the positive influence of corporate governance on firm value.

Moderating effect of stock return in the influence of GCG toward corporate value

H2 was accepted with coefficient line of 0.233 and P of 0.041. The higher the stock was, the stronger the influence of GCG on corporate value.

The finding of this study supported the agency theory which states that GCG should have had influence on stock return (abnormal return and dividend yield). The finding of this study also confirmed findings of the previous studies that showed the influence of GCG on stock return. Brammer et al.’s (2009) study showed that the companies categorized as top 100 companies had negative abnormal return but these companies were still in their
growing stage. Erkens et al. (2012) described that during crisis, high independent board and institutional ownership resulted in worse stock return. Fuenzalida, Mongrut, Artega, Erausquin (2013) study showed the opposite, claiming that the companies listed in GCG index had positive abnormal return. In addition, Rani et al. (2013) stated that companies with high corporate governance had positive abnormal return.

The bird in the hand theory (Gordon, 1959; Lintner, 1956), stating that dividend policy will increase corporate value due to uncertain cash flow in the future, is a suitable theory to discuss the influence of stock return on corporate value. Stock price tends to increase when dividend is higher and at the opposite, stock price tends to decrease when dividend is low (Hanafi, 2012). Corporate value of go public companies is represented in their stock price. The higher their stock price is, the higher the companies’ corporate value is (Husnan, 2012).

Dividend signaling theory states that change in dividend is a signal that future prospect of company is changing. Decreasing dividend by investor is categorized as bad news because it means company is in bad condition resulting in decreasing stock price. At the opposite, increasing dividend by company to shareholders is good news because it means future prospect of a company is getting better, resulting in positive response from investors and increasing stock price. High dividend also means that a company has high profitability level (cash flow signaling hypothesis). Besides that, company that pays dividend to shareholders has low risk. Papadopoulos and Charalambidis (2007) stated that dividend represented not only future prospect of a company but also instrument to increase stock price.

The finding of this study is in line with that of the previous related studies. Researchers have proven the influence of stock return on corporate value empirically. Akhigbe et al. (1993) and Denis et al.’s (1994) study showed positive correlation between increase in dividend and stock price. Johnson, Moorman and Sorescu (2005) described that stock return had a significant influence on corporate value. Jiao (2010) showed higher stock return resulted in higher shareholder’s trust as well as improving performance and corporate value.

Moderating effect of financial performance in the influence of GCG toward corporate value H3, financial performance is a moderating variable in the influence of GCG on corporate value, was accepted with coefficient line of 0.439 and P of 0.001. Signaling theory (Ross, 1977), explaining what types of information company should give to users of their financial report in order that the users understand the company’s financial performance, is the most suitable theory to discuss the influence of financial performance on corporate value. Easterbrook (1984) argued that there are more affordable methods companies may choose to give signal to investors, for example, publishing announcement about prospect and ability of companies to create profit by hiring individuals or organizations outside the companies to analyze their financial reports and give opinion whether or not their managers have run the companies well.

Separated function between management and shareholders is the foundation of the agency theory proposed by Jensen and Meckling (1976). When they have conflict of interests, in which managers may sometimes take actions shareholders disagree upon, agency cost should minimize this conflict using total of supervising cost by owners through commissioner board, institutional ownership and public ownership as instrument, mechanism and structure used to evaluate managerial behavior that benefits managers themselves (self-serving). Objective of evaluating the self-serving behavior is to increase efficiency and eventually improve financial performance of a company. However, in practice, appointed independent commissioners responsible for supervision and giving advice are unable to carry out their responsibility optimally. At the same time, small proportion of managerial ownership is unable to keep balance between management and shareholder’s interest.
Brigham et al. (2007) argued that in order to maximize corporate value, management should utilize strength and solve issues companies have. An investor, interested in buying share with long-term orientation, will evaluate company’s ability to create profit, future prospect and risk. Therefore, good financial performance is a signal that a company has ability to increase its corporate value.

The finding also confirms findings of several previous studies particularly one discussing the influence of financial performance on corporate value. The finding of Varaiya et al. (1987) showed that financial performance had a positive influence on corporate value. Wahyu (2013) explained financial performance, measured using ROA, ROE and NPM as the indicators, had a significant influence on firm value, measured using Tobin’s Q, PER and closing price. Jauhar’s (2014) study revealed that financial performance of which indicators were ROA and ROE had a positive influence on firm value of which indicators were MBR, Tobin’s Q and closing price. At the opposite, Manaje’s study showed financial performance had a negative influence on corporate value.

5. Limitation, suggestion and recommendation

Limitation of the study
The study has several limitations, namely, first, managerial ownership is one of the indicators of GCG that is expected to minimize discrepancy between manager and shareholder’s interests, help managers get direct advantage from decision they are making and take consequence from the decision. The argument indicates how important managerial ownership is in ownership structure of a company. The finding of this study revealed that managerial ownership was very limited. Having observed 22 companies, only 6 companies allow their managers become shareholders. These managers own less than 1 percent of stock in the companies where they work; second, public ownership is an indicator of good corporate governance that represents public trust toward a company. Public trust has massive influence on company performance. Based on the data, the percentage of public ownership was 38.35 percent or higher than the minimum 7.5 percent from Indonesian Stock Exchange. However, this percentage does not represent any relationship with GCG.

Suggestions
Based on the finding and limitation of the study, future researchers are expected to: conduct similar study while involving other exogenous variables such as intellectual capital and financial psychology. This study used one exogenous variable only (GCG); observed several types of industry and made comparison between companies that apply the principles of GCG and those which do not.

Based on the discussions, the researchers propose some recommendations for management, investors and the government: first, management is expected to carry out the principles of GCG consistently, high fluctuation of stock price results in higher risk and decreasing public trust. Therefore, the management should make careful observation on the current stock price. Second, investors are expected to depend upon dividend rather than capital gain because predicting the future is quite a challenge, take into account how much dividend company will pay and capital gain as well as conduct analysis on financial performance of a company. Third, some suggestions for the government are framework of GCG should guarantee there is strategic guidance for a company as well as accountability of board of commissioners toward shareholders and that board of commissioners conduct effective supervision on management; there is urgency for ownership structure because institutional shareholders may result in opportunistic behavior due to the act of collusion between the board of commissioners and the management.
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Debt maturity structure, institutional ownership and accounting conservatism
Evidence from Iranian listed companies

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Abstract
Purpose – The purpose of this paper is to examine the impact of debt maturity structure and types of institutional ownership on accounting conservatism by using different financial variables and proxies.
Design/methodology/approach – Employing panel data analysis in the R programming language, the authors test their hypotheses on a sample of 143 (858 firm-year observations) companies listed on the Tehran Stock Exchange during 2011–2016.
Findings – Using Basu (1997) and Beaver and Ryan (2000) models as proxies for accounting conservatism, the findings suggest a non-significant relationship between accounting conservatism and debt maturity structure. Contrary to the primary expectation, the results indicate that short-maturity debts are also non-significantly and negatively associated with accounting conservatism in financially distressed firms. Finally, using both conservatism measures, the authors document that there is no significant relationship between both active and passive institutional ownership and accounting conservatism as well as debt maturity structure.
Originality/value – The current study is the first study conducted in a developing country like Iran, and the outcomes of the study may be helpful to other developing nations.
Keywords Accounting conservatism, Institutional ownership, Debt maturity structure
Paper type Research paper

1. Introduction
One of the most important financial issues in today’s growing capital markets is the quality of firms’ financial information. Higher quality financial information leads to sound financial decisions made by potential investors and also contributes to more appropriate allocation of financial resources. In this respect, it is of considerable importance for managers to maintain a proper level of conservatism when providing required financial information for interested investors, primarily due to the fact that future losses stemming from too optimistic estimates are much more serious than losing profitable opportunities arising from adopting too pessimistic valuation approaches. Creditors are among the interested users of financial information, and their returns from investing in the net value of firms’ total assets are typically asymmetrical. That is, creditors do not earn any additional return from their investment when the value of a firm’s net total assets is more than the nominal value of its debts, regardless of the amount of the overvaluation. However, these interested groups earn
the sole net value of a firm’s total assets from their investment when the net assets are less
than the nominal value of the debts. Therefore, creditors are more concerned about the
undervaluation of assets than their overvaluation. From the creditors’ point of view, firms
should report the least possible value for their net total assets, mainly because higher
values of net total assets are generally regarded as unacceptable. The can be attained
by recognizing losses in a more timely fashion than gains (or the adoption of conservative
reporting practices). Accordingly, the present paper aims to investigate the impact of
short-maturity debt and the type of institutional ownership (i.e. active vs passive) on
different kinds of accounting conservatism (i.e. conditional and unconditional). Our primary
inquiry is motivated based on the mixed results provided by prior literature, indicating
similar roles for debt maturity structure, institutional ownership and accounting conditional
and unconditional conservatism in resolving agency costs. Indeed, we aim to address the
question of whether the degree of conservatism in financial reports is associated with the
extent of agency problem arising from both debt financing and the presence of institutional
investors within the corporate governance framework.

Although several empirical studies, to date, have examined accounting conservatism, the
economic demands for conservatism are still under a long-running debate. Some papers, for
instance, suggest that equity investors (shareholders) are more inclined toward conservative
financial reporting as a corporate governance mechanism or tool (Ball, 2001; Watts, 2003;
Ramalingegowda and Yu, 2012). Consistent with this notion, more recent studies document
that greater financial conservatism is captured when there is greater separation of
ownership and control (diffused ownership structure) as well as higher information
asymmetry between managers and shareholders (LaFond and Roychowdhury, 2008; LaFond
and Watts, 2008; Ramalingegowda and Yu, 2012). Prior literature also draws a clear
distinction between individual (unsophisticated) investors whose trading goals are
unrelated to information and institutional investors as sophisticated price-setters in capital
markets who are more likely to value conservative financial reporting (Chan and
Lakonishok, 1995; Sias et al., 2006; Ramalingegowda and Yu, 2012). The latter also adopt a
direct monitoring approach rather than monitoring through accounting numbers, primarily
due to greater access to both the managers and insider financial information (Carleton et al.,
1998; Ke et al., 1999; Prendergast, 2002; Ramalingegowda and Yu, 2012). According to the
argument of Ramalingegowda and Yu (2012), institutional characteristics inducing greater
monitoring incentives among institutional investors and subsequently driving greater
demand for the adoption of conservatism are concentration of share holdings, investment
horizon and independence from firm management. The major role played by institutional
investors within the corporate governance structure is also noteworthy. Specifically,
institutions have the distinct privilege of controlling and monitoring firms’ corporate
policies through their concentrated holdings, and, consequently, higher levels of
institutional ownership lead to lower agency costs (Crane et al., 2016). The extant
literature argues that institutional investors have the special privilege of monitoring
Corporate policies and lower costs of monitoring. Therefore, it is likely for firms with higher
levels of institutional ownership to exploit the potential of lower agency costs (Jensen and
Meckling, 1976). Prior literature also suggests that both active and passive institutional
ownships in the USA have increased to more than 60 percent over the past 40 years, with
passive funds forming more than 20 percent of the public equity holdings (Aghion et al.,
2013; Crane et al., 2016). Both the theory and empirical evidence confirm the active
monitoring function of institutional investors inside the corporate governance structure and
suggest that the process is rather difficult for more passive or less-informed investors
(Almazan et al., 2005).

In addition to the preceding discussion, we attempt to question the importance of
short-maturity debts in explaining conservative financial reports. It has been argued that
the inherent agency costs arising from the nature of debt financing such as information asymmetry and suboptimal investments could be mitigated by short-maturity debt covenants (Datta et al., 2005; Khurana and Wang, 2015). In this respect, Khurana and Wang (2015) argue that short-maturity debts are likely to affect the demand for accounting conservatism in two ways. On the one hand, based on the extant literature (e.g. Barnea et al., 1980; Leland and Toft, 1996), the authors demonstrate that the sensitivity of short-maturity debts in comparison with long-maturity debts in terms of valuation is lower and consequently propels managers to employ more monitoring mechanisms. This facilitates the shifting of investments toward less risky projects and accordingly lowers the need for debt-contracting as a potential contributing factor in the adoption of accounting conservatism. On the other hand, lenders are more inclined to demand more accounting conservatism when firm value decreases as a result of incomplete financial contracts, particularly debt contracts. At the same time, Khurana and Wang (2015) expect less demand for accounting conservatism when debt maturity is shorter, primarily due to the fact that lenders would be able to re-price debt when it is due for renewal and/or not renew the contract. Taking the results of Khurana and Wang (2015) together, the present paper posits a negative association between the debt maturity structure and accounting conservatism but, in contrast, finds a non-significant relationship.

Using a sample of 143 (858 firm-year observations) companies listed on the Tehran Stock Exchange (TSE) during 2009–2014, our findings, contrary to the results of prior literature, suggest that there is no significant relationship between debt maturity structure and the demand for conservative financial reports. This result is also confirmed for financially distressed firms. In addition, we show that both active (i.e. ownership by institutions that have an incentive to actively monitor management) and passive (i.e. ownership by institutions without corporate board representations) ownership structures are not significantly associated with accounting conservatism (both conditional and unconditional) as well as the debt maturity structure.

This paper proceeds as follows: the next section reviews prior literature on accounting conservatism and develops our hypotheses. Section 3 discusses our research design and sample selection procedure. Section 4 presents the estimation results. Finally, Section 5 concludes the paper.

2. Research background and hypothesis development

2.1 Accounting conservatism defined

As the old adage “anticipate no profits but anticipate all losses” goes, accountants are often inclined to require higher verifiability for recognizing good news as gains than for bad news as losses (Basu, 1997). Accordingly, conservative reporting is typically defined as the timely recognition of expected unfavorable events in income than the recognition of the effects of expected favorable events (Givoly et al., 2007). Lower cost or market accounting for inventories and the timely recognition of cost estimates leading to future expected losses on long-term contracts than those resulting in higher future profits are typical examples of financial conservatism (Basu, 1997). Nevertheless, from a broader perspective, conservatism is also defined and interpreted as accountants’ preference for the adoption of accounting methods leading to lower values of assets and revenues along with higher values of liabilities and expenses (Belkaouï, 1985; Basu, 1997).

2.2 Conditional vis-à-vis unconditional conservatism

Prior literature draws a sharp distinction between the two types of conservatism using different terminologies and/or several pairs of terms. In this respect, several papers have classified conservatism under income statement and balance sheet conservatism
categories (e.g. Basu, 1997; Ball et al., 2000; Pae et al., 2004). Beaver and Ryan (2005), arguably, criticize this classification for being rather unrealistic, primarily due to the consistency of the impact of conservatism on the income statement and balance sheet when the firm employs clean surplus accounting. The authors refer to conditional and unconditional conservatism just as Ball and Shivakumar (2005) do. Other pairs of names used for classifying conservatism are *ex post* and *ex ante* as well as news-dependent and news-independent conservatism. Following Beaver and Ryan (2005) and Ball and Shivakumar (2005), we use conditional and unconditional terms to name the two types of conservatism. Based on the argument of Beaver and Ryan (2005), unconditional conservatism can be triggered when the expected unrecorded goodwill is captured through the accounting process of assets and liabilities such as immediate expensing of the costs of intangible assets, accelerated depreciation of property, plant, and equipment and the historical cost accounting for positive net present value projects. The authors also define conditional conservatism as the timely recognition of book values under sufficiently adverse circumstances than their recognition under favorable circumstances.

2.3 Active vis-à-vis passive institutional ownership
Prior studies suggest that institutional investors are not alike in terms of their monitoring functions. In other words, they have different incentives for actively monitoring corporate managers (Navissi and Naiker, 2006; Cornett et al., 2007). Accordingly, institutional ownership is generally comprised of both active and passive investors. Passive institutional investors possess a high portfolio turnover and transient trading strategy. They are interested only in short-term profits and their performance is evaluated primarily based on the short-term returns they generate (Navissi and Naiker, 2006). On the other hand, active institutional investors are more inclined to gain corporate board representation than passive ones and consequently exercise efficient monitoring (Navissi and Naiker, 2006).

2.4 Debt maturity structure and accounting conservatism
To our knowledge, to date, prior literature on the relationship between accounting conservatism and the agency costs arising from debt financing has focused on different aspects of debts, such as debt maturity structure, the interest charged on the debts and in some cases, the extent of debt used in a firm’s capital structure (Ahmed et al., 2002; Zhang, 2008; Beatty et al., 2008; Khurana and Wang, 2015). The collective evidence provided by Ahmed et al. (2002), for instance, highlights the significant role of accounting conservatism in reducing corporate debt costs. Employing both market-based and accrual-based proxies for accounting conservatism, the authors indicate that corporate debt is negatively associated with the adoption of conservatism in financial reports, ceteris paribus. In a similar vein, Zhang (2008) recognizes mutual benefits for two sides of a debt contract, i.e., the lender and the borrower. Specifically, he predicts and finds that more conservative borrowers, as compared to their counterparts, enjoy lower initial interest rates offered by lenders as a result of their covenant violation and the consequent signaling of default risk. Using 3,641 private debt agreements with net worth covenants issued during 1994 to 2004, Beatty et al. (2008) documented the existence of conservative contract modifications, but not ubiquitously. Specifically, they provided some evidence that debt contracts are modified mostly when there are higher agency costs and lower litigation, tax and equity demands for conservatism. Recent evidence by Khurana and Wang (2015) focuses on the relationship between the debt maturity structure and accounting conservatism and indicates that the adoption of conservative accounting approach is negatively influenced by the short-maturity debt, which is also more
pronounced among financially distressed firms. Ball and Shivakumar (2005) took into consideration the extent of debt used in the capital structure of a sample of the privately held and publicly traded companies of the UK and demonstrated that the publicly held companies of the UK were more likely to recognize losses in a timelier manner (i.e. adopt conservative financial reporting) than their counterparts.

It has been argued that shortening debt maturity could provide the ground for mitigating both the agency costs arising from debt financing and underinvestment problems. The latter can be fulfilled through facilitating frequent debt re-pricing and making debt mature before the growth options expire (Myers, 1977; Barnea et al., 1980; Khurana and Wang, 2015). However, although shortening debt maturity has the above-cited strengths, firms are required to consider the suboptimal liquidation risks stemming from too much refinancing and the consequent bankruptcy costs. Indeed, they have to trade off the benefits and costs of using short-maturity debt (Sharpe, 1991; Diamond, 1991; Khurana and Wang, 2015). Furthermore, accounting conservatism could be a curative mechanism through which lender–borrower conflicts and the agency costs of debt can be mitigated (Watts, 2003; Ball and Shivakumar, 2005; Khurana and Wang, 2015). Prior literature also suggests that accounting conservatism can act as much of a deterrent against managers’ incentives to undertake self-serving projects that do not enhance shareholder value. To put it more simply, accounting conservatism, to some extent, prevents managers from deferring the recognition of economic losses and thus pursuing negative net present value projects by providing timelier revisions of earnings and asset book values (Watts, 2003; Ball and Shivakumar, 2005; Khurana and Wang, 2015). In this context, Bushman et al. (2011) examined the relations between corporate investment behavior and the timeliness of accounting recognition of economic losses by using firm-level investment decisions for a sample of 25 countries and found that managers’ tendency toward investment spending is positively associated with investment opportunities in countries where conservative reporting is more pronounced. Based on above-cited arguments, we hypothesize that short-maturity debt contracting is likely to be negatively associated with the demand for accounting conservatism, particularly when it facilitates the monitoring function of lenders and discourages shifting toward risky projects. As Khurana and Wang (2015) point out, it is predictable from the incomplete financial contracts perspective that short-maturity debt financing is likely to negatively affect the demand for accounting conservatism. Therefore, we present the following hypotheses to examine our prediction:

\[ H1. \] Short-maturity debt is negatively associated with accounting conservatism.

\[ H1a. \] Short-maturity debt is negatively associated with conditional accounting conservatism.

\[ H1b. \] Short-maturity debt is negatively associated with unconditional accounting conservatism.

Despite the above predictions, several papers have focused on the conflicts between lenders and shareholders in the presence of default risk. In this case, several events cause the longevity of effective debt maturity such as choosing riskier investment projects, over-financing, lower equity financing and concealing problems from creditors (Myers, 2001; Khurana and Wang, 2015).

Myers (2001) asserts that where the default risk is very small or negligible, debts values are rarely influenced by news regarding the economic performance of corporations. However, as the level of default risk rises, the value of debts are further influenced, and, consequently, the creditors are provided with an incentive to receive the performance-related news of the corporations. Eisdorfer (2008) examines the relationship between investment and volatility and finds the expected negative relation between the
two variables to be reversely affected by shareholders’ risk-shifting incentives. Indeed, the author offers two major results. The first result is related to the fact that financially distressed firms are faced with a weak negative relationship (and, in some cases, a positive relationship) between their investment intensity and volatility. The second finding reveals that the value-creation potential of investments in financially distressed firms is lower during times of high uncertainty. Based on the previously mentioned discussions, it can be concluded that financial distress (FD) is likely to influence the relationship between short maturity debts and accounting conservatism. Therefore, we posit the following hypotheses in the null form:

\[ H_2. \text{ Short-maturity debt is negatively associated with accounting conservatism in financially distressed firms.} \]

\[ H_{2a}. \text{ Short-maturity debt is negatively associated with conditional accounting conservatism in financially distressed firms.} \]

\[ H_{2b}. \text{ Short-maturity debt is negatively associated with unconditional accounting conservatism in financially distressed firms.} \]

Some recent studies indicate a positive association between the level of accounting conservatism and agency problems. LaFond and Roychowdhury (2008), for instance, examined the impact of managerial ownership on accounting conservatism employed by corporations and found that manager-owned firms with an accentuated state of ownership and control separation as well as agency conflicts are faced with lower conservatism. Likewise, LaFond and Watts (2008) demonstrate that there is a positive association between conservatism and information asymmetry arising from agency problems. These studies are indicative of how equity investors demand conservatism. Nevertheless, Ramalingegowda and Yu (2012) predict and find that institutional investors that are more likely to monitor corporate managers drive the demand for conservatism more than the individual investors. Indeed, institutional investors, as more sophisticated and important price-setters in capital markets, perceive and value corporate governance benefits of conservative financial reporting and, consequently, demand more conservative accounting from managers (Bartov et al., 2000; Chakravarty, 2001; Sias et al., 2006; Ramalingegowda and Yu, 2012). Prior literature also introduces some institutional characteristics inducing higher monitoring incentives such as long investment horizons, concentration of share holdings and independence from management (Shleifer and Vishny, 1986; Hartzell and Starks, 2003; Chen et al., 2007; Ramalingegowda and Yu, 2012). This leads to our next hypotheses as follows:

\[ H_3. \text{ There is a significant association between institutional ownership and accounting conservatism.} \]

\[ H_{3a}. \text{ There is a significant association between active institutional ownership and conditional accounting conservatism.} \]

\[ H_{3b}. \text{ There is a significant association between passive institutional ownership and conditional accounting conservatism.} \]

\[ H_{3c}. \text{ There is a significant association between active institutional ownership and unconditional accounting conservatism.} \]

\[ H_{3d}. \text{ There is a significant association between passive institutional ownership and unconditional accounting conservatism.} \]

Finally, based on the above-mentioned relationships, we posit the following hypotheses as well:

\[ H_4. \text{ There is a significant association between institutional ownership and short-maturity debt.} \]
$H4a$. There is a significant association between active institutional ownership and short-maturity debt.

$H4b$. There is a significant association between passive institutional ownership and short-maturity debt.

3. Research design

3.1 Data sources and sample selection procedure
We obtain our required data manually from the hardcopy financial statements held in the TSE library (Codal[1] and its supplementary software known as Rahavard Novin) for the period 2011–2016. To construct our sample for the paper’s hypotheses, we begin with all client-year observations present on the Codal database, i.e., a potential population of 2,982 firm-year observations. We then exclude delisted observations (696 firm-year observations), observations with missing or insufficient variable data (126 firm-year observations) and newly-listed observations[2] (408 firm year observations). We also exclude firms operating in banking industry as well as financial and investment institutions (894 firm-year observations) to calculate the variables used in our equations, primarily because financial institutions and banking industry have different reporting requirements that could influence the figures associated with dependent variables. This leaves us with a primary sample of 858 firm-year observations. Table I discusses the breakdown of sample attrition.

3.2 Measures of accounting conservatism
The present paper employs Basu’s (1997) earning-return model along with Beaver and Ryan’s (2000) book-to-market model to measure accounting conservatism. Basu’s (1997) model regresses earnings on positive (negative) stock returns (i.e. the sign of the return coefficient could be either positive or negative) to capture good or bad economic news as follows:

$$NI_{jt} = \beta_0 + \beta_1 \text{NEG}_{JT} + \beta_2 \text{RET}_{JT} + \beta_3 \text{NEG}_{JT} \times \text{RET}_{JT} + \epsilon,$$

where $NI_{jt}$ is the annual income before extraordinary items of firm $j$ in year $t$ scaled by the market value of stockholders’ equity; $\text{RET}_{JT}$ is the buy-and-hold stock return of firm $j$ over year $t$; $\text{NEG}_{JT}$ is the indicator variable equal to 1 if $\text{RET}_{JT}$ is negative and 0 otherwise.

In Equation (1), the coefficient on $\text{NEG}_{JT}$ ($\beta_2$) captures the timeliness of earnings concerning good news and the coefficient on the interaction variable of $\text{NEG}_{JT} \times \text{RET}_{JT}$ ($\beta_3$) captures asymmetric timeliness regarding bad news vs good news (i.e. the measure of accounting conservatism). We use Equation (1) to measure conditional conservatism. Following Ismail and Elbolok (2011), we also incorporate MB (ratio of market value to book value of stockholders’ equity) in Equation (1) in order to measure unconditional conservatism.

Beaver and Ryan (2000) designed a model for measuring accounting conservatism by capturing the difference between the book value and market value of net total assets. To put

---

| Initial population of industrial firms with required data for estimating variables derived |
|-----------------------------------------------|-------------------|
| from the TSE database for the sample period 2011–2016 | 2,982 |
| Less: Delisted observations | 696 |
| Less: Observations with missing variable data | 126 |
| Less: Observations operating in banking industry as well as financial and investment institutions | 894 |
| Less: Newly-listed observations | 408 |
| Equal: Total observations in sample | 858 |

Table I. Sample attrition
it simply, the authors measured conservatism as the ratio of book to market value of stockholders' equity:

\[
CON = \frac{\text{Book Value of Stockholders' Equity}}{\text{Market Value of Stockholders' Equity}} \times (-1).
\] (2)

3.3 Regression models

Following Khurana and Wang (2015), we use Basu’s (1997) modified model to empirically examine the relationship between short-maturity debts and conditional (unconditional) conservatism reflected in \( H1-H1b \) as follows:

\[
NI_t = \beta_0 + \beta_1 \text{NEG}_t + \beta_2 \text{ST}_{t-1} + \beta_3 \text{MB}_{t-1} + \beta_4 \text{LEV}_{t-1} + \beta_5 \text{SIZE}_{t-1} \\
+ \beta_6 \text{NEG}_t \times \text{ST}_{t-1} + \beta_7 \text{NEG}_t \times \text{MB}_{t-1} + \beta_8 \text{NEG}_t \times \text{LEV}_{t-1} \\
+ \beta_9 \text{NEG}_t \times \text{SIZE}_{t-1} + \beta_{10} \text{RET}_t + \beta_{11} \text{RET}_t \times \text{ST}_{t-1} + \beta_{12} \text{RET}_t \times \text{MB}_{t-1} \\
+ \beta_{13} \text{RET}_t \times \text{LEV}_{t-1} + \beta_{14} \text{RET}_t \times \text{SIZE}_{t-1} + \beta_{15} \text{RET}_t \times \text{NEG}_t \\
+ \beta_{16} \text{RET}_t \times \text{NEG}_t \times \text{ST}_{t-1} + \beta_{17} \text{RET}_t \times \text{NEG}_t \times \text{MB}_{t-1} \\
+ \beta_{18} \text{RET}_t \times \text{NEG}_t \times \text{LEV}_{t-1} + \beta_{19} \text{RET}_t \times \text{NEG}_t \times \text{SIZE}_{t-1}.
\] (3)

In Equation (2), \( ST \) represents the extent of short-maturity debt in a firm’s capital structure. Following Fan et al. (2012) and Wang et al. (2010), we use the ratio of short-term debts to total debts as a proxy for the debt maturity structure. The market-to-book (MB) ratio is computed as the market value scaled by the book value of common equity. MB is used to measure unconditional conservatism and its relation with the debt maturity structure. LEV represents the financial leverage and is calculated as the book value of debts scaled by the book value of total assets. SIZE is a proxy for firm size and computed as the natural logarithm of market value of equity. To examine the relation between debt maturity structure and accounting conservatism, we also estimate the following model (Beaver and Ryan, 2000):

\[
CON_t = \beta_0 + \beta_1 \text{ST}_{t-1} + \beta_2 \text{LEV}_{t-1} + \beta_3 \text{SIZE}_{t-1} + \epsilon.
\] (4)

where \( CON \) is the accounting conservatism; \( ST \) is the extent of short-maturity debt in a firm’s capital structure; \( LEV \) is the financial leverage, calculated as the book value of debts scaled by the book value of total assets; \( SIZE \) is the firm size, computed as the natural logarithm of the market value of equity.

To test the association between short-maturity debts and conditional and unconditional conservatism in financially distressed firms (i.e. \( H2-H2b \)), we employ Altman’s (1968) bankruptcy prediction model (Z-score). This model is dependent on five different ratios: namely, liquidity, solvency, profitability and activity:

\[
Z = \alpha + 0.012 \text{WCTA} + 0.014 \text{ROA} + 0.033 \text{EBTA} \\
+ 0.006 \text{MVTD} + 0.999 \text{STA}.
\] (5)

In Equation (5) \( \text{WCTA} \) represents the ratio of working capital to total assets; \( \text{ROA} \), the ratio of retained earnings to total assets; \( \text{EBTA} \), the ratio of earnings before income and tax to total assets; \( \text{MVTD} \), the ratio of the market value of equity to book value of total debts; \( \text{STA} \), the ratio of sales income to total assets; and \( Z \), the overall Z index. The lower a firm’s Z-score, the higher its probability of bankruptcy. Indeed, \( Z \) values lower than 1.81 are indicative of bankruptcy. Based on the previous measure of PD or bankruptcy and
following Khurana and Wang (2015), we estimate the following regression model to test $H2-H2b$:

$$NI_t = \beta_0 + \beta_1 \text{NEG}_t + \beta_2 ST_{t-1} + \beta_3 MB_{t-1} + \beta_4 LEV_{t-1} + \beta_5 SIZE_{t-1} + \beta_6 FD \\
+ \beta_7 \text{NEG}_t \times ST_{t-1} + \beta_8 \text{NEG}_t \times MB_{t-1} + \beta_9 \text{NEG}_t \times LEV_{t-1} \\
+ \beta_{10} \text{NEG}_t \times SIZE_{t-1} + \beta_{11} \text{NEG}_t \times FD + \beta_{12} \text{RET}_t + \beta_{13} \text{RET}_t \times ST_{t-1} \\
+ \beta_{14} \text{RET}_t \times MB_{t-1} + \beta_{15} \text{RET}_t \times LEV_{t-1} + \beta_{16} \text{RET}_t \times SIZE_{t-1} \\
+ \beta_{17} \text{RET}_t \times FD + \beta_{18} \text{RET}_t \times \text{NEG}_t + \beta_{19} \text{RET}_t \times \text{NEG}_t \times ST_{t-1} \\
+ \beta_{20} \text{RET}_t \times \text{NEG}_t \times MB_{t-1} + \beta_{21} \text{RET}_t \times \text{NEG}_t \times LEV_{t-1} \\
+ \beta_{22} \text{RET}_t \times \text{NEG}_t \times SIZE_{t-1} + \beta_{23} \text{RET}_t \times \text{NEG}_t \times FD + \epsilon.$$  \hspace{1cm} (6)

where $FD$ is our variable of interest which equals 1 if the firm is faced with $FD$, and 0 otherwise. The rest of the variables are similar to those defined in Equation (3). To test the relationship between the debt maturity structure and accounting conservatism by our second conservatism measure, we estimate the following Beaver and Ryan’s (2000) model:

$$CON_t = \beta_0 + \beta_1 ST_{t-1} + \beta_2 FD + \beta_3 ST \times FD + \beta_4 LEV_{t-1} + \beta_5 SIZE_{t-1} + \epsilon.$$  \hspace{1cm} (7)

All of the variables included in Equation (7) are similar to variables used in Equations (3), (4) and (6). We examine the effect of active and passive institutional ownerships on accounting conservatism ($H3-H3d$) by modifying Basu’s (1997) model as follows:

$$NI_t = \beta_0 + \beta_1 \text{NEG}_t + \beta_2 \text{RET}_t + \beta_3 \text{RET}_t \times \text{NEG}_t \\
+ \beta_4 \text{INST}_t + \beta_5 \text{INST}_t \times \text{NEG}_t + \beta_6 \text{INST}_t \times \text{RET}_t \\
+ \beta_7 \text{INST}_t \times \text{RET}_t \times \text{NEG}_t + \epsilon.$$  \hspace{1cm} (8)

In Equation (8), the positive or negative sign of $\beta_7$ indicates that greater (lesser) institutional ownership results in greater (lesser) accounting conservatism. Next, we draw a distinction between active and passive institutional ownerships and then modify the above-mentioned model:

$$NI_t = \beta_0 + \beta_1 \text{NEG}_t + \beta_2 \text{RET}_t + \beta_3 \text{MB}_{t-1} + \beta_4 \text{RET}_t \times \text{NEG}_t \\
+ \beta_5 \text{NEG}_t \times \text{MB}_{t-1} + \beta_6 \text{RET}_t \times \text{NEG}_t \times \text{MB}_{t-1} \\
+ \beta_7 \text{ACINST}_t + \beta_8 \text{ACINST}_t \times \text{NEG}_t + \beta_9 \text{ACINST}_t \times \text{RET}_t \\
+ \beta_{10} \text{ACINST}_t \times \text{RET}_t \times \text{NEG}_t + \beta_{11} \text{ACINST}_t + \beta_{12} \text{INACINST}_t + \beta_{13} \text{INACINST}_t \times \text{NEG}_t \\
+ \beta_{14} \text{INACINST}_t \times \text{RET}_t + \beta_{15} \text{INACINST}_t \times \text{RET}_t \times \text{NEG}_t + \epsilon.$$  \hspace{1cm} (9)

In Equations (8) and (9), INST represents the percentage of shares held by institutional investors; ACINST, the percentage of shares owned by active institutional investors (i.e. the institutional investors with representatives on corporate board of directors); INACINST, the percentage of shares owned by passive institutional investors (i.e. the institutional investors without any board representation). The rest of variables are similar to previous equations. In addition to Equation (9), we attempt to examine the effect of active and passive institutional ownerships on the second measure of accounting conservatism proposed by Beaver and Ryan (2000) by estimating the following equation:

$$CON_t = \beta_0 + \beta_1 \text{ACINST}_t + \beta_2 \text{INACINST}_t + \beta_3 \text{LEV}_{t-1} + \beta_4 \text{SIZE}_{t-1} + \epsilon.$$  \hspace{1cm} (10)
Finally, the following equation captures the effect of active and passive institutional ownerships on the debt maturity structure:

$$ST = \beta_0 + \beta_1 \text{NEG}_t + \beta_2 \text{ACINST}_t + \beta_3 \text{INACINST}_t + \beta_4 \text{LEV}_{t-1} + \beta_5 \text{SIZE}_{t-1} + \epsilon.$$  (11)

### 3.4 Specification tests (diagnostics) in panel data models

We conduct several diagnostic tests by using the R programming language to estimate the most appropriate models. What follows is a succinct explanation of these tests at 0.05 significance level: the results of F-limer specification test ($P_1 < 0.001$; $P_2 < 0.001$; $P_3 < 0.001$; $P_4 < 0.001$) confirms the preference of panel data model for all four models and for both accounting conservatism measures. The results of Hausman test indicates that all models are better fitted using the random effects model ($P_1: 0.497$; $P_2: 0.962$; $P_3: 0.961$; $P_4: 0.204$) for both conservatism measures. Next, we use Lagrange Multiplier Test (Breusch-Pagan) to choose the appropriate model between a random effects regression and a simple OLS regression. The null hypothesis in the LM test is that variances across entities are zero. That is, there is no significant difference across units (i.e. no panel effect). This test confirms the appropriateness of the pooled OLS model with time effects for all regression models ($P_1: 0.023$; $P_2: 0.003$; $P_3: 0.388$; $P_4: 0.387$) and for both conservatism measures. Finally, the results of specification tests indicate that the panel of random effects is the most appropriate model so far all models. To test the serial correlation of (the idiosyncratic component of) the errors in panel models, we also conduct the Breusch-Godfrey/Wooldridge test on the residuals of the (quasi-) demeaned model, which should be serially uncorrelated under the null of no serial correlation in idiosyncratic errors for both conservatism measures. The results suggest that our final models are fitted using the Panel Generalized Linear Model (PGLM). A brief summary of the above-cited tests is shown in Table II.

### 4. Results

#### 4.1 Descriptive statistics

Table III reports the descriptive statistics of the variables used in the regression models. As it is evident in panel A of this table, current debts on average account for 86 percent of the total debts of the sample firms. Comparing the average and standard deviation of debt maturity structure ($ST$) and Beaver and Ryan (2000) conservatism measure also reveals a negative relationship between the two, which could provide supporting evidence for $H2$.

<table>
<thead>
<tr>
<th>Specification test</th>
<th>Null hypothesis</th>
<th>Hypothesis (Basu)</th>
<th>Hypothesis (B&amp;R)</th>
<th>Test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-limer</td>
<td>OLS model is appropriate</td>
<td>1, 2, 3 &amp; 4</td>
<td>1, 2, 3 &amp; 4</td>
<td>Preference of panel data model</td>
</tr>
<tr>
<td>F-limer</td>
<td>OLS model with time effects is appropriate</td>
<td>1, 2, 3 &amp; 4</td>
<td>1, 2, 3 &amp; 4</td>
<td>Preference of panel data model</td>
</tr>
<tr>
<td>Hausman</td>
<td>Random effects model is appropriate</td>
<td>1, 2, 3 &amp; 4</td>
<td>1, 2, 3 &amp; 4</td>
<td>Appropriate</td>
</tr>
<tr>
<td>LM</td>
<td>Pooled OLS model with individual effects is appropriate</td>
<td>1, 2, 3 &amp; 4</td>
<td>1, 2, 3 &amp; 4</td>
<td>Inappropriate</td>
</tr>
<tr>
<td>LM</td>
<td>Pooled OLS model with time effects is appropriate</td>
<td>1, 2, 3 &amp; 4</td>
<td>1, 2, 3 &amp; 4</td>
<td>Appropriate</td>
</tr>
<tr>
<td>LM</td>
<td>Pooled OLS model with individual and time effects is appropriate</td>
<td>1, 2, 3 &amp; 4</td>
<td>1, 2, 3 &amp; 4</td>
<td>Inappropriate</td>
</tr>
<tr>
<td>Breusch–Godfrey/Wooldridge</td>
<td>No serial correlation in idiosyncratic errors</td>
<td>1, 2, 3 &amp; 4</td>
<td>1, 2, 3 &amp; 4</td>
<td>The residuals are serially correlated</td>
</tr>
</tbody>
</table>

Table II. The summary of specification tests in panel data models.
In panels B and C of Table III, the proxy used for FD indicates that an average of 72 percent of sample firms are faced with FD. The indicator variable with respect to Basu’s (1997) model (NEG) demonstrates an average of 46 percent negative return on common equity of sample firms, suggesting the critical condition of most companies listed on the TSE. The average net income before extraordinary items of sample firms is 10 percent of market value of stockholders’ equity. Finally, Table III indicates that 57 percent of institutional investors are active institutional investors (i.e. with board representation) and 13 percent of them are passive institutional investors (i.e. without any representative on the corporate board of directors).

4.2 Estimation results
Table IV exhibits the estimation results of model (3) using PGLM. As it is shown in panel A of this table, while LEV is negatively (C: −0.936) and significantly (two-tailed p < 0.001) associated with accounting conservatism, the coefficient on RET × NEG (C: 3.336) as well as the coefficient on RET × LEV (C: 0.283) suggest a significant and positive relation with accounting conservatism. In addition, the interaction variables of RET × NEG × LEV (C: −1.120; P: 0.017) and NEG × RET × SIZE (C: −0.158; P: 0.047) indicate a negative and significant relation with accounting conservatism. As the estimation results show, the rest of variables used in model (3) are not significantly associated with accounting conservatism. Based on preceding discussions and considering the non-significant coefficient on RET × NEG × ST, our results do not provide supporting evidence for H1. However, the results confirm the negative relationship between debt maturity structure and accounting conservatism.

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>NI</td>
<td>858</td>
<td>−3.306</td>
<td>1.827</td>
<td>0.097</td>
<td>0.165</td>
<td>0.412</td>
</tr>
<tr>
<td>ST</td>
<td>858</td>
<td>0.156</td>
<td>1.000</td>
<td>0.858</td>
<td>0.915</td>
<td>0.154</td>
</tr>
<tr>
<td>RET</td>
<td>858</td>
<td>−0.784</td>
<td>6.992</td>
<td>0.077</td>
<td>0.014</td>
<td>0.487</td>
</tr>
<tr>
<td>MB</td>
<td>858</td>
<td>−277.242</td>
<td>87.069</td>
<td>1.104</td>
<td>1.463</td>
<td>12.919</td>
</tr>
<tr>
<td>LEV</td>
<td>858</td>
<td>−0.758</td>
<td>6.596</td>
<td>0.670</td>
<td>0.685</td>
<td>0.507</td>
</tr>
<tr>
<td>CON</td>
<td>858</td>
<td>−5.148</td>
<td>8.509</td>
<td>−0.699</td>
<td>−0.613</td>
<td>0.965</td>
</tr>
<tr>
<td>ACINST</td>
<td>858</td>
<td>0.000</td>
<td>0.990</td>
<td>0.573</td>
<td>0.680</td>
<td>0.311</td>
</tr>
<tr>
<td>Panel B: descriptive statistics of financially distressed observations (FD = 1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NI</td>
<td>616</td>
<td>−3.310</td>
<td>1.830</td>
<td>0.936</td>
<td>0.170</td>
<td>0.432</td>
</tr>
<tr>
<td>ST</td>
<td>616</td>
<td>0.160</td>
<td>1.000</td>
<td>0.857</td>
<td>0.920</td>
<td>0.160</td>
</tr>
<tr>
<td>RET</td>
<td>616</td>
<td>−0.780</td>
<td>4.520</td>
<td>0.077</td>
<td>0.000</td>
<td>0.465</td>
</tr>
<tr>
<td>MB</td>
<td>616</td>
<td>−277.240</td>
<td>87.070</td>
<td>0.668</td>
<td>1.435</td>
<td>15.011</td>
</tr>
<tr>
<td>LEV</td>
<td>616</td>
<td>0.140</td>
<td>3.060</td>
<td>0.678</td>
<td>0.665</td>
<td>0.243</td>
</tr>
<tr>
<td>CON</td>
<td>616</td>
<td>0.000</td>
<td>0.710</td>
<td>−0.699</td>
<td>−0.610</td>
<td>0.968</td>
</tr>
<tr>
<td>Panel C: descriptive statistics of non-financially distressed observations (FD = 0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NI</td>
<td>242</td>
<td>−2.070</td>
<td>1.650</td>
<td>0.104</td>
<td>0.150</td>
<td>0.357</td>
</tr>
<tr>
<td>ST</td>
<td>242</td>
<td>0.230</td>
<td>1.000</td>
<td>0.757</td>
<td>0.890</td>
<td>0.135</td>
</tr>
<tr>
<td>RET</td>
<td>242</td>
<td>0.780</td>
<td>6.600</td>
<td>0.075</td>
<td>0.000</td>
<td>0.598</td>
</tr>
<tr>
<td>MB</td>
<td>242</td>
<td>−7.112</td>
<td>43.400</td>
<td>2.219</td>
<td>1.500</td>
<td>3.915</td>
</tr>
<tr>
<td>LEV</td>
<td>242</td>
<td>0.150</td>
<td>2.770</td>
<td>0.651</td>
<td>0.640</td>
<td>0.283</td>
</tr>
<tr>
<td>CON</td>
<td>242</td>
<td>−3.770</td>
<td>5.370</td>
<td>−0.689</td>
<td>−0.605</td>
<td>0.946</td>
</tr>
</tbody>
</table>

Table III. Descriptive statistics

In panels B and C of Table III, the proxy used for FD indicates that an average of 72 percent of sample firm are faced with FD. The indicator variable with respect to Basu’s (1997) model (NEG) demonstrates an average of 46 percent negative return on common equity of sample firms, suggesting the critical condition of most companies listed on the TSE. The average net income before extraordinary items of sample firms is 10 percent of market value of stockholders’ equity. Finally, Table III indicates that 57 percent of institutional investors are active institutional investors (i.e. with board representation) and 13 percent of them are passive institutional investors (i.e. without any representative on the corporate board of directors).
Panel B of Table IV also suggests that LEV (C: 2.933; p < 0.001) and SIZE (C: 0.311; p < 0.001) are negatively and significantly associated with accounting conservatism computed by Beaver and Ryan’s (2000) model (at 0.01 significance level). Furthermore, the figures reported in panel B are also indicative of the significance of the coefficient on ST (C: −1.122; p < 0.001) of significance level. Therefore, our findings provide supporting evidence for H1. That is, accounting conservatism measured by Beaver and Ryan’s (2000) model is negatively influenced by debt maturity structure.

The figures shown in Table V are the estimation results of models (6) and (7) using PGLM. Panel A of this table indicates that LEV and the interaction variables of RET × NEG × LEV as well as RET × NEG × SIZE are negatively and significantly associated with accounting conservatism measured by modified Basu’s (1997) model. Since the coefficient on the interaction variable of RET × NEG × ST × FD (C: −0.321; P: 0.882) is non-significant, our findings do not support H2. Nevertheless, our findings confirm the negative relation between debt maturity structure and accounting conservatism. Panel (B) of Table V indicates a significant relationship between all the variables used in model (7) and accounting conservatism measured by Beaver and Ryan’s (2000) model. In this respect, the significant coefficients on ST (C: −1.122; p < 0.001) and FD (−1.245; p < 0.001) provide support for H2.

Table VI indicates the estimation results of model (9) and (10) using PGLM. As it is evident in panel A of Table VI, the ratio of MB value of stockholders’ equity and passive institutional investors (INACINST) is significantly associated with accounting conservatism (at 0.05 of significance level). However, since the coefficients on the interaction variables of INACINST × RET × NEG (C: 0.880; P: 0.076) and ACINST × RET × NEG
are not statistically significant, $H_3$ is not supported. Panel B of Table VI indicates that $LEV$ and $SIZE$ are significantly and positively associated with accounting conservatism measured by Beaver and Ryan’s (2000) model. However, these figures do not show any significant relationship between active ($C: -0.152; P: 0.387$) and passive ($C: -0.243; P: 0.329$) institutional investors ($ACINST$ and $INACINST$) and accounting conservatism. Accordingly, $H_3$ is not supported by our findings.

Finally, the estimation results of model (11) reported in Table VII suggest that active ($C: 0.000; P: 0.978$) and passive ($C: -0.006; P: 0.885$) institutional ownerships are not significantly associated with accounting conservatism and consequently $H_4$ is not supported as well.

5. Conclusions
The present paper examines the relation between a firm’s overall the debt maturity structure and accounting conservatism in financially distressed and non-distressed firms. In this respect, we employ two different measures for accounting conservatism often used in prior literature, i.e., Basu’s (1997) earning-return model as well as Beaver and Ryan’s (2000) book-to-market model. We argue that short-maturity debts contributes to the reduction of suboptimal investment problems inherent in debt financing and information asymmetry and mitigates agency costs of debts. Indeed, we expect that short-maturity debt covenants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>SD</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A: estimation results by using modified Basu’s (1997) model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.936</td>
<td>0.334</td>
<td>2.802</td>
<td>0.005***</td>
</tr>
<tr>
<td>$NEG$</td>
<td>0.172</td>
<td>0.621</td>
<td>0.276</td>
<td>0.782</td>
</tr>
<tr>
<td>$ST$</td>
<td>-0.289</td>
<td>0.285</td>
<td>-1.050</td>
<td>0.293</td>
</tr>
<tr>
<td>$MB$</td>
<td>0.002</td>
<td>0.001</td>
<td>1.638</td>
<td>0.101</td>
</tr>
<tr>
<td>$LEV$</td>
<td>-1.007</td>
<td>0.108</td>
<td>-9.289</td>
<td>&lt; 0.001***</td>
</tr>
<tr>
<td>$SIZE$</td>
<td>0.004</td>
<td>0.017</td>
<td>0.248</td>
<td>0.803</td>
</tr>
<tr>
<td>$FD$</td>
<td>-0.334</td>
<td>0.292</td>
<td>-1.143</td>
<td>0.253</td>
</tr>
<tr>
<td>$NEG \times ST$</td>
<td>0.222</td>
<td>0.322</td>
<td>0.427</td>
<td>0.669</td>
</tr>
<tr>
<td>$NEG \times MB$</td>
<td>-0.002</td>
<td>0.003</td>
<td>-0.755</td>
<td>0.451</td>
</tr>
<tr>
<td>$NEG \times LEV$</td>
<td>0.033</td>
<td>0.204</td>
<td>0.163</td>
<td>0.870</td>
</tr>
<tr>
<td>$NEG \times SIZE$</td>
<td>-0.028</td>
<td>0.030</td>
<td>-0.933</td>
<td>0.351</td>
</tr>
<tr>
<td>$NEG \times FD$</td>
<td>0.332</td>
<td>0.526</td>
<td>0.631</td>
<td>0.527</td>
</tr>
<tr>
<td>$RET$</td>
<td>0.906</td>
<td>1.657</td>
<td>0.857</td>
<td>0.391</td>
</tr>
<tr>
<td>$RET \times ST$</td>
<td>-0.435</td>
<td>1.136</td>
<td>-0.383</td>
<td>0.701</td>
</tr>
<tr>
<td>$RET \times MB$</td>
<td>0.005</td>
<td>0.013</td>
<td>0.432</td>
<td>0.665</td>
</tr>
<tr>
<td>$RET \times LEV$</td>
<td>0.296</td>
<td>0.169</td>
<td>1.749</td>
<td>0.080</td>
</tr>
<tr>
<td>$RET \times SIZE$</td>
<td>-0.052</td>
<td>0.034</td>
<td>-1.523</td>
<td>0.127</td>
</tr>
<tr>
<td>$RET \times NEG$</td>
<td>3.017</td>
<td>2.071</td>
<td>1.457</td>
<td>0.145</td>
</tr>
<tr>
<td>$RET \times NEG \times ST \times FD$</td>
<td>-0.321</td>
<td>2.165</td>
<td>-0.148</td>
<td>0.882</td>
</tr>
<tr>
<td>$RET \times NEG \times MB$</td>
<td>-0.005</td>
<td>0.014</td>
<td>-0.423</td>
<td>0.672</td>
</tr>
<tr>
<td>$RET \times NEG \times LEV$</td>
<td>-1.388</td>
<td>0.498</td>
<td>-2.807</td>
<td>0.005***</td>
</tr>
<tr>
<td>$RET \times NEG \times SIZE$</td>
<td>-0.179</td>
<td>0.083</td>
<td>-2.144</td>
<td>0.032***</td>
</tr>
<tr>
<td>Panel B: estimation results by using Beaver and Ryan’s (2000) model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-5.560</td>
<td>0.486</td>
<td>-11.579</td>
<td>&lt; 0.001***</td>
</tr>
<tr>
<td>$ST$</td>
<td>-1.122</td>
<td>0.331</td>
<td>-3.382</td>
<td>&lt; 0.001***</td>
</tr>
<tr>
<td>$FD$</td>
<td>-1.245</td>
<td>0.336</td>
<td>-3.498</td>
<td>&lt; 0.001***</td>
</tr>
<tr>
<td>$ST \times FD$</td>
<td>1.113</td>
<td>0.392</td>
<td>2.834</td>
<td>0.0045***</td>
</tr>
<tr>
<td>$LEV$</td>
<td>2.899</td>
<td>0.132</td>
<td>21.899</td>
<td>&lt; 0.001***</td>
</tr>
<tr>
<td>$SIZE$</td>
<td>0.320</td>
<td>0.026</td>
<td>12.053</td>
<td>&lt; 0.001***</td>
</tr>
</tbody>
</table>

Notes: *,**,***: Statistical significance at 10, 5 and 1 percent, respectively
lead to less conservative financial reporting, primarily because conservatism per se can trigger debt covenant violations. However, our findings are in contradiction to our primary expectation and suggest a non-significant relation between the two in both financially distressed and non-distressed firms. This finding is inconsistent with the results reported by Khurana and Wang (2015) who found a negative and significant relationship.

Our study also extends an emerging empirical literature examining institutional investors’ demand for accounting conservatism (LaFond and Roychowdhury, 2008; LaFond and Watts, 2008; Ramalingegowda and Yu, 2012). To put it simply, we shed further light on prior studies by providing evidence that institutional investors as a major group of investors who demand conservatism could significantly influence the extent of conservatism employed in financial reports. Again, our results did not provide supporting evidence for preceding expectation as they indicated a non-significant relationship between both active and passive institutional ownerships and accounting conservatism. Likewise, the relationship between institutional ownership and accounting conservatism was found to be non-significant.

### Table VI.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>SD</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A: estimation results by using modified Basu’s (1997) model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.169</td>
<td>0.070</td>
<td>2.387</td>
<td>0.017***</td>
</tr>
<tr>
<td>NEG</td>
<td>-0.126</td>
<td>0.123</td>
<td>-1.021</td>
<td>0.303</td>
</tr>
<tr>
<td>MB</td>
<td>0.004</td>
<td>0.001</td>
<td>2.710</td>
<td>0.008***</td>
</tr>
<tr>
<td>RET</td>
<td>-0.002</td>
<td>0.079</td>
<td>-0.025</td>
<td>0.980</td>
</tr>
<tr>
<td>ACINST</td>
<td>0.046</td>
<td>0.096</td>
<td>0.481</td>
<td>0.630</td>
</tr>
<tr>
<td>INACINST</td>
<td>-0.400</td>
<td>0.174</td>
<td>-2.299</td>
<td>0.021***</td>
</tr>
<tr>
<td>NEG × MB</td>
<td>-0.001</td>
<td>0.003</td>
<td>-0.376</td>
<td>0.707</td>
</tr>
<tr>
<td>RET × MB</td>
<td>-0.002</td>
<td>0.008</td>
<td>-0.205</td>
<td>0.837</td>
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<tr>
<td>RET × NEG</td>
<td>0.119</td>
<td>0.342</td>
<td>0.349</td>
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<tr>
<td>RET × NEG × MB</td>
<td>0.005</td>
<td>0.010</td>
<td>0.554</td>
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<tr>
<td>ACINST × NEG</td>
<td>0.172</td>
<td>0.161</td>
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<td>0.286</td>
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<tr>
<td>ACINST × RET</td>
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<td>-0.592</td>
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<tr>
<td>ACINST × RET × NEG</td>
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<td>0.482</td>
<td>1.774</td>
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<tr>
<td>INACINST × NEG</td>
<td>0.126</td>
<td>0.308</td>
<td>0.408</td>
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<tr>
<td>INACINST × RET</td>
<td>0.482</td>
<td>0.286</td>
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<td>0.103</td>
</tr>
<tr>
<td>INACINST × RET × NEG</td>
<td>-1.578</td>
<td>0.973</td>
<td>-1.621</td>
<td>0.104</td>
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<tr>
<td>Panel B: estimation results by using Beaver and Ryan’s (2000) model</td>
<td></td>
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<tr>
<td>Constant</td>
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</tr>
<tr>
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<td>SIZE</td>
<td>0.317</td>
<td>0.028</td>
<td>11.418</td>
<td>&lt; 0.001***</td>
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</tbody>
</table>

Notes: ***, ***Statistical significance at 10, 5 and 1 percent, respectively

### Table VII.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>SD</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A: estimation results by using modified Basu’s (1997) model</td>
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<td></td>
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<tr>
<td>Constant</td>
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<td>14.528</td>
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<td>0.032***</td>
</tr>
<tr>
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<td>-0.007</td>
<td>0.005</td>
<td>-1.518</td>
<td>0.129</td>
</tr>
</tbody>
</table>

Notes: ***, ***Statistical significance at 10, 5 and 1 percent, respectively
Notes

1. www.codal.ir

2. That is those companies that had been listed on the TSE after the fiscal year of 2011.

References


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Do diligent independent directors restrain earnings management practices? Indian lessons for the global world

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Sandeep Goel
Management Development Institute, Gurugram, India

Abstract

Purpose – The purpose of this paper is to explore the role of independent directors’ diligence in restraining earnings management practices in the Indian context.

Design/methodology/approach – It employs a panel data analysis to test the association of earnings management with the diligence of independent directors.

Findings – The results suggest that the diligence of independent directors has a significant impact on earnings management. The findings support the agency theory and provide evidence of the role played by the board processes in restricting earnings management.

Originality/value – This study is important for the regulators as it highlights the significance of independent directors’ diligence in producing higher quality financial statements, thereby creating the real economic value of companies. This is the first article that explores the impact of independent directors’ diligence on earnings management practices particularly in the context of an emerging economy, like India in the light of new Companies Act 2013 and revised Clause 49 of the Listing Agreement, 2014 by Securities and Exchange Board of India.

Keywords India, Earnings management, Independent director, Audit committee diligence, Board diligence

Paper type Research paper

1. Introduction

Earnings management by companies is a widespread phenomenon throughout the world. The lack of quality financial reporting for personal gains by the management affects investors’ decision making and indicates poor corporate governance. The corporate governance structure, more than on the board, hinges on independent directors. They are responsible for bringing objectivity to the oversight function of the board and thus, improving its effectiveness. The importance of corporate governance and quality financial reporting in the business environment of the developing countries has started receiving increased attention in the recent times, especially when companies from developing economies are going global (Goel, 2018).

The corporate board and audit committee are two important pillars of corporate governance as they are instrumental in the prevention and detection of fraud[1]. Independent directors are mandatorily a part of both these structures. It is argued that if independent directors are diligent in discharging their monitoring duties, it should bring impartiality in the
decision-making process of the board. On the other hand, if independent directors do not attend the meetings, other board members will have an opportunity to exercise their discretionary behaviour and the board’s monitoring effectiveness may be weak.

The primary objective of this study is to analyse the role of independent directors’ diligence in restraining earnings management practices, particularly in the context of a developing economy like India which is characterised by concentrated corporate ownership and family control of firms. About 90 per cent of Indian businesses are family owned (Merchant, 2011). Besides the family dominance of Indian firms, the research on earnings management in emerging markets like India is also important as there is a high demand for capital by companies from global markets and foreign institutional investors play an important role in channelling this capital. Sustained flow of foreign capital into the Indian stock market can be fulfilled only if investors are protected from accounting frauds and deceptive earnings management practices. Moreover, there is a substantial segment of retail investors in India who depend on the financial reports of companies for making investment decisions and regulators have a fiduciary duty to protect these unsophisticated and gullible investors (Ajit et al., 2013).

Prior studies have explored the role of board characteristics in restraining earnings management practices, these studies are mostly contextualised in developed economies like the USA, the UK and Australia (Peasnell et al., 2000; Klein, 2002; Xie et al., 2003; Baxter and Cotter, 2009; Jaggi et al., 2009; Kent et al., 2010). The findings of such studies might have limited generalisability particularly in case of developing economies, like India. The studies have also highlighted that mere independence of the board does not have a significant influence on the effectiveness of corporate boards (Sarkar et al., 2008); rather their participation in board processes restrains earnings management and leads to effective corporate governance. Therefore, the independent directors’ diligence becomes highly significant in ensuring effective corporate governance.

Only one research has evaluated the importance of independent director diligence in the Indian context (Sarkar et al., 2008). However, the real impact of corporate governance crisis was experienced by corporate India after the year 2008 (Chakrabarti et al., 2011), post-Satyam fiasco while this study was conducted much earlier[2]. Further, this study is done in the light of new Companies Act, 2013 and revised Clause 49 of the Listing Agreement, 2014 by Securities and Exchange Board of India (SEBI). The present study extends this stream of literature by measuring independent director diligence at two levels: diligence of independent director in board meetings (board diligence) and diligence of independent directors in audit committee meetings (audit committee diligence). Therefore, this study evaluates the impact of board diligence and audit committee diligence on earnings management practices. We empirically test whether the higher diligence of independent directors will have a positive impact on the board’s effectiveness, which will be reflected in the disclosure quality.

These research questions are examined based on data from Indian-listed firms. Regression tests are performed to evaluate the association between independent directors’ diligence and discretionary accruals after controlling for the impact of other factors that may influence managerial decisions on discretionary accruals. The findings of this study verify that corporate boards with diligent independent directors are associated with lower discretionary accruals. Thus, results confirm our expectations that the diligence of independent directors plays an important role in improving corporate boards’ performance in a business environment.

This study makes the following important contributions. First, it contributes by exploring the role of independent directors’ diligence in restraining earnings management, particularly in an emerging economy like India which has been positioned by the Central Statistics Organisation and the International Monetary Fund as the fastest growing major...
Second, this study helps the investors in rational decision making by evaluating the reliability and usefulness of financial information reported by the firms, particularly in India wherein the private sector, majority of the companies are family-owned businesses having largest shareholder holding over 50 per cent. Third, the findings are relevant for policy makers worldwide, as it will lead towards policy formulation that is more specific and stringent about board diligence. Such policies will result in superior quality financial reporting.

The remainder of the paper is organised as follows: Section 2 presents the background and Section 3 discusses the literature review and hypotheses development. Section 4 discusses the sample selection and research methodology. The results are discussed in Section 5, and Section 6 contains study’s conclusion and future implications.

2. Background
The corporate governance issues in the UK and USA arise due to the conflict between management and owners. However, in India, the governance issues are primarily the results of the conflict between dominant shareholders and minority shareholders. India witnessed two large corporate scams, namely Satyam and Kingfisher in 2009 and 2012, respectively, which raised questions about the effectiveness of corporate governance and quality of reported earnings (Mathur, 2014). These corporate failures led to a change in the regulatory regime in the form of new Companies Act, 2013 and revised Clause 49 of the Listing Agreement, 2014 by SEBI.

These changes to the Companies Act and the Listing Agreement make the present study relevant to empirically test the usefulness of independent directors’ diligence in checking earnings manipulation. The Clause 49 states that a minimum of four board meetings should be conducted in a year with a maximum time gap of four months between two successive meetings. However, it does not mention any upper limit to board activity. It also mandates to maintain records for all board meetings including attendance of independent directors. This information has to be incorporated in the “report on corporate governance” and is to be part of the annual report of listed companies. Amendment to Clause 49 of the Listing Agreement, in fact, encourages Indian firms to use sound corporate governance practices (Sarkar and Sarkar, 2012). This suggests that there is a need for examining the impact of corporate board effectiveness, especially in terms of independent directors’ diligence, on the firms’ earnings management practices.

3. Literature review and hypotheses
Corporate boards are combination of inside and outside directors. The interests of both these categories of directors might not be similar in certain circumstances as outlined by the agency theory (Luan and Tang, 2007). The interests of the inside directors are aligned with the firm’s management while the outside or the independent directors have fiduciary responsibility to monitor the management on behalf of the shareholders (Hermalin and Weisbach, 2003). This conflict of interests necessitates active involvement of the independent directors so that they are able to perform their monitoring roles effectively. This argument finds its roots in the agency theory and is also supported by the transaction cost economies.

Many researchers have identified the monitoring role played by such independent directors in various contexts (Peasnell et al., 2000; Klein, 2002; Xie et al., 2003; Baxter and Cotter, 2009; Jaggi et al., 2009; Kent et al., 2010). Studies have highlighted that it is not only the composition and structure of the board but also its process that makes it an effective monitor (Vafeas, 1999; Adams et al., 2008; Brick and Chidambaram, 2010; Masulis and Mobbs, 2014). Prior studies have also highlighted that busy independent directors are ineffective monitors.
3.1 Board independence and earnings management
Agency theory argues that independent directors provide effective monitoring of the corporate boards. They have a role in protecting shareholders from the opportunistic behaviour of the managers who may seek private gains (Kiel and Nicholson, 2003). Independent directors are known to enhance transparency and integrity of financial reporting. Consistent with this view, Clause 49 also recommends a minimum proportion of independent directors on the corporate boards in India.

Few studies have evaluated the impact of board independence on earnings management practices. In the context of the USA, Klein (2002) reported a negative association between board independence and earnings management. Xie et al. (2003) also found a similar relationship between board independence and earnings management. In the context of the UK, Peasnell et al. (2005) found board independence to be associated with superior financial reporting practices. In the case of Hong Kong, Jaggi et al. (2009) reported a negative association between board independence and earnings management. Therefore, the following hypothesis is tested:

**H1.** There is no significant association between board independence, measured by the proportion of independent directors on the board, and earnings management, proxied by discretionary accruals.

3.2 Board diligence and earnings management
It is believed that a more active board is better for shareholders' interests because directors spend more time and energy on company affairs in an active board. An important aspect of corporate governance is how often the independent directors attend the board meetings because their attendance of board meeting will show their diligence and bring objectivity in the company affairs. If they rarely attend board meetings and do not participate in the boardroom discussions, their understanding of the company issues will be limited. So, because of this limitation such directors may not be in a position to monitor managerial behaviour and decisions effectively. It will also allow the board to exercise its discretion. Thus, corporate boards can only be effective when directors, particularly independent directors are committed to their role of advising and monitoring managers, attend the meetings regularly, and take part in the boards' discussions. If they fail to meet their corporate governance commitments, they will not be able to ensure a higher quality of financial reporting.

Limited studies have explored the importance of board diligence. Xie et al. (2003) argued that board that meets rarely may only have time for the signing of management plans and listening to presentations. They may not have time to focus on issues such as earnings management or financial statement in ensuring high quality and transparent reporting. Boards that meet often are more likely to perform their duties diligently and effectively. Diligent boards are also likely to increase oversight of the financial reporting process. They achieve this directly through the choice of the external auditor and indirectly through audit committee composition (Conger et al., 1998; Vafeas, 1999).

Masulis and Mobbs (2014) have argued that the attendance record at the board meetings is a measure of directors’ commitment towards their directorship responsibilities. A study by Chou et al. (2013) examined the association of directors' attendance and firm profitability, and reported that meeting attendance by board directors has a positive effect on the firm's profitability. Ghosh (2007) examined the association of board diligence with the financial performance of Indian nonfinancial firms. The study analysed data from more than 200 firms and found that board diligence had a positive effect on firm performance. Another study in the Indian context (Sarkar et al., 2008) examined the association of various characteristics of the board of directors and
opportunistic earnings management. They found that board diligence, as measured by the attendance of independent directors on board meetings, impacted the firms’ earnings management practices.

Based on the above discussion, it can be argued that board’s diligence, measured in terms of the percentage of meetings that the independent board members attend, is expected to have a positive impact on the quality of financial reporting (e.g. Ghosh 2007; Sarkar et al., 2008). If a greater number of directors regularly attend the board meeting, the quality of financial reports can be high. Diligence requires that board members actively participate in the board meetings and sincerely discharge their board responsibilities. We develop the following null hypothesis to test the association between reporting quality, proxied by discretionary accruals, and board diligence, reflected by the percentage of meetings an individual board member attends:

\[ H_2. \text{ There is no significant association between board diligence, measured by the average attendance of independent directors in board meetings in a year, and reporting quality, proxied by discretionary accruals.} \]

3.3 Audit committee independence and earnings management

The audit committee is another mechanism that has a significant role in monitoring financial reporting. A number of studies have discussed the role of by audit committees as monitoring mechanism and maintaining the quality of financial reporting (Davidson et al., 2006; Kent and Stewart, 2008; Rainsbury et al., 2008).

Few studies have evaluated the impact of audit committee independence and earnings management. Studies suggest that audit committee independence restrains earnings management practices in various contexts (Klein, 2002; Kent et al., 2010). Recently, Amar (2014), Sharma and Kuang (2014) and Kapoor and Goel (2017) have also found a significant association between audit committee independence and earnings management in France, New Zealand and India, respectively. Therefore, the following hypothesis is tested:

\[ H_3. \text{ There is no significant association between audit committee independence, measured by the proportion of independent directors on the audit committee, and earnings management, proxied by discretionary accruals.} \]

3.4 Audit committee diligence and earnings management

The audit committee diligence is another important determinant of board characteristics which affects the quality of financial reporting. In a landmark study, DeZoort et al. (2002) described diligence as the process factor which is required to achieve audit committee effectiveness. It has been identified that there are multiple components to diligence but, researchers have generally measured it through the frequency of audit committee meetings because of unavailability of quantifiable or observable metrics (Raghunandan and Rama, 2007; Mishra and Malhotra, 2016). Mishra and Malhotra (2016) explored the impact of frequency of audit committee meeting on earnings management in the Indian context. Their study did not find any significant association between audit committee meetings and earnings management.

Numerous studies have highlighted the significance of diligent audit committees as measured by the attendance of independent directors (Ghosh, 2007; Sarkar et al., 2008; Masulis and Mobbs, 2014; Chou et al., 2013). These studies explored the importance of board diligence. They found that diligent boards lead to superior governance for the firm. This argument may be extended further to explore the directors’ diligence in audit committee meetings. Therefore, this study evaluates the association of audit committee diligence as
measured by the percentage attendance of independent directors in the audit committee meetings with earnings management. Therefore, the following hypothesis is tested:

\[ H4. \text{ There is no significant association between audit committee diligence, measured by the average attendance of independent directors in audit committee meetings in a year, and reporting quality, proxied by discretionary accruals.} \]

4. Sample selection and research methodology

4.1 Sample selection and data collection procedures

The sample selection was started with 500 largest Indian companies listed on Bombay Stock Exchange (BSE) on the basis of market capitalisation. These companies account for about 93 per cent of total market capitalisation at BSE. Banks and other financial institutions were excluded from the sample because of their distinct regulatory mechanisms. After removing the companies with incomplete data, the final sample comprised of 1,830 firm-year observations for 305 companies and six years (2007–2012). This sample represents more than 62 per cent of the total market capitalisation of BSE as on March 2013. Financial data were collected for eight years (2006–2013) to calculate the accrual measures. This period is best suited as it would help to identify the effects of pre- and post-global recession on the practice of earnings management in India. This period is also associated with greater variation in the GDP growth rate in India, which varied from a high of 9.57 per cent (2006–2007) to a low of 4.47 per cent (2012–2013) (Central Statistics Office, Government of India).

The financial data for analysis are obtained from the Prowess database created by the Centre for Monitoring the Indian Economy. It is broadly similar to the Compustat database of US firms. Prowess is being widely used for applied financial research in India (Ghosh, 2007; Sarkar et al., 2008; Kapoor and Goel, 2017), particularly for firm-level analysis (Mukherjee and Ghosh, 2004). Data for governance variables are hand collected from published annual reports of the companies. Annual reports of each listed company contain a distinct report on corporate governance. According to the disclosures under Clause 49 of SEBI Act 1992, it is mandatory for listed companies to produce a “report of corporate governance” in their annual reports. The report on corporate governance clearly specifies various board characteristics for the respective financial year. The board-related data, which were not available in the corporate governance report, were hand collected from the annual reports of respective firms. Table I presents the industry classification of the sample.

4.2 Calculation of accruals

The benefit of reporting accruals-based earnings is that they are better indicator of economic performance in comparison to cash flows, but accruals may be subject to management discretion. Dechow and Dichev (2002) have developed an empirical model to determine accruals quality. They suggested that earnings quality is higher

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Industry</th>
<th>Representation in sample (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Manufacturing</td>
<td>61</td>
</tr>
<tr>
<td>2</td>
<td>Services</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>Trading</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Industrial construction</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>Transport/Logistic services</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Diversified</td>
<td>12</td>
</tr>
</tbody>
</table>

Table I. Industry classification

Earnings management practices
when accruals are better associated with cash flows in the current, previous and following periods:

\[
\Delta WC_t = b_0 + b_1 \times CFO_{t-1} + b_2 \times CFO_t + b_3 \times CFO_{t+1} + e_t,
\]  

(1)

where \( \Delta WC_t \) is change in working capital in current year over previous year. CFO\(_{t-1}\) is cash flow from operations in the previous year. CFO\(_t\) is cash flow from operations in the current year. CFO\(_{t+1}\) is cash flow from operations in the subsequent year. All variables are scaled by total assets. The standard deviation of the residual form the regression Equation (1) provides the firm specific measure of accruals quality. McNichols (2002) introduced a variation to the DD model by including change in sales and the size of property, plant and equipment as described by Jones (1991) model. Both McNichols (2002) and Francis et al. (2005) presented improved models by incorporating the variables from Jones (1991) into Dechow and Dichev (2002) model. The study would employ cash-based accrual model as suggested by Francis et al. (2005) instead of earnings-based accrual model. This model is considered more suitable as it not only modifies and expands the earnings-based model of Dechow and Dichev (2002), but it also presents a proxy for intentional errors. It allows the researcher to discuss “managerial choices” while measuring quality of accruals (Dechow et al., 2010):

\[
\Delta WC_d = b_0 + b_1 \times CFO_{d-1} + b_2 \times CFO_d + b_3 \times CFO_{d+1} + \Delta Sales_d + b_4 \times PPE_d + e_{dt},
\]  

(2)

where \( \Delta Sales_d \) is change in sales and PPE\(_d\) is gross property, plant and equipment. Standard deviation of the residual as modelled by DD might be influenced by prior changes. Therefore, the absolute value of the residuals will also be taken as a proxy for accruals quality which is consistent with Footnote 6 of Dechow and Dichev (2002). The absolute value of residual becomes the inverse measure of accruals quality as higher (lower) value denotes lower (higher) accruals quality.

### 4.3 Regression models

The study explores the relationship of earnings management with board activity and board diligence after controlling for the impact of other relevant variables in a panel data framework. Panel data include the same cross-section over a period of time. This can better detect effects that can otherwise not be observed in a pure cross-section or time series data (Gujarati and Sangeetha, 2007). Panel data suggest that individuals, companies and countries are heterogeneous and allow us to control for individual heterogeneity. Also, panel data provide more informative data, increased variability, higher degrees of freedom, less collinearity among variables and thus, increases the efficiency of the model (Baltagi 2008).

There are two common techniques to model panel data, i.e., fixed effect model (FEM) of regression and random effect regression model (REM). While FEM is based on the assumption, the unobserved effect (which becomes a part of residual) is correlated with the explanatory variables of the model, whereas REM assumes that the two are uncorrelated. In many cases, the panel data analysis is used to allow for this unobserved effect to be correlated with the explanatory variables. The ideal strategy used to determine the suitable technique for analysis between FEM and REM is the Hausman specification test (Hausman 1978). If the null hypothesis of Hausman test is rejected, the individual effects are considered to be fixed, else the effects would be random. The estimates of \( \beta \)s in such cases would be more efficient.

Board and audit committee are considered as complementary monitoring mechanisms. Therefore, the impact of independent director diligence through these monitoring mechanisms is tested employing separate regression models. The following models are
proposed to analyse the role of independent director diligence in constraining earnings management. Few other board-level and financial variables are included in the model to account for their probable effect.

Model 1:

$$DAC_i = \beta_0 + \beta_1 \times \text{board\_independence}_i + \beta_2 \times \text{board\_diligence}_i$$

$$+ \beta_3 \times \text{board\_size}_i + \beta_4 \times \text{board\_activity}_i + \beta_5 \times \text{board\_busyness}_i$$

$$+ \beta_6 \times \text{firm\_age}_i + \beta_7 \times \text{lev}_i + \beta_8 \times \text{MVBV}_i + \beta_9 \times \text{firm\_size}_i$$

$$+ \beta_{10} \times \text{profit}_i + \beta_{11} \times \text{abs\_EPS}_i + \epsilon_i.$$  

(3)

Model 2:

$$DAC_i = \beta_0 + \beta_1 \times \text{ac\_independence}_i + \beta_2 \times \text{ac\_diligence}_i$$

$$+ \beta_3 \times \text{ac\_size}_i + \beta_4 \times \text{ac\_virtual\_board\_size}_i$$

$$+ \beta_6 \times \text{firm\_age}_i + \beta_7 \times \text{lev}_i + \beta_8 \times \text{MVBV}_i + \beta_9 \times \text{firm\_size}_i$$

$$+ \beta_{10} \times \text{profit}_i + \beta_{11} \times \text{abs\_EPS}_i + \epsilon_i.$$  

(4)

where DAC is measured by the absolute value of residual from Equation (2). It is an inverse measure of earnings quality and higher values of DAC reflect the lower quality of reported earnings. The main explanatory variables of Model 1 are board independence and board diligence. Board_independence reflects the independence of the board. It is measured as the proportion of independent directors to the total number of directors on the board. Board_diligence is another test variable in the study. It denotes the participation of independent directors in the board meetings and is measured as the percentage of board meetings attended by the independent directors on the board. Table AI presents the description of the variables of the study.

Three other board-level variables are also included in the Model 1 to isolate their probable impact on discretionary accruals. These are board_size, board_activity and board_busyness. The board_size is the number of directors on the board, board_activity is the frequency of board meetings conducted in a year and board_busyness is measured as the number of independent directors with a minimum of four directorships in public-listed companies.

Main explanatory variables for Model 2 are audit committee independence and audit committee diligence. Audit committee independence reflects the independence of the audit committee. It is measured as the proportion of independent directors to the total number of directors on the audit committee. Audit committee diligence is the other important variable. It denotes the participation of independent directors in the audit committee meetings and is measured as the percentage of audit committee meetings attended by the independent directors.

Three board-level variables are also included in the Model 2 to isolate their probable impact on discretionary accruals. These are ac_size, board_independence and board_size. The ac_size is total number of directors on the audit committee. The board_independence and board_size are defined in the same way as in Model 1.

Besides board-level variables, a number of financial variables are also included in the models to filter out effects on discretionary accruals. Absolute change in prior years' earnings and financial leverage of the firm have a positive association with earnings management while political costs as measured by firm size has a negative association (Warfield et al., 1995; Dechow et al., 1995; DeFond and Jiambalvo, 1994; Becker et al., 1998; Dechow and Dichev, 1996; Bartov et al., 2000). Market-to-book ratio and firm size have been found to be associated with board independence (Klein, 2002). Similarly, studies have showed that firm profitability is associated with earnings management (Dechow et al., 1995; Kasznik, 1999). Therefore, financial control variables are included in the analysis.
These include firm age, financial leverage, proportion of market-to-book value, firm size, profitability and absolute change in EPS. Firm age is the number of years of operations of the firm. Leverage is the financial leverage. MVBV is the ratio of market value to book value. firm_size measures size of the firm measured as log of total assets. Profit is a measure of firm profitability and is measured as EBITDA as a percentage of sales. abs_eps is the absolute change in earnings per share. Subscripts $i$ and $t$ denote firm and time period.

An examination of the association of accruals quality with board-level governance characteristics might be faced with the problem of endogeneity. This might arise when the relationship being studied is affected by another variable (which is not explicitly included in the regression function). Previous research works have expressed concerns about this issue. In such cases, the effect of the unobserved variable is captured by the residual term, and thus, it becomes correlated with the independent variable thereby biasing the estimates. Therefore, research methodology should be so designed that it is able to capture the effect of probable endogenous variable and estimation is efficient and unbiased.

This study is based on a panel data framework. Panel data analysis is considered superior as it not only enriches the data but also controls for endogeneity in the variables making it robust. The FEM estimation method of panel data assumes a correlation between explanatory variables and unobserved effects that are captured through the residual. Therefore, if the panel data are modelled through FEM, it controls for time-invariant endogeneity.

5. Results and discussion
5.1 Descriptive Statistics
Table II presents the descriptive statistics on the variables.

Mean value of board independence is 48.7 per cent with a minimum and maximum values of 0 and 87 per cent, respectively. Board diligence also has a large range. It moves from a minimum of 0 per cent to a maximum 100 per cent with the mean (standard deviation) 77 per cent (15.9 per cent). Board size ranges from a minimum of 3 directors on the board to a maximum of 22 directors with a mean (standard deviation) of 9.7 (2.83). Board activity ranges from a minimum of 2 board meetings in a year to 36 meetings in a year with a mean (standard deviation) of 6.46 (2.8). Board busyness ranges from zero to eight busy directors on the board, with mean (standard deviation) of 2.7 (1.62). This suggests that around three directors in every board are part of at least three other corporate boards.

Audit committee independence varies from a minimum of 0–100 per cent with a mean (standard deviation) of 81.1 per cent (0.18). Audit committee diligence varies from

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board independence (%)</td>
<td>48.7</td>
<td>12.75</td>
<td>0</td>
<td>87</td>
</tr>
<tr>
<td>Board diligence (%)</td>
<td>77.77</td>
<td>15.99</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>AC Independence (%)</td>
<td>81.1</td>
<td>0.18</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>AC diligence (%)</td>
<td>86</td>
<td>0.15</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Board size</td>
<td>9.7</td>
<td>2.83</td>
<td>3</td>
<td>22</td>
</tr>
<tr>
<td>Board activity</td>
<td>6.46</td>
<td>2.80</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>Board busyness</td>
<td>4.64</td>
<td>2.72</td>
<td>0</td>
<td>16.5</td>
</tr>
<tr>
<td>AC size</td>
<td>3.8</td>
<td>0.86</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Firm age</td>
<td>38</td>
<td>24.45</td>
<td>2</td>
<td>141</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.81</td>
<td>0.132</td>
<td>0.24</td>
<td>0.99</td>
</tr>
<tr>
<td>Market-to-book value</td>
<td>105.85</td>
<td>186.85</td>
<td>0.75</td>
<td>3,141.5</td>
</tr>
<tr>
<td>Total assets</td>
<td>84,993.5</td>
<td>222,767</td>
<td>1,096.2</td>
<td>29,52,250</td>
</tr>
<tr>
<td>Profitability</td>
<td>19.3</td>
<td>16.21</td>
<td>−81.35</td>
<td>93.67</td>
</tr>
<tr>
<td>Absolute ΔEPS</td>
<td>13.02</td>
<td>37.225</td>
<td>0</td>
<td>976.98</td>
</tr>
<tr>
<td>Discretionary accruals (%)</td>
<td>2.82</td>
<td>0.021</td>
<td>0.003</td>
<td>27.82</td>
</tr>
</tbody>
</table>

Table II. Descriptive statistics
0 to 100 per cent with a mean (standard deviation) of 86 per cent (0.15). Audit committee size ranges from a minimum of two directors to maximum of nine with mean (standard deviation) of 3.8 (0.86).

The average age of the sample firms is 38 years. Its variation is also large with the youngest firm being only 2 years old while the oldest has been in existence for 141 years. Leverage ranges from 24 to 99 per cent with a mean of 81 per cent. This is in accordance with earlier studies which identify lower levels of leverage in Indian companies. The ratio of market-to-book value ranges from 0.75 to 3,141.5 with a mean and standard deviation of 105.85 and 186.85, respectively. Since the study is focussed on large Indian companies, the average value of total assets is INR 84,993.5m.

Table III presents the cross-correlation matrix of the variables. As evident from the table, none of the variable pair has a high degree of correlation. The correlation between board independence and audit committee independence is 0.51 and that of between board diligence and audit committee diligence is 0.57. Both of these pairwise correlations are significant at the 5 per cent level of significance. This suggests that two separate models should be tested to evaluate the role of board and audit committee characteristics in restraining earnings management practices. All the remaining variable pairs have a low degree of correlation.

5.2 Regression results
This study evaluates the role of independent directors in restraining earnings management practices in the Indian context. Analysis of data was conducted within the panel data framework. There are two common estimation techniques for panel data analysis: FEM and random effect model. Formal test to evaluate the suitability of the estimation technique is the Hausman specification test. This test was run separately for each model. Results of Hausman specification test are also reported in Table IV. The test indicated that the FEM technique was preferable over the REM technique in both models. If data are modelled using FEM, it is able to control for time-invariant endogeniety. Also, if a study is conducted on a diverse data, there are chances of heteroskedasticity (Baltagi, 2008). Therefore, White’s test was conducted and it indicated the presence of heteroskedasticity. The models were adjusted using cluster corrected standard errors.

Regression tests were conducted to evaluate the role of independent directors in restraining discretionary component of accruals in a panel data framework. The regression results are reported in Table IV. Two models were tested to find the role of independent directors in boards and audit committees, respectively. Model 1 evaluated the impact of board independence and diligence on earnings management. Results of the analysis indicate that board independence is negatively associated with earnings management. However, this relationship is not statistically significant even at the 10 per cent level of significance. This supports the null hypothesis that there is no significant association between board independence and earnings management. This is in accordance with similar studies (Sarkar et al., 2008). The results also indicate that board diligence is negatively associated with earnings management and the coefficient is significant at the 10 per cent level of significance. Thus, $H2$ is rejected. This suggests that diligent boards are effective in containing earnings management. This finding supports prior literature which suggests that diligent boards may create value for firms (Ghosh, 2007; Sarkar et al., 2008; Chou et al., 2013; Masulis and Mobbs, 2014).

Model 2 evaluates the role of audit committee independence and diligence in restraining earnings management. Results of the analysis indicate that the association between audit committee independence and discretionary accruals is negative and significant at the 5 per cent level of significance. Thus, $H3$ is rejected. This suggests that the independent directors in the audit committees are able monitors of the board action particularly in the context of reporting quality. It reemphasises the important role of independent directors in the
<table>
<thead>
<tr>
<th>S.N.</th>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
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<tr>
<td>1</td>
<td>Board ind. (%)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>2</td>
<td>Board diligence (%)</td>
<td>0.04</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td>AC ind. (%)</td>
<td>0.51*</td>
<td>0.14*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4</td>
<td>AC diligence (%)</td>
<td>−0.01*</td>
<td>0.57*</td>
<td>0.08*</td>
<td>1.00</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Board size</td>
<td>−0.15</td>
<td>−0.05</td>
<td>0.03</td>
<td>0.24</td>
<td>1.00</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Board activity</td>
<td>−0.01</td>
<td>−0.19</td>
<td>0.03</td>
<td>−0.03</td>
<td>0.04</td>
<td>1.00</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Board busyness</td>
<td>0.01</td>
<td>0.08*</td>
<td>0.01</td>
<td>0.05*</td>
<td>0.02</td>
<td>−0.16</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>8</td>
<td>AC size</td>
<td>0.05*</td>
<td>−0.02</td>
<td>−0.20*</td>
<td>0.04*</td>
<td>0.34</td>
<td>−0.02</td>
<td>−0.06*</td>
<td>1.00</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>9</td>
<td>Firm age</td>
<td>0.03</td>
<td>0.06*</td>
<td>0.08*</td>
<td>0.15</td>
<td>0.05</td>
<td>−0.07*</td>
<td>0.12</td>
<td>−0.03</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Leverage</td>
<td>0.15*</td>
<td>−0.04</td>
<td>0.05*</td>
<td>0.00*</td>
<td>0.02</td>
<td>0.00</td>
<td>−0.04</td>
<td>0.00</td>
<td>−0.07*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Market-to-book value</td>
<td>−0.02</td>
<td>0.07*</td>
<td>0.07*</td>
<td>0.05</td>
<td>0.08</td>
<td>−0.01</td>
<td>0.01</td>
<td>0.03</td>
<td>0.02</td>
<td>−0.09</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Total assets</td>
<td>−0.06</td>
<td>0.07*</td>
<td>0.06*</td>
<td>0.31</td>
<td>0.31</td>
<td>0.24</td>
<td>−0.05*</td>
<td>0.05</td>
<td>0.03</td>
<td>−0.01</td>
<td>0.04*</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Profitability</td>
<td>0.05</td>
<td>0.05</td>
<td>0.06</td>
<td>0.31</td>
<td>0.06</td>
<td>0.04</td>
<td>−0.15</td>
<td>0.08</td>
<td>−0.11</td>
<td>0.41</td>
<td>0.04*</td>
<td>0.03*</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Absolute ΔEPS</td>
<td>0.00</td>
<td>0.07</td>
<td>0.01</td>
<td>−0.02</td>
<td>0.02</td>
<td>0.00</td>
<td>−0.02</td>
<td>−0.01</td>
<td>0.06</td>
<td>−0.03</td>
<td>0.21*</td>
<td>0.04</td>
<td>0.02</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Note:** *Significant at 5 per cent significance level
audit committees in maintaining the governance standards of large corporations. Audit committee diligence is another explanatory variable of the study. The coefficient of this variable is also negative and statistically significant at the 5 per cent level of significance. Thus, $H_4$ is rejected. This is an important finding as it suggests that audit committees where the independent directors are regular and participate in meetings are able to effectively monitor the earnings management practices of the firm. This strengthens the argument brought forward by earlier studies like Masulis and Mobbs (2014) which argue that attendance is a measure of commitment of the independent directors towards his directorship responsibilities. This finding supports prior studies which argue that the higher attendance of independent directors creates value for the firm (Ghosh, 2007; Sarkar et al., 2008).

Few other board-level variables were included in the analysis to control their probable impact on earnings management. The coefficient of board size is positive suggesting that larger corporate boards are associated with lower quality of financial reporting, though this is not statistically significant. In other words, larger boards may not function effectively or preserve high-level earnings quality. This is in accordance with Jensen (1993) that argued for smaller boards. The coefficient of board activity is positive and statistically significant at less than 1 per cent level of significance. This suggests that board activity is associated with earnings management in the Indian context. Higher frequency of board meeting is associated with higher discretionary accruals which is an inverse measure of reporting quality. This finding follows the argument present by Vafeas (1999) that firms may react to poor performance and challenging business circumstances by increasing the frequency of board meetings.

The coefficient of board busyness is negative but not significant. This finding is consistent with prior studies (Core et al., 1999; Fich and Shivdasani, 2006; Sarkar et al., 2008; Field et al., 2013) which highlighted the inability of busy directors in fulfilling their monitoring responsibilities. Field et al. (2013) found that busy boards are detrimental to large organisations. They concluded that even if busy directors might offer quality advice, they do not function as effective monitors of management.

The coefficient of audit committee size is negative and statistically significant at the 5 per cent level of significance. It suggests that size of the audit committee is associated with earnings management in the Indian context. Larger audit committees are effective monitors of earnings management and are more likely to maintain high governance standards.
of the financial reporting process and thus, are associated with superior quality of financial reporting. This is in accordance with prior studies in different contexts like Choi et al. (2004), Baxter and Cotter (2009) and Kent et al. (2010). This suggests that larger audit committees generate value for firms not only in developed economies like the USA and Australia but also in developing economy like India.

Several financial variables were also included in the model to control for their probable effects on earnings management. Firm age is negatively associated with discretionary accruals signalling that well-established firm have fewer incidences of discretionary accruals. The reporting quality for such firms is therefore better. Companies with a higher market-to-book value also have a higher incidence of discretionary accruals. The coefficient of leverage is negative suggesting that highly leveraged firms do not indulge in earnings management. Firm size is also negatively associated with discretionary accruals suggesting that large firms have better quality of reporting. Absolute change in EPS is positively associated with discretionary accruals.

6. Conclusion and implications for future research

6.1 Conclusion

This study evaluates the role of independent directors for their diligence in restraining earnings management practices in India. It finds that audit committee independence contains earnings management in Indian firms. These findings support the regulations that demand high independence of audit committees in Indian-listed companies. The study also finds that diligence of independent directors in board and audit committee meetings lead to superior quality of financial reporting.

The results of this study are consistent with prior research on quality of earnings (Goel, 2014). They indicate that both board diligence and audit committee have a significant impact on earnings management practices of family dominated Indian corporations. Thus, it can be concluded that the regulations guiding corporations about governance mechanisms should be able to address country and shareholder dominated specific issues. Studies have proved that enforcement of board-level corporate governance reforms, without consideration of country-specific cultural and legal environment limits its effects (Machuga and Teitel, 2009).

The findings of this study are important to regulators and policy makers at a global level as it brings forward an important dimension of board quality that needs to be made stringent. It highlights the relevance of board activity for checking earnings management practices for protecting shareholders’ interests. Previous research has documented the impact of board-related reforms on investor confidence (Lee and Shailer, 2008). If the policy framework on corporate governance explicitly encourages active participation of independent directors in board processes, it would lead to greater improvement in financial reporting. This can reduce asymmetry of information in capital market and protect investors who are ultimately lenders of capital for these companies, and may create value for the targeted firms as well.

This study is important for practitioners with a vested interest either in Indian companies or in others that work in a similar environment. Attempts can be made to improve the quality of financial reporting by monitoring the participation of independent directors in board and audit committee meetings.

6.2 Implications for future research

Though the sample for this study represents more than 62 per cent of the total market capitalisation of BSE for completeness of data, still the size can be increased for future study. The present study has not considered banks and financial institutions due to their distinct regulatory mechanisms.

The time period in the study is of eight years (2006-2013) to calculate the accrual quality measures. This period is best suited to identify the effects of pre- and post-global recession
on the practice of earnings management in India. Researchers may like to select a different
time period based on their perspective. For the present study, we measured the firm-level
governance by board activity and diligence variables. The scope of these variables can be
adjusted according to the nature of study on earnings management. All these possible areas
will definitely add to the literature and strengthen it further.

The findings of this study are important to international entities which have investment
and other business motivations for India. Such firms seek superior quality of financial
reporting to make informed decisions. The findings of this study are significant not only for
family-owned organisations that function in India but also for other companies that are
based in economies with relatively mature corporate governance mechanisms as countries
like India, the USA and Australia seem to be have borrowed the corporate governance
practices from UK Company Law. Similar efforts in other countries might be rewarding in
controlling earnings management and may increase reliability and transparency of financial
reports to promote economic efficiency.

Notes
role-of-independent-directors# (accessed 26 December 2016).
2. Satyam Computer Services Limited was an Indian private limited company that dealt in software
development and consultancy services. On 7 January 2009, the Chairman Ramalinga Raju
confessed an accounting manipulation of Rs 7,855 crores.
3. www.livemint.com/Opinion/ODKlkhpgd2bePQM3e2D0I/India-in-the-global-economy.html, 10 March
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Vol. 49 No. 2, pp. 267-290.
Journal of Corporate Finance, Vol. 16 No. 4, pp. 533-555.
corporate governance failure on the market for directors”, working paper, Indian School of
Business and BIT, Pilani, Pilani.


Further reading


### Variable Name | Explanation
--- | ---
Board _ind. | Reflects the independence of the board. It is measured as the proportion of independent directors to the total number of directors on the board.
Board diligence | Denotes the participation of independent directors in the board meetings and is measured as the percentage of board meetings attended by the independent directors on the board.
Board_size | The number of directors on the board.
Board activity | The frequency of board meetings conducted in a year.
Board busyness | Measured as the number of independent directors with a minimum of four directorships in public-listed companies.
AC_dil | Denotes the participation of independent directors in the audit committee meetings and is measured as the percentage of audit committee meetings attended by the independent directors.
AC_ind | Reflects the independence of the audit committee. It is measured as the proportion of independent directors to the total number of directors on the audit committee.
AC_size | Total number of directors on the audit committee.
Firm age | Measured by the number of years of incorporation of the firm.
Leverage | Financial leverage of the firm.
MVBV | Ratio of market value to book value.
Firm size | Measures size of the firm measured as log of total assets.
Profitability | Measure of firm profitability and is measured as EBITDA as a percentage of sales.
Absolute ΔEPS | Measures absolute change in prior years' earnings.
DAC | It is measured by the absolute value of residual from Equation (2). It is an inverse measure of earnings quality.

**Corresponding author**
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The role of country tax environment on the relationship between financial derivatives and tax avoidance

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Universitas Kristen Krida Wacana, Jakarta, Indonesia, and
Sylvia Veronica Siregar, Ratna Wardhani and Ning Rahayu
Universitas Indonesia, Depok, Indonesia

Abstract
Purpose – The purpose of this paper is to examine the effect of financial derivatives usage and country’s tax environment characteristics on the relationship between financial derivatives and tax avoidance.

Design/methodology/approach – This study uses a cross-country analysis with the scope of ASEAN (Association of Southeast Asian Nations) countries which consists of the Philippines, Indonesia, Malaysia, and Singapore.

Findings – The level of financial derivatives usage positively affects the level of tax avoidance. This finding indicates that financial derivatives can be used as tax avoidance tool. Furthermore, the positive effect of the level of financial derivatives usage on the level of tax avoidance is lower in countries with a competitive tax environment than in countries with an uncompetitive tax environment. This finding indicates that in country with a competitive tax environment, the use of financial derivatives as a tax avoidance tool can be replaced by the tax facilities provided by that country.

Research limitations/implications – This study uses four countries in the Association of Southeast Asian Nations region and does not test the sample based on the financial derivative types.

Practical implications – Tax authorities need to establish a clear tax regulation in regard to the tax treatment of financial derivatives transactions, e.g. define the definition of financial derivatives for hedging purposes and financial derivatives for speculative purposes; and define specific criteria to separate financial derivatives for hedging purposes from financial derivatives for speculative purposes. It is necessary to determine whether losses arising from derivative transactions are classified as deductible expenses or non-deductible expenses.

Originality/value – To the best of the authors’ knowledge, this study is also the first that provide empirical evidence that the relationship between financial derivatives and tax avoidance activities depends on a country’s tax environment.

Keywords Hedging, Tax avoidance, Financial derivatives, Speculative, Tax environment

Paper type Research paper

1. Introduction

Derivative financial instruments are used by companies to reduce cash flow and earnings volatility caused by market risk factors, e.g. fluctuations in interest rates, fluctuations in foreign exchange rates, fluctuations in commodity prices and other risk factors (Barton, 2001; Pincus and Rajgopal, 2002; Huang et al., 2009). Financial derivatives can be used to reduce company earnings volatility as the use of financial derivatives directly affects the company cash flow component, which in turn also affects company earnings (Barton, 2001).
This occurs as earnings are the sums of cash flow component and accrual component, thus if a company uses financial derivatives to reduce fluctuations of the cash flow component, the use of financial derivatives will in turn also reduce the reported earnings volatility (Barton, 2001). Such use of financial derivatives to reduce cash flow and earnings volatility is a form of real earnings management, which aims to smoothen out company earnings, so that the reported earnings become relatively stable and unfluctuating (Barton, 2001; Pincus and Rajgopal, 2002; Huang et al., 2009; Murwaningsari, 2011).

Aside from its ability to serve as a tool of earnings management, financial derivatives can also be used as a tool of tax avoidance. Financial derivatives are sophisticated tools of tax avoidance and a clever tax planner will take advantage of the complex features of financial derivatives to plan transactions that are beneficial for the company in terms of tax saving (Donohoe, 2011a, b, 2012, 2015). Such inherent complexity in financial derivative instruments provides opportunities for companies to explore ambiguities in tax regulations (Donohoe, 2012). This is what encourages companies to utilize financial derivatives as tax avoidance tool.

Although studies on the use of financial derivatives as a tool of earnings management have been rapidly growing, but studies on the use of financial derivatives as a tool of tax avoidance are still limited. With the rapid development of derivatives markets in the Association of Southeast Asian Nations (ASEAN) region, there is a substantial need to address the limitations of empirical evidence on the use of financial derivatives as a tool of tax avoidance. This study therefore aims to address such limitations. Based on the literature survey carried out to date, studies that examine direct relationship between the use of financial derivatives and tax avoidance activities have only been conducted by Donohoe (2011a, b, 2012, 2015) in the USA, Oktavia and Martani (2013) in Indonesia and Zeng (2014) in Canada.

Donohoe (2011a, b, 2012, 2015) finds empirical evidence that financial derivatives can be used as a tool of tax avoidance. In relation to these findings, Donohoe (2011a) argues that financial derivatives can be used as tax avoidance tools because the features in financial derivatives can be utilized to replicate an economic situation, blur the underlying economic substance, introduces ambiguity and complexity in tax reporting. Furthermore, Donohoe (2011a, b, 2015) also finds that in new corporate financial derivatives users (new users), tax burden reduction is higher in financial derivatives users for speculative purposes than in financial derivatives users for hedging purposes.

Oktavia and Martani (2013) include the level of disclosure of financial derivatives when testing the relationship between the use of financial derivatives and tax avoidance activities. They find empirical evidence that financial derivatives user with a low disclosure level of financial derivatives transactions (low disclosure level user) have more aggressive tax avoidance activities as compared to companies that are categorized as high disclosure level user. These findings indicate that financial derivatives users which tend to conceal information on their derivatives transactions have a more aggressive tax avoidance behavior as compared to companies which explicitly disclose their derivatives transactions information. Furthermore, using a sample of non-financial institutions in Canada, Zeng (2014) also find empirical evidence that companies use financial derivatives to save their tax payment. Zeng (2014) argues that the use of financial derivatives allows companies to take advantage of tax-timing option (i.e. claim losses immediately, but defer gains indefinitely), and thus enables companies to save their tax payment.

This study aims to re-examine the relationship between financial derivatives and tax avoidance activities in companies within the ASEAN region. Moreover, this study also including country’s tax environment factor when examine the relationship between financial derivatives and tax avoidance activities. This factor is not included in previous studies conducted by Donohoe (2011a, b, 2012, 2015), Oktavia and Martani (2013) and Zeng (2014). In fact, country’s tax environment factors may affect the relationship between the use of financial derivatives and tax avoidance activities. In a country with a competitive tax
environment, companies can enjoy various favorable tax facilities, such as the income from the overseas will not be taxed anymore, the dividend received by the shareholders is not taxable and the company also has flexibility to compensate their fiscal losses (Setyowati, 2014). Thus, this study assumes that in countries with a competitive tax environment, the use of financial derivatives as tax avoidance tools can be replaced by tax facilities that are beneficial for companies.

In addition, this study also includes the purpose of financial derivatives usage factor (both for speculative and hedging purposes) in examining the relationship between the level of financial derivatives usage and tax avoidance activities, which was not included in the previous studies (Oktavia and Martani, 2013; Zeng, 2014). This factor is necessary to be included as there is a difference in the accounting treatment between the use of financial derivatives for speculative purposes (which do not fulfill the criteria for hedge accounting) and the use of financial derivatives for hedging purposes, which certainly will affect both accounting income and taxable income.

This study contributes to the literature in two ways. First, this study extends previous studies on the use of financial derivatives as a tax avoidance tool. We extend the literature by re-examining the effect of the level of financial derivatives, both for speculative and hedging purposes, on the level of tax avoidance. The difference with the prior literature is that they examine the effect of the use of financial derivatives on the level of tax avoidance using the context of one country, while this study uses the context of ASEAN Countries. Second, this study extends previous studies on the use of financial derivatives as tax avoidance tool by linking the role of country’s tax environment in to the relationship between financial derivatives and tax avoidance. To the best of our knowledge, this study is also the first to provide empirical evidence that the relationship between financial derivatives and tax avoidance activities depends on a country’s tax environment.

This study was conducted using cross-country analysis limited to four countries in ASEAN, i.e. the Philippines, Indonesia, Malaysia and Singapore. ASEAN countries were chosen as the research sample for several reasons. First, there is a diversity in the level of financial derivatives usage among the ASEAN countries. This is shown by the presence of two types of financial derivatives markets in ASEAN, i.e. the advanced derivatives market (such as Singapore) and growing derivatives market (such as the Philippines and Indonesia). Second, ASEAN countries were chosen as there is an ASEAN Economic Community (AEC) program that has been implemented since 2015. With the implementation of AEC, trading activities among the member countries of ASEAN are expected to rise, as AEC relieves the flow of goods, services, investment, capital and labor across the ASEAN region (KPMG, 2014). Such increase in the intra-ASEAN trading activities is in turn expected to raise the needs for companies to carry out hedging against market risks through the use of financial derivatives. Third, there is a diversity in the tax environment characteristics among countries in the ASEAN region. Malaysia and Singapore are countries with a competitive tax environment, while the Philippines and Indonesia are countries with an uncompetitive tax environment. With the presence of these diverse characteristics, the results of this study are expected to provide an interesting overview on the relationship between financial derivatives and tax avoidance in the ASEAN region.

2. Prior research and hypotheses development

2.1 The effect of financial derivatives on tax avoidance

Donohoe (2012) suggests that the use of derivatives in tax avoidance mechanism will be more effective with the presence of ambiguities in tax regulations. In addition to taking advantage of the vagueness of tax regulations on derivatives transactions, companies can also utilize the complexity of the derivatives transactions, as well as the regulators and
practitioners’ lack of understanding on derivative instruments as loopholes to carry out tax avoidance practices involving financial derivatives (Donohoe, 2011a, b, 2012, 2015). There are several reasons why financial derivatives can be used as a tool of tax avoidance, i.e.: certain types of financial derivatives not regulated in tax regulations can be used to change the timing of gains/losses recognition arising from the derivatives transactions (Donohoe, 2011a, b, 2012, 2015). For example, certain types of derivatives can be used to defer gains recognition to the upcoming period or expedite losses recognition to the current period; the use of certain financial derivatives can be used to change the character of gains/losses on the derivatives transactions (Donohoe, 2011a, b, 2012, 2015). For example, a swap instrument with periodic payment contract will be categorized as ordinary business, and thus gains arising from this transaction will be categorized as ordinary income and its loss will be categorized as ordinary loss (GAO, 2011). However, if the contract payment from this swap instrument is set to non-periodic payment contract, then the gains arising from this transaction will be considered as capital gains and the loss will be categorized as capital loss; and financial derivatives can be used to modify the source of gains/losses arising from the derivatives transactions (Donohoe, 2011a).

Research conducted by Donohoe (2011a, b, 2012, 2015) using a sample of companies in the USA proves that derivatives are sophisticated tools of tax avoidance, which can work separately or in conjunction with other tax planning strategies. Furthermore, Donohoe (2011b, 2012, 2015) also separate derivatives users for speculative purposes and derivatives users for hedging purposes, and finds that derivatives users for speculative purposes have much higher reduction in tax burden than derivatives users for hedging purposes. Research on the use of financial derivatives as a tax avoidance tool was also carried out by Oktavia and Martani (2013) and Zeng (2014).

Oktavia and Martani (2013) find empirical evidence that financial derivatives users with a low disclosure level of derivatives transactions (low disclosure level user) have more aggressive tax avoidance practices as compared to other companies. Moreover, Zeng (2014) also finds empirical evidence that companies use financial derivatives to save their tax payment. This study will develop the previous research of Donohoe (2011a, b, 2012, 2015), Oktavia and Martani (2013) and Zeng (2014) by using a wider context of countries, which are four countries in ASEAN region. Such development is carried out to understand in a more comprehensive way about the use of financial derivatives as a tax avoidance tools in ASEAN. Based on the above reasoning, the proposed hypothesis is:

**H1.** The level of financial derivatives usage positively affects the level of tax avoidance.

This study also develops the previous research (Oktavia and Martani, 2013; Zeng, 2014) by classifying financial derivatives usage into two categories, i.e.: financial derivatives usage for hedging purposes and financial derivatives usage for speculative purposes. According to Ensminger (2001), as long as the derivatives instruments are used for tax avoidance purposes, companies will get into derivatives positions that have no (or have minor) relation to risk management. As a result, such companies will have a higher reduction in tax burden as compared to companies that effectively carry out hedging. Based on Ensminger’s (2001) argument, this study assumes that the effect of the level of financial derivatives usage on the level of tax avoidance will be higher in companies using financial derivatives for speculative purposes (in this case is financial derivatives that do not fulfill the criteria for hedging accounting) than in companies using financial derivatives for hedging purposes.

In addition, referring to IAS 39 “Financial Instruments: Recognition and Measurement,” if companies carry out financial derivatives contracts that do not fulfill the criteria for hedging, then any gains or losses arising for such contracts need to be immediately recognized in the income statement. Hence, only speculative positions or ineffective portions
of hedging that directly affect the income statement. Based on the above arguments, the following hypothesis is proposed:

\[ H2. \text{The positive effect of the level of financial derivatives usage on the level of tax avoidance is higher in companies using financial derivatives for speculative purposes than in companies using financial derivatives for hedging purposes.} \]

2.2 The role of country's tax environment on the relationship between financial derivatives and tax avoidance

This study also presumes that a country's tax environment characteristics also affect the relationship between the level of financial derivatives usage and the level of tax avoidance. The more competitive a country's tax environment is, the smaller the role of financial derivatives usage as a tool of tax avoidance. A country is said to have a competitive tax environment if the country adopt territorial and remittance tax basis system, exempt the imposition of income tax on dividends, and set an indefinite period for tax loss carry-forward. In the territorial and remittance tax basis system, the state only collects taxes on income earned within its jurisdiction, therefore allowing more efficient business decisions because income from abroad will no longer be taxed (Setyowati, 2014). In countries that provide income tax exemption facilities for dividends income, shareholders will receive more money from dividend income than shareholders of companies that are domiciled in the country that do not exempt the imposition of income tax on dividends (Setyowati, 2014). Furthermore, in countries that apply indefinite period for tax loss carry-forward, companies also have great flexibility in using their fiscal losses to reduce the company's tax burden, thus attracts the investors to establish companies in this country.

Companies domiciled in countries with a competitive tax environment can enjoy various tax facilities that are beneficial for them, for example: corporate's earnings from overseas will not be double taxed, shareholders' gains in forms of dividends are also not taxed and companies also have great flexibility in using their fiscal losses to offset tax as the country's carry-forward period is indefinite. Thus, this study assumes that in countries with a competitive tax environment, the use of financial derivatives as a tax avoidance tool can be replaced (substituted) by tax facilities that are beneficial for companies. Based on the mentioned arguments, the following hypothesis is developed:

\[ H3. \text{The positive effect of the level of financial derivatives usage on the level of tax avoidance is lower in countries with a competitive tax environment than in countries with an uncompetitive tax environment.} \]

\[ H4. \text{In countries with uncompetitive (competitive) tax environment, the positive effect of the level of financial derivatives usage on the level of tax avoidance is higher (lower) in companies using financial derivatives for speculative purposes than in companies using financial derivatives for hedging purposes.} \]

3. Research method

3.1 Sample selection and data source

Annual reports and financial statements data were obtained from Thomson Reuters Datastream Pro data center. The period of this study is from year 2009 to 2013. Although in 2008 all sample countries in this study had carried out the IFRS convergence process, year 2008 is excluded as the study period due to the occurrence of global financial crisis that most likely affected the financial condition of the companies during the year.

The population in this study is companies listed on stock exchanges in the ASEAN countries. According to the data from Bank for International Settlements and International
Swaps and Derivatives Association, derivatives markets in the ASEAN region consist of five countries: the Philippines, Indonesia, Malaysia, Singapore and Thailand. This study, however, only uses four countries as sample, i.e. the Philippines, Indonesia, Malaysia and Singapore. Thailand is not included as sample because of two reasons. First, Thai Financial Reporting Standards (TFRS) has not adopted the international accounting standards for financial instruments, namely, IAS 39 (www.iasplus.com). TFRS has no specific accounting standard for derivatives accounting, so the companies do not recognize unrealized gains or unrealized losses arising from derivatives transactions (www.set.or.th). Second, Thai Accounting Standard No. 12, which regulates the accounting treatment of income tax, is effective on January 1, 2013.

The sample selection of companies in this study is conducted using purposive sampling method. The sample criteria used in this study are as follows:

1. Companies were detected to carry out foreign exchange and interest rate derivatives transactions, and disclosed the notional amount of their financial derivatives.

2. Companies are not part of the financial industry due to the differences in specific industrial accounting practices as well as purposes of financial derivatives usage in relation to the government’s special regulations to the industries.

3. Companies calculate their taxable income normally on the basis of net income and use normal corporate income tax rates. Companies that calculate their taxable income based on gross revenue or are subjected to special income tax rate were excluded from the sample.

Furthermore, companies which are indicated as financial derivatives users are classified into two categories, i.e. users of financial derivatives for hedging purposes. Companies are classified into this category if they reveal that their financial derivatives meet the criteria for hedge accounting; users of financial derivatives for speculative purposes. Companies are classified into this category if they do not reveal that their financial derivatives meet the criteria for hedge accounting. It is important to categorizes the financial derivative users into two categories, because there is a differences in accounting treatment between the use of financial derivatives for speculative reasons (not meeting the hedge accounting criteria) and the use of financial derivatives for the purpose of hedging (fulfilling the criteria of hedge accounting), which certainly will affect both accounting income and taxable income.

The reasons why the classification of the financial derivative users in this study is based on whether the criteria of hedge accounting were fulfilled or not are: during the hand-collection procedure to find the notional amount and the purposes of financial derivatives usage, this study does not find any company which disclose that its financial derivatives contracts are for speculative purposes; and although there are about 4 percent of the financial derivatives users that do not reveal the purpose of their financial derivative usage, it is not appropriate to judge that their use of the financial derivatives is for speculative purposes simply because they do not state the purpose of the financial derivative instruments clearly.

Table I presents the sample selection process in this study. It shows that the number of full sample (for both financial derivatives users and non-financial derivatives users) is 1,761 companies. Because the level of financial derivatives usage in this study is measured using the notional amount of financial derivatives, the final sample used in this study include companies in the year they used financial derivatives and disclosed the notional amount of their financial derivatives. If in any given year companies have zero derivatives data, data in that year are not used in the test. From Table I, we have the final observations of 1,395 firm years.
<table>
<thead>
<tr>
<th>Descriptions</th>
<th>The Philippines</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of listed companies in the stock exchange</td>
<td>241</td>
<td>477</td>
<td>808</td>
<td>716</td>
</tr>
<tr>
<td>Financial services companies</td>
<td>(39)</td>
<td>(69)</td>
<td>(38)</td>
<td>(30)</td>
</tr>
<tr>
<td>Companies that calculate their taxable income based on gross revenue or are</td>
<td>(45)</td>
<td>(130)</td>
<td>(124)</td>
<td>(96)</td>
</tr>
<tr>
<td>subjected to special income tax rates</td>
<td>Full sample</td>
<td>157</td>
<td>278</td>
<td>736</td>
</tr>
<tr>
<td>and non-financial derivatives users</td>
<td>Total full sample</td>
<td>1,761</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **The Philippines**                                                          |                 |           |          |           |
| Year                                                                          | Full sample     | Companies not using financial derivatives | Companies using financial derivatives | Companies which have no complete data | Final observations |
| 2009                                                                          | 157             | (134)     | (1)      | (10)      | 12         |
| 2010                                                                          | 157             | (129)     | (1)      | (11)      | 16         |
| 2011                                                                          | 157             | (124)     | (1)      | (12)      | 20         |
| 2012                                                                          | 157             | (123)     | (1)      | (14)      | 19         |
| 2013                                                                          | 157             | (132)     | 0        | (12)      | 13         |

| **Indonesia**                                                                |                 |           |          |           |
| Year                                                                          | Full sample     | Companies not using financial derivatives | Companies using financial derivatives | Companies which have no complete data | Final observations |
| 2009                                                                          | 278             | (247)     | (3)      | (13)      | 15         |
| 2010                                                                          | 278             | (244)     | (2)      | (12)      | 20         |
| 2011                                                                          | 278             | (241)     | (4)      | (10)      | 23         |
| 2012                                                                          | 278             | (238)     | (2)      | (14)      | 24         |
| 2013                                                                          | 278             | (236)     | (2)      | (13)      | 27         |

| **Malaysia**                                                                |                 |           |          |           |
| Year                                                                          | Full sample     | Companies not using financial derivatives | Companies using financial derivatives | Companies which have no complete data | Final observations |
| 2009                                                                          | 736             | (534)     | (2)      | (63)      | 117        |
| 2010                                                                          | 736             | (537)     | (2)      | (73)      | 124        |
| 2011                                                                          | 736             | (540)     | 0        | (68)      | 128        |
| 2012                                                                          | 736             | (539)     | (3)      | (73)      | 130        |
| 2013                                                                          | 736             | (536)     | (1)      | (65)      | 134        |

| **Singapore**                                                               |                 |           |          |           |
| Year                                                                          | Full sample     | Companies not using financial derivatives | Companies using financial derivatives | Companies which have no complete data | Final observations |
| 2009                                                                          | 590             | (374)     | (6)      | (115)     | 95         |
| 2010                                                                          | 590             | (372)     | (9)      | (95)      | 114        |
| 2011                                                                          | 590             | (362)     | (8)      | (94)      | 126        |
| 2012                                                                          | 590             | (367)     | (9)      | (90)      | 124        |
| 2013                                                                          | 590             | (374)     | (5)      | (97)      | 114        |

Table I. Sample selection process Total final observations 1,395
3.2 Research model
To test H1, we use the following research model:

\[
\text{TAXVOID}_it = a_0 + a_1\text{DERIV}_it + a_2\text{SIZE}_it + a_3\text{ROA}_it + a_4\text{DTA}_it + a_5\text{CAPINT}_it + a_6\text{COUNTRY}_it + a_7\text{YEAR}_it + e_it.
\] (1)

H1 is acceptable if \( \alpha_1 > 0 \), where TAXVOID\(_it\) is the level of tax avoidance; DERIV\(_it\) the level of financial derivatives usage; SIZE\(_it\) the natural logarithm of total assets; ROA\(_it\) the return on assets; DTA\(_it\) the total debt to total assets; CAPINT\(_it\) the capital intensity; COUNTRY\(_it\) the country dummy variables; YEAR\(_it\) the year dummy variables.

H2 is tested using the following research model:

\[
\text{TAXVOID}_it = a_0 + a_1\text{DERIV}_it + a_2\text{DSPEC}_it + a_3\text{DERIV}/\text{DSPEC}_it + a_4\text{SIZE}_it + a_5\text{ROA}_it + a_6\text{DTA}_it + a_7\text{CAPINT}_it + a_8\text{TAXENVIRON}_it + a_9\text{YEAR}_it + e_it.
\] (2)

H2 is acceptable if \( \alpha_3 > 0 \), where DSPEC\(_it\) is the speculation dummy variable. 1 if the company has a notional amount of financial derivatives for speculative purposes (do not fulfill the criteria for hedge accounting) higher than 50 percent of the total notional amount of its financial derivatives, and 0 if otherwise.

To test H3, we use the following research model:

\[
\text{TAXVOID}_it = a_0 + a_1\text{DERIV}_it + a_2\text{TAXENVIRON}_it + a_3\text{DERIV}/\text{TAXENVIRON}_it + a_4\text{SIZE}_it + a_5\text{ROA}_it + a_6\text{DTA}_it + a_7\text{CAPINT}_it + a_8\text{TAXRATE}_it + a_9\text{YEAR}_it + e_it.
\] (3)

H3 is acceptable if \( \alpha_3 < 0 \), where TAXENVIRON\(_it\) is the tax environment dummy variables; TAXRATE\(_it\) the statutory corporate tax rate in each country.

H4 is tested using the following research model:

\[
\text{TAXVOID}_it = a_0 + a_1\text{DERIV}_it + a_2\text{DSPEC}_it + a_3\text{TAXENVIRON}_it + a_4\text{DERIV}/\text{DSPEC}_it + a_5\text{DERIV}/\text{TAXENVIRON}_it + a_6\text{SIZE}_it + a_7\text{ROA}_it + a_8\text{DTA}_it + a_9\text{CAPINT}_it + a_{10}\text{TAXRATE}_it + a_{11}\text{YEAR}_it + e_it.
\] (4)

H4 is acceptable if \( \alpha_7 < 0 \).

3.3 Definition of variables
DERIV and DSPEC. The level of financial derivatives usage (DERIV) is measured using the total notional amount of financial derivatives divided by lagged total assets. This measurement has been used in the studies of Allayannis and Weston (2001), Barton (2001), Huang et al. (2009), and Murwaningsari et al. (2015). Furthermore, DSPEC (speculation dummy variable) in this study is measured using dummy variable. As there are quite a number of companies which simultaneously use financial derivatives for hedging and speculative purposes during the same period, DSPEC is thus given a value of 1 if the company has a notional amount of financial derivatives for speculative purposes higher than 50 percent of the total notional amount of its financial derivatives. DSPEC is given the value of 0 if the company has a notional amount of financial derivatives for speculative purposes less than 50 percent of the total notional amount of its financial derivatives.
TAXVOID. TAXVOID variable is constructed using confirmatory factor analysis (CFA) on three tax avoidance measures, i.e.: book-tax difference (BTD), abnormal BTD (ABTD) and discretionary measures of tax avoidance (DTAX). The use of CFA in formalizing the TAXVOID variable is expected to be able to: reduce the errors arising from tax avoidance proxies calculated using data from financial statements, as errors from each proxy will eliminate each other or become smaller when multiple tax avoidance proxies (sourced from the financial statements) are used together or simultaneously in a model (Arieffiara, 2017). The use of CFA allows the three tax avoidance measures (BTD, ABTD and DTAX) to be used in one model simultaneously; simplifies the research model and facilitates the model estimation result analysis (Wijanto, 2008).

According to Hanlon and Heitzman (2010), there are 12 tax avoidance measures most frequently used in tax literatures, i.e.: total effective tax rate (ETR), current ETR, cash ETR, long-run cash ETR, ETR differential, DTAX, BTD, temporary BTD, ABTD, unrecognized tax benefit (UTB), tax shelter activities and marginal tax rates. This study only uses CFA on three tax avoidance measures (i.e. BTD, ABTD and DTAX), without employing the remaining nine measures of tax avoidance (total ETR, current ETR, cash ETR, long-run cash ETR, ETR differential, temporary BTD, UTB, tax shelter activities and marginal tax rate). These nine measures are not used due to the following reasons:

1. Total ETR, current ETR, cash ETR, long-run cash ETR as well as ETR differential are not used in this study for reasons as follows:
   - Various types of ETR measures (total ETR, current ETR, cash ETR, long-run cash ETR and ETR differential) do not differentiate between real activities that lead to tax savings, tax avoidance activities purposely designed to reduce taxes, and lobbying activities that result in tax reductions (Hanlon and Heitzman, 2010).
   - Tax avoidance activities causing temporary differences are not reflected in various ETR measures (Hanlon and Heitzman, 2010). Furthermore, Hanlon and Heitzman (2010) also mention that all ETR measures do not capture conforming tax avoidance because they use book income as the denominator.
   - Cash ETR measure can cause a mismatch between the numerator and denominator if the cash paid for tax expense includes tax payment for income of the previous period, while the denominator only covers the current period income (Hanlon and Heitzman, 2010).
   - The use of these measures requires the study to eliminate all companies whose net income before tax is negative. This can reduce the number of samples used.

2. As this research exerts CFA to formalize tax avoidance variable (TAXVOID) and BTD is one of the tax avoidance measures used in the CFA, temporary BTD is not used in this study. This is because temporary BTD is a component of BTD.

3. UTB measure is not utilized in this study because only accounting standards in the USA require financial statements to reveal the UTB figures. As this study uses companies in the ASEAN region as samples, the measure cannot be used.

4. Marginal tax rate is also not used in this paper due to the difficulty in determining the present value of the tax paid for each additional taxable income. Financial reports do not disclose this information.

5. Tax shelter activity is also not used as it is very difficult to measure the activities, especially by relying solely on data from the notes to the financial statements.

Following is the formula to calculate BTD, ABTD and DTAX.
BTD. The size of BTD can capture both earnings management and tax avoidance activities carried out by companies (Hanlon, 2005; Tang and Firth, 2011, 2012; Hanlon et al., 2012). BTD is measured using the difference between accounting income and taxable income. Taxable income is calculated by dividing the current tax expense by statutory corporate tax rate.

ABTD. In calculating ABTD, this study adopts the model of Tang and Firth (2011, 2012). The model to estimate the value of ABTD is as follows:

\[
BTD_{it} = x_0 + x_1 \Delta INV_{it} + x_2 \Delta REV_{it} + x_3 TL_{it} + x_4 TLU_{it} + x_5 BTD_{it-1} + e_{it},
\]

(5)

where BTD is the BTD reported by company i in year t; \(\Delta INV_{it}\) the change in gross property, plants and equipment from year \(t-1\) to year \(t\); \(\Delta REV_{it}\) the change in revenue from year \(t-1\) to year \(t\); \(TL_{it}\) the operational net loss of company i in year t; \(TLU_{it}\) the tax loss carry-forward value of company i in year t; \(BTD_{it-1}\) the BTD reported by company i in year \(t-1\).

DTAX. In calculating DTAX, this study follows the measurement of DTAX developed by Frank et al. (2009). The DTAX measurement developed by Frank et al. (2009), basically refers to the model of Jones (1991) which was used to separate discretionary accruals component and non-discretionary accruals component. DTAX is a residual from the following model:

\[
\text{PERMDIFF}_{it} = x_0 + x_1 \text{UNCON}_{it} + x_2 \text{MI}_{it} + x_3 \text{CSTE}_{it} + x_4 \Delta \text{NOL}_{it} + x_5 \text{LAGPERM}_{it} + e_{it},
\]

(6)

where PERMDIFF is the permanent difference of company i in year t; UNCON the income (loss) reported with equity method by company i in year t; MI the income (loss) distributed to minority shareholders by company i in year t; CSTE the current tax expense reported in the financial statement by company i in year t; \(\Delta \text{NOL}_{it}\) the change in net operating loss carry forward from year \(t-1\) to year \(t\); LAGPERM the PERMDIFF company i in year \(t-1\).

Equations (5) and (6) are estimated per sector and per year using the data of companies population (except financial institutions, real estate company, companies calculating their taxable income based on the gross revenue, as well as companies subject to special income tax rate) from each country observed in this study.

For hypothesis testing in this study, the level of tax avoidance TAXVOID is measured using the absolute value. Such means of turning TAXVOID into absolute value follows the measurement carried out by previous studies (Hanlon, 2005; Tang and Firth, 2011, 2012; Hanlon et al., 2012). Hanlon (2005) and Hanlon et al. (2012) justify the use of absolute value of BTD in their research by stating that whatever direction of a large BTD gives indication of a low earnings quality. Moreover, Tang and Firth (2012) also turn the ABTD in their research into absolute value for reasons that large positive ABTD is a result of earnings management practices that increase accounting income (upward earnings management) and aggressive tax reporting. Meanwhile, large negative ABTD is a result of earnings management practices that decrease accounting income (downward earnings management) and taxable income smoothing practices.

TAXENVIRON. TAXENVIRON variable is measured using dummy variable. In determining the dummy value of TAXENVIRON, this study groups four tax environment characteristics of a country, i.e.: tax basis, imposition of income tax on dividends, tax loss carry-forward period and book-tax conformity. The reasons why this study only chooses the aforesaid four characteristics when grouping the tax environment into competitive and uncompetitive tax environment are elaborated as follows: sample countries have the most distinct differences in the four characteristics; tax holidays are not included as a characteristic that determines the nature of tax environment as all sample countries in this study offer equally attractive tax holiday facilities. Therefore, this study is unable to judge
whether a tax holiday in one country is better than another; and the four characteristics are considered to be the most dominant factors affecting the amount of corporate tax burden. For example, most of the derivative users which are the sample companies of this study have overseas operations. Therefore, if income tax is also imposed on income originating from operations abroad, the corporate tax burden will be considerably large. Following is the explanation of tax basis, imposition of income tax on dividends, tax loss carry-forward period and book-tax conformity.

**Income tax imposition system (tax basis).** The income tax imposition system in the ASEAN region consists of two systems: the worldwide income system and territorial and remittance basis (Setyowati, 2014). Among all ASEAN countries, only Malaysia and Singapore employ territorial and remittance basis system. In the worldwide income system, taxes are imposed on all income of resident companies, including income obtained from abroad (Setyowati, 2014). The worldwide income system is perceived to be uncompetitive, especially for countries with high income tax rates, as the system imposes a higher tax rate on all income regardless of the origin of the income. Companies domiciled in a country employing worldwide income system are unable to benefit from investments in other jurisdictions with low tax rates, since they are always subject to high domestic tax.

In the territorial and remittance basis system, the state only collects taxes on income earned within its jurisdiction, therefore allowing more efficient business decisions as income transferred to the country will no longer be taxed (Setyowati, 2014). The territorial and remittance basis system employed by Malaysia and Singapore is part of their economic growth strategies because it can attract multinational companies to place their headquarters in the two countries (Setyowati, 2014).

**Imposition of income tax on dividends.** Out of all countries in the ASEAN region, only Malaysia and Singapore grant income tax exemptions for dividends paid by resident companies to all shareholders (both individuals and companies). According to Setyowati (2014), this “income tax exemptions for dividends” facility is part of the double taxation avoidance system, a system that aims to eliminate double taxation for shareholders. The imposition of income tax on dividends can lead to economic double taxation, i.e.: imposition of tax at the corporate level on taxable income; and imposition of tax at the shareholder level for dividends received by the shareholders, although dividends are part of the company income which has been subjected to income tax.

**Tax loss carry-forward period.** Unlike the Philippines and Indonesia, Malaysia and Singapore offer taxpayers the flexibility to carry forward losses to be compensated indefinitely. Based on this aspect, Malaysia and Singapore seem to provide the taxpayers with freedom to charge the losses forward for an unlimited period of time. Singapore even allows offset through loss carry-back, although only for a year, so it is possible to obtain restitution of taxes paid in the previous year. Thus, in terms of the compensation period for losses, Malaysia and Singapore maintain the upper hand over other ASEAN countries in attracting investment (Setyowati, 2014).

**Book-tax conformity.** Book-tax conformity in this study consists of two types, i.e:

1. The conformity between tax regulations and financial accounting standards on financial derivative transactions: in Singapore and Malaysia, tax treatment on gains/losses from financial derivative transactions has followed the accounting treatment. On the contrary, tax treatment on gains/losses from financial derivative transactions in the Philippines and Indonesia has not adhered to the accounting treatment.

2. The conformity level between tax regulations and financial accounting standards: based on the studies of Atwood et al. (2010, 2012), Tang (2015) and Blaylock et al. (2015), Malaysia and Singapore are categorized as countries with high level of
book-tax conformity as the average values of book-tax conformity in the two countries are way above the median value. Conversely, as the average value of book-tax conformity in the Philippines and Indonesia are far below the median value, they are categorized as countries with low level of book-tax conformity.

Lee and Swenson (2012) found that the higher the conformity level between accounting standards and tax regulations in a country is, the lower the level of tax avoidance in the country. In line with these findings, Atwood et al. (2012) also found that the tax avoidance level is lower in companies domiciled in countries with high level of book-tax conformity.

Table II presents the categorization of the dummy variable of TAXENVIRON. From Table II, it is known that Malaysia and Singapore have the same characteristics of tax basis, imposition of income tax on dividends, tax loss carry-forward period and book-tax conformity. Meanwhile, both the Philippines and Indonesia also have the same characteristics of tax basis, imposition of income tax on dividends, tax loss carry-forward period and book-tax conformity. It is therefore determined that the dummy value of TAXENVIRON for Malaysia and Singapore is 1, while the dummy value of TAXENVIRON for the Philippines and Indonesia is 0. The group of countries which is given the value of 1 (Malaysia and Singapore) represents the group of countries with a competitive tax environment, as they adopt the territorial and remittance basis system, exempt the imposition of income tax on dividends, and have an indefinite tax loss carry-forward period. The group of countries which is given the value of 0 (Indonesia and the Philippines) represent the group of countries with an uncompetitive tax environment.

Control variables. The control variables in this study are as follows: firm size (SIZE), profitability (ROA), leverage (DTA), capital intensity (CAPINT), country dummy variables (COUNTRY) and year dummy variables (YEAR). SIZE is selected to control the effects of company size on the level of tax avoidance activities. The bigger the company, the smaller its tax avoidance activities. This is primarily because large companies tend to get more spotlights from analysts and investor as compared to small companies, which make them to be more cautious in taking action. This study measure SIZE as the natural logarithm of total assets. ROA is used to control the effects of company profitability on the level of tax avoidance. The higher the profit of the company, the higher the level of tax avoidance (Gupta and Newberry, 1997). ROA is measured as net income divided by lagged total assets.

DTA is used to control the effects of the debt level on the level of tax avoidance activities. Frank et al. (2009) found a positive relationship between leverage and tax aggressiveness. We measured DTA as total debt divided by total assets. CAPINT is used to control the effects of capital intensity on the level of tax avoidance activities. The greater the value of capital intensity resulting in the depreciation expense (which is the deductible expense) is getting bigger, so in turn it will lead to reduced ETR (Gupta and Newberry, 1997).

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Malaysia and Singapore</th>
<th>The Philippines and Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax basis</td>
<td>Territorial and remittance basis</td>
<td>World Wide Income</td>
</tr>
<tr>
<td>Imposition of income tax on dividends</td>
<td>Exempted</td>
<td>Not exempted</td>
</tr>
<tr>
<td>Tax loss carry-forward period</td>
<td>Indefinite</td>
<td>Definitely</td>
</tr>
<tr>
<td>Book-tax conformity</td>
<td>Tax treatment for financial derivatives transactions follows the accounting treatment</td>
<td>Tax treatment for financial derivatives transactions does not follow the accounting treatment</td>
</tr>
<tr>
<td></td>
<td>High level of book-tax conformity</td>
<td>Low level of book-tax conformity</td>
</tr>
<tr>
<td>Dummy value</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
CAPINT is measured as net property, plants and equipment divided by lagged total assets. Furthermore, country dummy variable (COUNTRY) and year dummy variable (YEAR) are used to control the effects of country and observation year on the level of tax avoidance activities. Country dummy variable is a dummy variable for each country sample, with Indonesia as the reference country. Meanwhile, year dummy variable is a dummy variable for the observation years, with 2009 as the reference year.

TAXRATE is measured by the statutory corporate income tax rate in each country from 2009 to 2013. Table III shows the statutory corporate income tax rates from each country.

4. Empirical results

4.1 Descriptive statistics

Table IV shows that TAXVOID variable has an average of 0.0383 and a standard deviation of 0.0412, which indicates a quite high variance in the level of tax avoidance (TAXVOID) carried out among companies. It is also known that the average of the level of financial derivatives usage is 0.1164, with the lowest value of 0.0001 and the highest value of 1.1342. It can also be seen from Table IV that the SIZE variable has an average of 21.1970, ROA has an average of 0.0688, DTA has an average of 0.4753 and CAPINT has an average of 0.3309. From Table IV, it is also known that out of the total sample, 78.21 percent are financial derivatives users for speculative purposes, and 21.79 percent are financial derivatives users for hedging purposes.

4.2 Correlation matrix

Table V shows that the DERIV variable has a positive and significant correlation with TAXVOID variable, in line with the hypothesis. This result suggests that the higher the level of financial derivatives is, the higher the level of tax avoidance will be. This finding

<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>Mean</th>
<th>Median</th>
<th>Min.</th>
<th>Max.</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>DERIV</td>
<td>1,395</td>
<td>0.1164</td>
<td>0.0520</td>
<td>0.0001</td>
<td>1.1342</td>
<td>0.1770</td>
</tr>
<tr>
<td>TAXVOID</td>
<td>1,395</td>
<td>0.0383</td>
<td>0.0256</td>
<td>0.0000</td>
<td>0.3364</td>
<td>0.0412</td>
</tr>
<tr>
<td>ROA</td>
<td>1,395</td>
<td>0.0688</td>
<td>0.0567</td>
<td>-0.1901</td>
<td>0.4460</td>
<td>0.0861</td>
</tr>
<tr>
<td>DTA</td>
<td>1,285</td>
<td>0.4753</td>
<td>0.4853</td>
<td>0.0641</td>
<td>0.9578</td>
<td>0.1947</td>
</tr>
<tr>
<td>CAPINT</td>
<td>1,395</td>
<td>0.3309</td>
<td>0.3013</td>
<td>0.0027</td>
<td>1.0722</td>
<td>0.2132</td>
</tr>
<tr>
<td>TAXRATE</td>
<td>1,395</td>
<td>0.2210</td>
<td>0.2500</td>
<td>0.1700</td>
<td>0.3000</td>
<td>0.0429</td>
</tr>
</tbody>
</table>

| DSPEC       |       | 78.21%   |         |          | 21.79%   |         |

**Notes:** DERIV, notional amount of financial derivatives, scaled by lagged total assets; TAXVOID, the level of tax avoidance; DSPEC, 1 if the firm use financial derivatives for speculative purposes and 0 if otherwise; SIZE, natural logarithm of total assets; ROA, return on asset; DTA, total debt to total assets; CAPINT, capital intensity; TAXRATE, the statutory corporate tax rate in each country.
provides an early indication of the empirical evidence that supports hypothesis \( H1 \). In addition, Table V also shows that every correlation value between the independent variables is less than 0.8. Therefore, the models used in this research did not have multicollinearity problem.

4.3 Regression results

The effect of financial derivatives on tax avoidance. Table VI shows that the DERIV variable has a positive and significant coefficient. This indicates that the level of financial derivatives usage positively and significantly affects the level of tax avoidance. The higher the level of financial derivatives usage is, the higher the level of tax avoidance will be carried out by companies. This finding indicates that financial derivatives can be used as a tool of tax avoidance. This finding is also consistent with the research findings of Donohoe (2011a, b, 2012, 2015) in the USA, Oktavia and Martani (2013) in Indonesia and Zeng (2014) in Canada. Thus, it is concluded that hypothesis \( H1 \) is accepted.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted sign</th>
<th>Coefficient</th>
<th>( t )-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>?</td>
<td>0.0394</td>
<td>5.34***</td>
</tr>
<tr>
<td>DERIV</td>
<td>+</td>
<td>0.0109</td>
<td>1.43*</td>
</tr>
<tr>
<td>SIZE</td>
<td>–</td>
<td>–0.0023</td>
<td>–3.11***</td>
</tr>
<tr>
<td>ROA</td>
<td>+</td>
<td>0.1159</td>
<td>4.80***</td>
</tr>
<tr>
<td>DTA</td>
<td>+</td>
<td>0.0018</td>
<td>0.26</td>
</tr>
<tr>
<td>CAPINT</td>
<td>+</td>
<td>0.0030</td>
<td>0.56</td>
</tr>
<tr>
<td>COUNTRY</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( R^2 )</td>
<td></td>
<td>6.97%</td>
<td></td>
</tr>
<tr>
<td>( F )-statistic</td>
<td></td>
<td>4.35</td>
<td></td>
</tr>
<tr>
<td>( n )</td>
<td></td>
<td>1,395</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

\[
\text{TAXVOID}_t = \beta_0 + \beta_1 \text{DERIV}_t + \beta_2 \text{SIZE}_t + \beta_3 \text{ROA}_t + \beta_4 \text{DTA}_t + \\
+ \beta_5 \text{CAPINT}_t + \beta_6 \text{COUNTRY}_t + \beta_7 \text{YEAR}_t + e_t, \tag{1}
\]

\( \text{TAXVOID} \), the level of tax avoidance; \( \text{DERIV} \), notional amount of financial derivatives, scaled by lagged total assets; \( \text{SIZE} \), natural logarithm of total assets; \( \text{ROA} \), return on asset; \( \text{DTA} \), total debt to total assets; \( \text{CAPINT} \), capital intensity; \( \text{COUNTRY} \), country dummy variables; \( \text{YEAR} \), year dummy variables. *,**,***Significant at 1, 5 and 10 percent levels, respectively, one-tailed test.
Table VII shows that the DERIV \times DSPEC coefficient has a positive and significant value. This finding suggests that the effect of the financial derivatives usage on the level of tax avoidance is higher in companies using financial derivatives for speculative purposes than in companies using financial derivatives for hedging purposes. This finding is consistent with the findings of Donohoe’s (2011a, b, 2015) study, which find empirical evidence that the reduction in tax burden in financial derivatives users for speculative purposes is greater than in financial derivatives users for hedging purposes. Thus, it is concluded that hypothesis H2 is accepted.

There are two reasons why companies using financial derivatives for speculative purposes experience a higher reduction in tax burden than companies using financial derivatives for hedging purposes. First, as long as its derivatives instruments are used for tax avoidance, companies will get into derivative positions that have no or particularly minor relations to risk management (Ensminger, 2001). The use of financial derivatives that have no (or have minor) relations to risk management, has the potential to increase the exchange rate risk exposure. If companies fail to reduce the exchange rate risk exposure, they will experience a higher reduction in tax burden than companies using financial derivatives for hedging purposes, as loss arising from such failures need to be immediately recognized in the income statement and be used as an income deduction. Second, only speculative derivatives and ineffective portions of hedging that directly affect reported earnings, as any gains or losses arising from derivative transactions that do not meet the criteria for hedge accounting or the ineffective portions of hedging need to be immediately recognized in the income statement (Donohoe, 2011a, b, 2015).

The role of tax environment on the relationship between financial derivatives and tax avoidance. It is known from Table VIII that the DERIV \times TAXENVIRON variable has a

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted Sign</th>
<th>Coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>?</td>
<td>0.0437</td>
<td>4.59***</td>
</tr>
<tr>
<td>DERIV</td>
<td>+</td>
<td>-0.0090</td>
<td>-0.82</td>
</tr>
<tr>
<td>DSPEC</td>
<td>?</td>
<td>-0.0047</td>
<td>-1.36*</td>
</tr>
<tr>
<td>DERIV \times DSPEC</td>
<td>+</td>
<td>0.0256</td>
<td>1.88***</td>
</tr>
<tr>
<td>SIZE</td>
<td></td>
<td>-0.0024</td>
<td>-3.04***</td>
</tr>
<tr>
<td>ROA</td>
<td>+</td>
<td>0.1149</td>
<td>4.77****</td>
</tr>
<tr>
<td>DTA</td>
<td>+</td>
<td>0.0021</td>
<td>0.30</td>
</tr>
<tr>
<td>CAPINT</td>
<td>+</td>
<td>0.0030</td>
<td>0.55</td>
</tr>
<tr>
<td>COUNTRY</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>Yes</td>
<td>7.20%</td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td>3.91</td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td></td>
<td>1.395</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

\[ \text{TAXVOID}_{it} = x_0 + x_1 \text{DERIV}_{it} + x_2 \text{DSPEC}_{it} + x_3 \text{DERIV} \times \text{DSPEC}_{it} + x_4 \text{SIZE}_{it} + x_5 \text{ROA}_{it} + x_6 \text{DTA}_{it} + x_7 \text{CAPINT}_{it} + x_8 \text{COUNTRY}_{it} + x_9 \text{YEAR}_{it} + \epsilon_{it}, \] (2)

TAXVOID, the level of tax avoidance; DERIV, notional amount of financial derivatives, scaled by lagged total assets; DSPEC, 1 if the firm uses speculative financial derivatives and disclose the notional amount of financial derivatives and 0 if otherwise; SIZE, natural logarithm of total assets; ROA, return on asset; DTA, total debt to total assets; CAPINT, capital intension; COUNTRY, country dummy variables; YEAR, year dummy variables; *, **, ***Significant at 1, 5 and 10 percent, respectively, one-tailed test
negative and significant coefficient. This finding indicates that the positive effect of the level of financial derivatives usage on the level of tax avoidance is lower in countries with a competitive tax environment than in countries with an uncompetitive tax environment. In other words, the more competitive the tax environment in a country is, the lesser the role of the use of financial derivatives as a tool of tax avoidance is. It is concluded that hypothesis H3 is accepted.

Table IX shows that DERIV × TAXENVIRON has a negative and significant coefficient. This result suggests that the more competitive (less competitive) tax environment in a country is, the lower (higher) the positive effect of the use of financial derivatives for speculative purposes on the relationship between the level of financial derivatives usage and the level of tax avoidance. This finding shows that the effect of the purpose of financial derivatives usage on the relationship between the level of financial derivatives and the level of tax avoidance depends on the tax environment of the respective country. Thus, it is concluded that hypothesis H4 is accepted.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted sign</th>
<th>Coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>?</td>
<td>0.1126</td>
<td>6.52***</td>
</tr>
<tr>
<td>DERIV</td>
<td>+</td>
<td>0.0381</td>
<td>1.78**</td>
</tr>
<tr>
<td>TAXENVIRON</td>
<td>?</td>
<td>−0.0173</td>
<td>−3.08***</td>
</tr>
<tr>
<td>DERIV × TAXENVIRON</td>
<td>−</td>
<td>−0.00294</td>
<td>−1.32*</td>
</tr>
<tr>
<td>SIZE</td>
<td>−</td>
<td>−0.0025</td>
<td>−4.33***</td>
</tr>
<tr>
<td>ROA</td>
<td>+</td>
<td>0.1150</td>
<td>8.70***</td>
</tr>
<tr>
<td>DTA</td>
<td>+</td>
<td>0.0024</td>
<td>0.40</td>
</tr>
<tr>
<td>CAPINT</td>
<td>+</td>
<td>0.0025</td>
<td>0.49</td>
</tr>
<tr>
<td>TAXRATE</td>
<td>?</td>
<td>−0.0771</td>
<td>−2.64***</td>
</tr>
<tr>
<td>YEAR</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>6.29%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td>8.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>1,395</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

\[
\text{TAXVOID}_{it} = \alpha_0 + \alpha_1 \text{DERIV}_{it} + \alpha_2 \text{TAXENVIRON}_{it} + \alpha_3 \text{DERIV} \times \text{TAXENVIRON}_{it} + \alpha_4 \text{SIZE}_{it} + \alpha_5 \text{ROA}_{it} + \alpha_6 \text{DTA}_{it} + \alpha_7 \text{CAPINT}_{it} + \alpha_8 \text{TAXRATE}_{it} + \alpha_9 \text{YEAR}_{it} + \varepsilon_{it},
\]

(3)

TAXVOID, the level of tax avoidance; DERIV, notional amount of financial derivatives, scaled by lagged total assets; TAXENVIRON, 1 if the country has a competitive tax environment and 0 if otherwise; SIZE, natural logarithm of total assets; ROA, return on asset; DTA, total debt to total assets; CAPINT, capital intensity; TAXRATE, the statutory corporate tax rate in each country; YEAR, year dummy variables. *,**,***Significant at 1, 5 and 10 percent levels, respectively, one-tailed test

Table VIII. Regression results – hypothesis H3

Role of country tax environment
4.4 Sensitivity tests

For sensitivity test, this study conducts two types of tests: re-testing of $H3$ and $H4$ hypothesis for each country; and re-testing of all hypotheses using three tax avoidance measures of ABTD, DTAX and BTD. The following are the results of the sensitivity analysis.

The re-testing of $H3$ and $H4$ hypotheses for each country. Table X shows that in countries with less competitive tax environment (i.e.: Indonesia and the Philippines), the coefficients of DERIV variable are significant and positive. These results indicate that in the two countries, the level of use of financial derivatives positively and significantly affects the level of tax avoidance. It can also be seen from Table X that in countries with competitive tax environment such as Singapore, the coefficient of the DERIV variable is insignificant. Furthermore, the result of sensitivity analysis also finds that in Malaysia, the coefficient of the DERIV variable is positive and significant. Nevertheless, the $t$-stat value of Malaysia’s DERIV coefficient is lower than the DERIV coefficient in both Indonesia and the Philippines. Based on these findings, we can conclude that the positive effect of the level of financial derivative use on the tax avoidance level is lower in countries with competitive tax environment than in countries with uncompetitive tax environment. The results signify that tax facilities offered by countries with competitive tax environment can substitute or replace the role of using financial derivatives as means of tax avoidance. Hence, it can be concluded

<table>
<thead>
<tr>
<th>Variable Predicted sign</th>
<th>Coefficient $t$-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.1524</td>
</tr>
<tr>
<td>DERIV</td>
<td>-0.2312</td>
</tr>
<tr>
<td>DSPEC</td>
<td>-0.0410</td>
</tr>
<tr>
<td>TAXENVIRON</td>
<td>-0.0533</td>
</tr>
<tr>
<td>DERIV×DSPEC</td>
<td>0.2844</td>
</tr>
<tr>
<td>DERIV×TAXENVIRON</td>
<td>0.2285</td>
</tr>
<tr>
<td>DSPEC×TAXENVIRON</td>
<td>0.0392</td>
</tr>
<tr>
<td>DERIV×DSPEC×TAXENVIRON</td>
<td>-0.2894</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.0026</td>
</tr>
<tr>
<td>ROA</td>
<td>0.1130</td>
</tr>
<tr>
<td>DTA</td>
<td>0.0027</td>
</tr>
<tr>
<td>CAPINT</td>
<td>0.0041</td>
</tr>
<tr>
<td>TAXRATE</td>
<td>-0.0778</td>
</tr>
<tr>
<td>YEAR</td>
<td>Yes</td>
</tr>
<tr>
<td>$R^2$</td>
<td>8.06%</td>
</tr>
<tr>
<td>$F$-statistic</td>
<td>4.00</td>
</tr>
<tr>
<td>$n$</td>
<td>1,385</td>
</tr>
</tbody>
</table>

Notes:

\[
TAXVOID_{it} = \alpha_0 + \alpha_1DERIV_{it} + \alpha_2DSPEC_{it} + \alpha_3TAXENVIRON_{it} + \alpha_4DERIV \times DSPEC_{it} + \alpha_5DERIV \times TAXENVIRON_{it} + \alpha_6DSPEC \times TAXENVIRON_{it} + \alpha_7TAXENVIRON_{it} + \alpha_8SIZE_{it} + \alpha_9ROA_{it} + \alpha_{10}DTA_{it} + \alpha_{11}CAPINT_{it} + \alpha_{12}TAXRATE_{it} + \alpha_{13}YEAR_{it} + \varepsilon_{it}
\]  

(4)

TAXVOID, the level of tax avoidance; DERIV, notional amount of financial derivatives, scaled by lagged total assets; DSPEC, 1 if the firm uses speculative financial derivatives and disclose the notional amount of financial derivatives and 0 if otherwise; TAXENVIRON, 1 if the country has a competitive tax environment and 0 if otherwise; SIZE, natural logarithm of total assets; ROA, return on asset; DTA, total debt to total assets; CAPINT, capital intensity; TAXRATE, the statutory corporate tax rate in each country; YEAR, year dummy variables. ***Significant at 1 percent level, respectively, one-tailed test

**Table IX.** Regression results – hypothesis $H4$
that although the tests are conducted separately for each country, $H3$ hypothesis in this study remains proven.

Table XI shows that only in Indonesia and the Philippines the DERIV × DSPEC variable positively and significantly affects TAXVOID, whereas none of the DERIV × DSPEC

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted sign</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>The Philippines</th>
<th>Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>?</td>
<td>0.0465 1.65*</td>
<td>0.0256 3.84***</td>
<td>0.0265 5.29***</td>
<td>0.0368 4.14***</td>
</tr>
<tr>
<td>DERIV</td>
<td>+</td>
<td>0.1254 2.27***</td>
<td>0.0112 1.41*</td>
<td>0.0228 2.34***</td>
<td>0.0086 1.07</td>
</tr>
<tr>
<td>SIZE</td>
<td>−</td>
<td>−0.0017 −0.47</td>
<td>−0.0040 −4.12***</td>
<td>−0.0049 −0.97</td>
<td>−0.0027 −3.47***</td>
</tr>
<tr>
<td>ROA</td>
<td>+</td>
<td>0.0507 1.55*</td>
<td>0.1875 5.21***</td>
<td>0.2386 2.98***</td>
<td>0.1128 4.81***</td>
</tr>
<tr>
<td>DTA</td>
<td>+</td>
<td>0.0478 1.38*</td>
<td>0.0056 0.53</td>
<td>0.0258 0.84</td>
<td>0.0091 0.90</td>
</tr>
<tr>
<td>CAPINT</td>
<td>+</td>
<td>0.0189 0.80</td>
<td>−0.0153 −1.88***</td>
<td>−0.0209 −0.83</td>
<td>0.0186 2.25**</td>
</tr>
<tr>
<td>YEAR</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>$n$</td>
<td></td>
<td>109</td>
<td>633</td>
<td>80</td>
<td>573</td>
</tr>
<tr>
<td>$R^2$</td>
<td></td>
<td>6.59%</td>
<td>18.09%</td>
<td>5.24%</td>
<td>8.13%</td>
</tr>
<tr>
<td>$F$-stat</td>
<td></td>
<td>2.22</td>
<td>5.41</td>
<td>3.63</td>
<td>4.04</td>
</tr>
<tr>
<td>Prob. $F$-stat</td>
<td>0.0153***</td>
<td>0.0000***</td>
<td>0.0002***</td>
<td>0.0000***</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

$\text{TAXVOID}_{it} = \beta_0 + \beta_1 \text{DERIV}_{it} + \beta_2 \text{SIZE}_{it} + \beta_3 \text{ROA}_{it} + \beta_4 \text{DTA}_{it}
+ \beta_5 \text{CAPINT}_{it} + \beta_6 \text{YEAR}_{it} + \epsilon_{it}$,

$\text{TAXVOID}$, the level of tax avoidance; $\text{DERIV}$, notional amount of financial derivatives, scaled by lagged total assets; $\text{SIZE}$, natural logarithm of total assets; $\text{ROA}$, return on asset; $\text{DTA}$, total debt to total assets; $\text{CAPINT}$, capital intensity; $\text{YEAR}$, year dummy variables. *,**,***Significant at 1, 5 and 10 percent levels, respectively, one-tailed test

Table X. Re-testing of $H3$ hypothesis – each country test

Table XI. Re-testing of $H4$ hypothesis – each country test
variables in Malaysia and Singapore is significant. These indicate that only in countries with uncompetitive tax environment (in this case Indonesia and the Philippines), the positive effect of the level of financial derivative usage on tax avoidance level is higher in companies using derivatives for speculation than in companies using derivatives for the purpose of hedging. The findings prove that the more (less) competitive a tax environment in a country is, the lower (higher) the positive effect of the use of financial derivatives for speculation on the relationship between the level of financial derivative usage and tax avoidance level. As such, it can be concluded that $H4$ of this study is acceptable.

The re-testing of all hypotheses using three tax avoidance measures. It can be seen in Table XII that the DERIV variables have positive and significant coefficients when the level of tax avoidance is measured using ABTD, DTAX and BTD. These results are consistent with the results of the main testing. The findings also indicate that the higher the level of the use of financial derivative is, the higher the tax avoidance level of the company. Therefore, we can conclude that $H1$ in the study is proven, although the tax avoidance measures are changed to ABTD, DTAX and BTD.

Moreover, Table XIII shows that when the tax avoidance level is measured using ABTD, DTAX and BTD, the DERIV×DSPEC variables have positive and significant coefficients. The results are consistent with the results of the main testing which find that the positive effect of the level of use of financial derivatives on tax avoidance level is higher in companies using derivatives for speculation than in companies using derivatives for the purpose of hedging. It thus can be concluded that $H2$ is acceptable, even though the tax avoidance measures are changed to ABTD, DTAX and BTD.

Table XIV presents that when the tax avoidance level is measured using ABTD, DTAX and BTD, the coefficients of DERIV×TAXENVIRON variables have negative and significant values. These results are in line with the main testing of this study. These indicate that the positive effect of the level of use of financial derivatives on tax avoidance level is lower in countries with competitive tax environment than in countries with

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted sign</th>
<th>Coef.</th>
<th>Sig.</th>
<th>Coef.</th>
<th>Sig.</th>
<th>Coef.</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>?</td>
<td>0.0347</td>
<td>0.0000***</td>
<td>0.0053</td>
<td>0.0460***</td>
<td>0.0415</td>
<td>0.0000***</td>
</tr>
<tr>
<td>DERIV</td>
<td>+</td>
<td>0.0514</td>
<td>0.0450**</td>
<td>0.0047</td>
<td>0.0965*</td>
<td>0.0187</td>
<td>0.0390**</td>
</tr>
<tr>
<td>SIZE</td>
<td>−</td>
<td>−0.0015</td>
<td>0.0300*</td>
<td>−0.0007</td>
<td>0.0828*</td>
<td>−0.0029</td>
<td>0.0005**</td>
</tr>
<tr>
<td>ROA</td>
<td>+</td>
<td>0.1027</td>
<td>0.0000***</td>
<td>0.0514</td>
<td>0.0455***</td>
<td>0.1015</td>
<td>0.0010***</td>
</tr>
<tr>
<td>DTA</td>
<td>+</td>
<td>−0.0003</td>
<td>0.4770</td>
<td>0.0142</td>
<td>0.0669***</td>
<td>0.0054</td>
<td>0.2710</td>
</tr>
<tr>
<td>CAPINT</td>
<td>+</td>
<td>−0.0034</td>
<td>0.2060</td>
<td>0.0185</td>
<td>0.0005***</td>
<td>0.0084</td>
<td>0.1050</td>
</tr>
<tr>
<td>COUNTRY</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>YEAR</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>$n$</td>
<td>1,395</td>
<td>1,395</td>
<td>1,395</td>
<td>1,395</td>
<td>1,395</td>
<td>1,395</td>
<td>1,395</td>
</tr>
<tr>
<td>$R^2$</td>
<td>8.28%</td>
<td>8.29%</td>
<td>7.97%</td>
<td>5.4%</td>
<td>5.22</td>
<td>5.22</td>
<td>5.22</td>
</tr>
<tr>
<td>$F$-stat</td>
<td>3.92</td>
<td>5.4</td>
<td>5.22</td>
<td>5.22</td>
<td>5.22</td>
<td>5.22</td>
<td>5.22</td>
</tr>
<tr>
<td>Prob. $F$(stat)</td>
<td>0.0000***</td>
<td>0.0000***</td>
<td>0.0000***</td>
<td>0.0000***</td>
<td>0.0000***</td>
<td>0.0000***</td>
<td>0.0000***</td>
</tr>
</tbody>
</table>

Notes:

\[
TAXVOID_{it} = \alpha_0 + \alpha_1\text{DERIV}_{it} + \alpha_2\text{SIZE}_{it} + \alpha_3\text{ROA}_{it} + \alpha_4\text{DTA}_{it} + \alpha_5\text{CAPINT}_{it} + \alpha_6\text{COUNTRY}_{it} + \alpha_7\text{YEAR}_{it} + \epsilon_{it}, \quad (1)
\]

$TAXVOID$, the level of tax avoidance (measured by ABTD, DTAX and BTD); $\text{DERIV}$, notional amount of financial derivatives, scaled by lagged total assets; $\text{SIZE}$, natural logarithm of total assets; $\text{ROA}$, return on asset; $\text{DTA}$, total debt to total assets; $\text{CAPINT}$, capital intensity; $\text{COUNTRY}$, country dummy variables; $\text{YEAR}$, year dummy variables. ***,***Significant at 1, 5 and 10 percent levels, respectively, one-tailed test.
uncompetitive tax environment. Therefore, we can conclude that $H3$ is acceptable, although the tax avoidance measures are changed to ABTD, DTAX and BTD.

Finally, it can also be noted in Table XV that DERIV×DSPEC×TAXENVIRON variables have negative and significant coefficients when the tax avoidance level is measured using ABTD, DTAX and BTD. These are consistent with the results of the main testing. The findings indicate that the effect of the purpose of using financial derivatives on the relationship between the level of use of financial derivatives and tax avoidance level depends on the tax environment of each country. Hence, this study concludes that $H4$ is acceptable when the tax avoidance measures are changed to ABTD, DTAX and BTD.

5. Conclusion

Based on the test results regarding the effect of the level of financial derivative usage on a company’s tax avoidance level, it can be concluded that the level of financial derivative usage positively affects a company’s tax avoidance level. The higher the usage level of financial derivatives of a company, the higher its tax avoidance level. These findings indicate that financial derivatives can be utilized as a tool of tax avoidance. These results are also consistent with the study results of Donohoe (2011a, b, 2015) in the USA as well as the study results of Oktavia and Martani (2013) in Indonesia.

The test results in this study also show that the positive effect of the level of financial derivatives usage on the tax avoidance level is higher in companies using derivatives for speculation than in companies using derivatives for the purpose of hedging. These are in line with the previous research findings of Donohoe (2011a, b, 2015). Moreover, the findings of this study also demonstrate that a country’s tax environment affects the
relationship between the usage level of financial derivatives and tax avoidance level. The more competitive a country’s tax environment is, the lower the role of using financial derivatives as a means of tax avoidance. Companies domiciled in countries with competitive tax environment are able to enjoy various tax facilities benefitting them, for instance: company’s income originating from abroad are no longer subject to tax, shareholder’s income in the forms of dividends are also not subject to tax, and companies have the flexibility in compensating their fiscal losses as the loss compensation period in those countries are indefinite. Hence, the use of financial derivatives as a measure of tax avoidance can be reduced and replaced by the tax facilities that benefit the companies in terms of tax.

This study has three implications. First, the results of this study reveal that managers use financial derivatives as a tax avoidance tool, especially financial derivatives for speculative purposes. Tax avoidance activities can harm investors when companies carry out overly aggressive tax avoidance activities, as companies will incur losses in terms of tax sanctions and damaged reputation in the future. Therefore, investors need to consider the purpose of financial derivatives usage when making investment decisions in companies using financial derivatives. Second, for tax authorities in each country, this study results prove that financial derivatives, particularly those for speculation, can facilitate corporate tax avoidance activities. The implication of these results is that the tax authorities must establish clear tax regulations regarding the tax treatment for various financial derivative transactions, i.e., specifying the definition of derivatives for the purpose of hedging and derivatives for speculation; determining several criteria to distinguish financial derivatives for hedging purpose and financial derivatives for...

Table XIV.
Re-testing of H3 hypothesis – three tax avoidance measurement (ABTD, DTAX and BTD)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predicted sign</th>
<th>ABTD Coef.</th>
<th>Sig.</th>
<th>DTAX Coef.</th>
<th>Sig.</th>
<th>BTD Coef.</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>?</td>
<td>0.0446</td>
<td>0.0000***</td>
<td>0.0268</td>
<td>0.0000***</td>
<td>0.04470</td>
<td>0.0000***</td>
</tr>
<tr>
<td>DERIV</td>
<td>+</td>
<td>0.0587</td>
<td>0.0005***</td>
<td>0.0101</td>
<td>0.0855*</td>
<td>0.05910</td>
<td>0.0005***</td>
</tr>
<tr>
<td>TAXENVIRON</td>
<td>?</td>
<td>-0.0102</td>
<td>0.0115**</td>
<td>-0.0087</td>
<td>0.0020***</td>
<td>-0.0110</td>
<td>0.0115***</td>
</tr>
<tr>
<td>DERIV × TAXENVIRON</td>
<td>-</td>
<td>-0.0578</td>
<td>0.0005***</td>
<td>-0.0232</td>
<td>0.0355***</td>
<td>-0.0583</td>
<td>0.0005***</td>
</tr>
<tr>
<td>SIZE</td>
<td>-</td>
<td>-0.0016</td>
<td>0.0005***</td>
<td>-0.0066</td>
<td>0.0550</td>
<td>-0.00150</td>
<td>0.0005***</td>
</tr>
<tr>
<td>DTA</td>
<td>+</td>
<td>0.0134</td>
<td>0.0000***</td>
<td>0.0525</td>
<td>0.0000***</td>
<td>0.01050</td>
<td>0.0000***</td>
</tr>
<tr>
<td>CAPINT</td>
<td>+</td>
<td>-0.0001</td>
<td>0.4930</td>
<td>0.0136</td>
<td>0.0005***</td>
<td>0.00000</td>
<td>0.4970</td>
</tr>
<tr>
<td>TAXRATE</td>
<td>?</td>
<td>-0.0533</td>
<td>0.0110**</td>
<td>-0.0685</td>
<td>0.00000</td>
<td>-0.05210</td>
<td>0.0120***</td>
</tr>
<tr>
<td>YEAR</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>1,395</td>
<td>1,395</td>
<td>1,395</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>8.22%</td>
<td>8.51%</td>
<td>7.92%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-stat</td>
<td>5.22</td>
<td>5.06</td>
<td>4.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob. F(stat)</td>
<td>0.0000***</td>
<td>0.0000***</td>
<td>0.0000***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

\[
\text{TAXVOID}_{it} = \alpha_0 + \alpha_1 \text{DERIV}_{it} + \alpha_2 \text{TAXENVIRON}_{it} + \alpha_3 \text{DERIV} \times \text{TAXENVIRON}_{it} + \alpha_4 \text{SIZE}_{it} + \alpha_5 \text{ROA}_{it} + \alpha_6 \text{DTA}_{it} + \alpha_7 \text{CAPINT}_{it} + \alpha_8 \text{TAXRATE}_{it} + \alpha_9 \text{YEAR}_{i} + \epsilon_{it},
\]

(3)

TAXVOID, the level of tax avoidance (measured by ABTD, DTAX and BTD); DERIV, notional amount of financial derivatives, scaled by lagged total assets; TAXENVIRON, 1 if the country has a competitive tax environment and 0 if otherwise; SIZE, natural logarithm of total assets; ROA, return on asset; DTA, total debt to total assets; CAPINT, capital intensity; TAXRATE, the statutory corporate tax rate in each country; YEAR, year dummy variables. *, **, *** Significant at 1, 5 and 10 percent levels, respectively, one-tailed test.
speculation purposes. This is especially necessary to determine whether losses arising from derivative transactions are considered deductible expense or non-deductible expense. If the financial derivative transactions are not for the purpose of hedging and do not have any underlying assets, the loss from such derivative transactions shall not be recognized as deductible expense.

The improvements in tax regulations on financial derivative transactions are expected to: minimize the attempts of companies aiming to take advantage of the inconsistency, asymmetry, and indeterminacy in tax regulations as loopholes to avoid taxes by using financial derivatives as means of tax avoidance; minimize the difficulties faced by the tax authorities in understanding, detecting and enforcing the law on tax avoidance involving financial derivatives; minimize the potential loss of state revenues as a result of financial derivative transactions; and minimize disputes between tax officials and taxpayers.

Third, for capital market authorities in each country, the implication is to create a better protection mechanism for investors in the capital market. For example, by
establishing a policy regulating the disclosure of derivative instruments in a format that is easy to understand and identify by investors. Although by far, companies have disclosed the derivative instruments in the notes to financial statements, but the disclosure is hard to understand by the users of the financial statements (Papa and Peters, 2013). The disclosure of derivative instruments in a more understandable and identifiable format is hoped to assist investors in understanding and identifying the types of derivative instruments used by the company, the purpose of using these derivative instruments, the risk exposures that motivate the use of these instruments, as well as the differences between accounting hedges (derivatives that meet the criteria of hedge accounting), economic hedges (derivatives for the purpose of risk hedging) and derivatives for trading activities; improve the information availability for investors in making investment decisions and reduce the level of market mispricing.

This study has several limitations that should be noted so that the interpretation of the research results can be carried out carefully and such limitations must be considered in future studies. First, this study only uses the criteria of meeting or not meeting the hedge accounting requirement when splitting the users of financial derivatives into two categories. Further research can use other alternative to separate the use of financial derivatives for speculative purposes from the use of financial derivatives for hedging purposes. Second, the types of financial derivatives used by the sample companies in this study consist of forwards, cross currency swaps, interest rate swaps and options. The notional amount used to measure the level of financial derivatives usage in this study is the sum of the notional amount of all this types. This study does not test the sample based on the financial derivative types, so it is unknown which type of derivatives is more dominant in affecting the level of tax avoidance. Further research can broaden the test by classifying sample based on the financial derivatives types. Third, this study only uses four countries in the ASEAN region as sample countries. Further study can expand the research by not only using countries in the ASEAN region but also using countries in the Asia Pacific region.

References


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Further reading

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The value relevance of R&D and free cash flow in an efficient investment setup

Evidence from Chinese A-listed firms

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Dongbei University of Finance and Economics, Dalian, China, and

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Abstract

**Purpose** – The purpose of this paper is to investigate the value relevance of Research and development (R&D) and free cash flow (FCF) in an efficient investment setup. Most importantly, this paper examines whether the value relevance of R&D and FCF is associated with life cycle stages. Furthermore, this paper reports whether the market response to R&D and FCF is different in competitive market as compared to the concentrated market.

**Design/methodology/approach** – The analysis is based on the Ohlson (1995) model for the determination of value relevance of earnings and book value. Capitalized R&D and FCF data comprising of the Chinese A-listed firms from the year 2008 to 2016 are selected for this study. Following Anthony and Ramesh (1992), the authors divided the firm life cycle into different stages. HHI index is used to measure the product market competition.

**Findings** – The main result shows that R&D and FCF are value relevant in Chinese A-listed firms. The impact of R&D and FCF on the value relevance of earnings and book value is also positive and significant. The findings of the effect of R&D and FCF on the value relevance of accounting information signify that the information content ($R^2 = 0.46$) of the mature stage is higher than that of the growth and stagnant stage. The explanatory power measured by $R^2$ value for competitive industries (0.47) is much higher than the concentrated industries (0.33).

**Research limitations/implications** – Despite taking into account all the possible available variables, there are few limitations of the study. This study only studies the effect of EPS, BPS, R&D and FCF on the value relevance of accounting information. Other determinant such as size, growth, leverage and firm age is ignored. Since the R&D expenditure is discretionary, therefore the findings cannot be generalized to all the sectors. A sector wise comparative study can be done in future, to understand the differences in the information contents of R&D and FCF. Also, the tax effect of R&D is ignored in this study. For future call, the value relevance of tax effect on R&D can be explored.

**Practical implications** – The investors can now determine the present value of all the future cash flows of investing activities. The results of the study are significant for the Chinese investors who should incorporate the R&D and FCF along with investment efficiency. The investors should keep in mind the life cycle stage while investing in a certain stock. The competitive markets have more information content than the concentrated markets. The corporate managers can benefit from this study while issuing new shares. The market responds
positively to the stock having investment efficient R&D and FCF investment. For the policy implication perspective, the security market regulator should devise the effective pro-effective product market regulations.

Originality/value – The contribution of this study is manifold. First, according to the authors’ knowledge, this is the first study that incorporates investment efficiency with R&D and FCF and explores its effect on the value relevance of accounting information. Second, the impact of R&D on the value relevance is studied by numerous researchers (Lev and Sougiannis, 1996; Han and Manry, 2004). Similarly, FCF-agency cost effect has also been investigated by (Rahman and Mohd-Saleh, 2008; Chen et al., 2012) but the value relevance of R&D and FCF during different life cycle stages still needs to be answered. Finally, this study also tries to answers the question if the market response to R&D and FCF is different in a competitive market as compared to the concentrated market.

Keywords R&D expenditures, Free cash flows, Value relevance, Investment efficiency, Product life cycle

Paper type Research paper

1. Introduction

The wealth maximization of the principals is the primary goal of a financial manager. For this purpose, the manager should allocate funds at his disposal very efficiently and effectively. Agency theory suggests that opportunistic managers may indulge self-empire buildings if they have too much funds at disposal (Jensen and Meckling, 1976). Research and development (R&D) investment and free cash flows (FCF) are two sources that are regarded as a gauge to measure the information asymmetry. Since managerial discretion determines the level of R&D expenditures and FCF, therefore, the asymmetric problems among managers and principals can be resolved through efficient investment. The financial statements should be value relevant for the efficient investment firms involved in R&D and FCF.

Market response to firm R&D and FCF depends upon the life cycle sub-stages. Faff et al. (2016) studied the interdependence of corporate policies during the life cycle stages. They find that during life cycle stages, the investment and equity issuance decreases. We can deduce that the firms need more investment at the early stages; therefore, higher R&D and FCF in early stages are expected. As the firm enters the maturity stage, the firms steady its capital investment and the excess cash is being distributed to the shareholders in the form of dividends. The decline stage is the outcome of the failure of innovation, investing less and distributing more. Due to different priorities of financial manager to varying stages of the lifecycle, the information content of R&D and FCF may differ at each stage.

The difference in the information content of R&D and FCF would not only be found among product lifecycle stage, but this difference may also arise due to product market competition. It has been well documented that the product market competition substitutes for corporate governance in frail markets (Giroud and Mueller, 2011; Ammann et al., 2013; Yu et al., 2017). The market response to investment activities is positive in competitive markets. Therefore, we expect a difference in the information content of R&D and FCF in competitive and concentrated industries.

The purpose of this study is to explore the value relevance of R&D and FCF for the efficient investment firms. Also, we want to find out how the market response to R&D and FCF among different life cycle stages and during the product market competition. This study focuses on the capitalized amount shown in the balance sheet which signifies the managerial discretion. The old Chinese accounting standards for business enterprises do not require the firms to disclose the R&D expenditures. But after 2007 the Chinese accounting system was transformed to International Accounting Standard Board settings; therefore, firms start to show capitalized R&D expenditures in the balance sheet and hence give useful information to the investors. The contribution of this study is manifold. First, to our knowledge, this is the first study that incorporates investment efficiency with R&D and FCF and explores its effect on the value relevance of accounting information. Second, the impact of R&D on the value relevance is studied by numerous researchers (Lev and Sougiannis, 1996; Han and Manry, 2004). Similarly FCF-agency cost effect has also been investigated by (Rahman and Mohd-Saleh, 2008; Chen et al., 2012) but the value relevance of
R&D and FCF during different life cycle stages still needs to be answered. Finally, this study also tries to resolve the query if the market response to R&D and FCF is different in a competitive market as compared to the concentrated market.

Our analysis is based on the Ohlson (1995) model and data comprise of the Chinese A-listed firms from the year 2008 to 2016. Ordinary least square is estimated after controlling for time and industry effects. The result shows that the investment efficient firm’s R&D and FCF are value relevant to the overall sample. The impact of R&D and FCF on the value relevance of earnings and book value is also positive and significant. Life cycle stages depict different information content at each phase. The findings of the effect of R&D and FCF on the value relevance of accounting information signifies that the information content ($R^2 = 0.46$) of the mature stage is higher than that of the growth and stagnant phase. The market does not respond to value relevance of R&D and FCF at the stagnant stage. Mature firms are more stable as compared to growth and stagnant firms. Therefore, the market reacts more to their book values rather than their earnings. This is the reason of value relevance of the book values of R&D and FCF investment. The growth firms pay a high level of dividends, therefore, the value relevance of earnings for R&D and FCF expenditure becomes significant.

In the end, we explore the value relevance of R&D and FCF investment in product market competition. For this purpose, the firms are divided into two sub-samples as competitive industries and concentrated industries based on the Herfindahl–Hirschman index. The result shows that R&D expenditures are value relevant only for competitive industries. The effect of R&D and FCF on the value relevance of book value is significant for concentrated industries, while just R&D are value relevant to the book value competitive industry. The effect of R&D on earnings in concentrated industries is significantly related to the stock price while FCF has a positive impact on earnings in competitive industries. The explanatory power measured by $R^2$ value for competitive industries (0.47) is much higher than the concentrated industries (0.33).

The investors should keep the life cycle stage in mind while investing in a specific stock. The competitive markets have more information content than the concentrated markets. The corporate managers can benefit from this study while issuing new shares. The market responses positively to the stock having investment efficient R&D and FCF investment. For the policy implication perspective, the security market regulator should devise the pro-effective product market regulations.

2. Literature review

2.1 The value relevance of earnings, book value, FCF and R&D

Accounting information is termed as value relevant if the market price of the stock is associated with the earnings and book value of equity (Ohlson, 1995; Barth et al., 1998). Adequate studies have documented the value relevance of earnings and book value in the Chinese perspective. Jun Lin and Chen (2005) and Liu et al. (2014) examined the effectiveness of A-listed and B-listed shares market in China. Their results showed that earnings and book value is more value relevant in the Chinese accounting system as compared to the international accounting standards. The effect of earning and book value on the value relevance of accounting information has been studied by Qu and Zhang (2015) from the period 1991 to 2010 in China. They concluded that the value relevance of earnings has slightly declined while the value relevance of book value has increased over the period. Similarly Shan (2015) found from his research that the earnings and book value is value relevant in Chinese stock market from the period 2001 to 2005.

Jensen (1986) proposed the FCF hypothesis from the perspective of the agency cost. According to him, the opportunistic manager rather than investing the FCF in positive NPV projects utilize the funds for dispensation. He further added that the agency cost of FCF could be curtailed by refraining approach or encouraging approach. Gul and Tsui (1997) and
Rahman and Mohd-Saleh (2008) elaborated that the firms with high FCF and low growth opportunity are more prone to the opportunistic behavior of the managers. Richardson (2006) studied the relationship between the FCF and over investment. He found that the firm with a high level of FCF inclined to over invest hence supporting the agency perspective. Firms that are reporting FCF in their financial statements are increasing over time. However, these firms do not enjoy an excellent credit rating (Adhikari and Duru, 2006). Chen et al. (2016) studied the effect of FCF and corporate governance on the firm investment level in China. The result suggests the agency cost is present in the firms having a high level of FCF which results in over investment.

Similarly, R&D expenditures may lead to low performance if the firm is facing agency problems (Salge and Vera, 2013). Capitalization of R&D has its own merits and demerits. The opponents suggest that R&D expenditures capitalized by the financial manager give them the opportunity to write-off negative NPV projects or high-risk ventures. On the other hand, the proponents think that the value relevance of R&D expenditures is higher when the amount is capitalized because in this way the financial manager realizes the intangibles assets in the balance sheet (Lev and Zarowin, 1999). The opportunistic manager may use excess resources of the organization in self-empire building or investing inefficiently resulting in low performance (Geiger and Cashen, 2002; Tan and Peng, 2003). Osma and Young (2009) in their research investigated the research question if the firms cut R&D expenditures in response to earnings pressure or not? Their result showed that the pressure to report positive earnings and earnings growth in the current period results in the cut in R&D expenditures. The market responds less to the amount of reduction rather than the reason for the decline.

The investment efficiency can bring a positive signal about the firm utilization of the FCF and R&D expenditures. According to Biddle et al. (2009), firms with investment efficiency are categorized as either having accounting quality or reporting quality. The market responds more toward the information content of the efficient investment firms, therefore, the R&D and FCF investment reported by these firms should be value relevant. Similarly, Chan et al. (1990) advocated that firms engaged in R&D expenditures have positive stock price movement. But this movement depends upon if the firms fall in to the high-tech sector or not. So, our next hypothesis turns out to be as follows:

**H1.** Efficient R&D expenditures and efficient FCF are value relevant in Chinese A-listed firms.

### 2.2 Value relevance of R&D and FCF investment during life cycle stages

The concept of the life cycle has a profound history in different fields of knowledge. However, the study that is related to the life cycle stages with the firm performance was propounded by Anthony and Ramesh (1992). According to their research, the market reaction to the capital investment and sales growth varies across different life cycle stages. Black (1998) examined the incremental effect of life cycle stages on cash flows and earnings. He divided the life cycle stage into four sub-stages namely start-up, growth, maturity and decline while cash flows were split into operating, investing and financing activities, respectively. The result shows that the earnings and cash flows have incremental information content at different life cycle stages. Expanding his study further, Black (2003) recommended that although profits are more value relevant than the cash flows measures, yet they depend upon the firm life cycle stage. At start-up stage, the firm may experience negative gains, so the incremental information content at start-up phase is insignificant, but as the firm enters the growth and maturity stage, the incremental effect becomes more value relevant. Kousenidis (2005) re-examines the earnings-return relationship for a sample of firms in Greece across different life cycle stages. The results show that improved information contents are reported when accounted for size, but there is not any consistency
in information contents if examined across different life cycle stages. How life cycle contributes to the determination of annual return was investigated by Xu (2007). The findings suggest that the value relevance of risk factors is dependent on the life cycle stages.

Based on the above literature, we can conclude that there is information content at different life cycle stages. But do R&D and FCF investment have any information content across different life cycle stages is the question to be answered. Building toward our next hypothesis, we take help from the recent work done by Faff et al. (2016). They examine the interdependence of corporate policies during the life cycle stages. They find that the investment and equity issuance decreases over the life cycle stages. So, we can infer that at early stages the firms need more investment, therefore, higher R&D and FCF. Our next hypothesis becomes:

**H2.** The information content of R&D and FCF varies across different life cycle stages.

### 2.3 Value relevance of R&D and FCF investment and product market competition

Hou and Robinson (2006) has expounded that the firms in concentrated industries earn a lower return because they either are less innovative or due to the barrier to entry insulate firms from un-diversifiable risks. The firms in concentrated markets have monopoly power over the customers; hence all the price shocks are passed onto the customers reflected in the stock price (Peress, 2010). In market where corporate governance is weak the product market competition acts as a substitute and firm value is enhanced (Giroud and Mueller, 2011; Ammann et al., 2013; Yu et al., 2017). Firms inclined toward high R&D activities tend to earn a lot higher if they fall under competitive industries (Gu, 2016). Similarly, Grullon and Michaely (2007) in their research suggest that the cash payout policies in firms belonging to competitive industries are higher than the concentrated sectors. They further elaborate that the agency cost of FCF is more elevated in intensive industries. By using firm-year observations from 1990 to 2010, Laksmana and Yang (2015) conclude that competition, on the one hand, increases the risk-taking activities by the managers while on the other hand it also enhances the investment efficiency. Our next hypothesis becomes as follows:

**H3.** The information content of efficient R&D and efficient FCF are more value relevant in competitive industries than concentrated industries.

### 3. Research design

#### 3.1 Sample selection

Chinese security market and financial research contains a comprehensive array of data set for Chinese listed companies. The data are collected from Chinese A-listed firms from the year 2008 to 2016. The companies falling in the financial sector are excluded from the analysis because of their unique nature. Since the account closure of all the A-listed firms is on December 31, therefore we took the price of the stocks four months after the announcement of annual reports. This step is needed to adjust for the unobserved information due to herding behavior. The sample size in this study varies depending upon the nature of relationship explored. For example, while taking the whole sample, we have got 17,864 firm-year observations, but they decrease considerably while taking sub-sample based on life cycle stages or product market competition. Since the data comprises of nine years, many companies were listed after 2007 and were included afterward. Therefore, this gives us an unbalanced data. All the variables were Winsor at 1 percent to cope with the outlier’s problem.

#### 3.2 Model specification

Based on our hypothesis, we want to explore the value relevance of books and earnings in the first model following Ohlson (1995). We extend the Ohlson model to incorporate FCFs
and R&D expenditure in Model 2. Then we measure the effect of FCFs and R&D expenditure on the value relevance of earnings and book value in Model 3. Model 3 is not only tested for the entire sample, but we also inspect the relationship among different life cycle stages and in product market competition:

\[ \text{Price}(\text{4th Month}) = f(\text{BPS}, \text{EPS}, \text{Year dummy}, \text{industry dummy}), \]

\[ \text{Price}(\text{4th Month}) = f(\text{BPS}, \text{EPS}, \text{FCF} - \text{IE}, \text{RnD} - \text{IE}, \text{Year dummy}, \text{industry dummy}), \]

\[ \text{Price}(\text{4th Month}) = f[\text{BPS} \times (\text{FCF} - \text{IE}, \text{RnD} - \text{IE}), \text{EPS} \times (\text{FCF} - \text{IE}, \text{RnD} - \text{IE})], \text{Year dummy, industry dummy}. \]

3.3 Variable measurement

3.3.1 Dependent variables. Following Shan (2015) and Ge et al. (2010), we have taken the price at the end of the fourth month after the fiscal year ends. We have taken the last trading day if the market is closed on the last day of the fourth month. It is mandatory for the Chinese listed companies to publish the audited financial statement within the first four months of the calendar year.

3.3.2 Independent variables. Model 1 comprises two independent variables namely BPS and EPS. BPS is calculated as dividing the net assets during a particular year by the number of shares outstanding. EPS is the measure of earnings per share and is calculated as dividing net income by the number of shares outstanding in a specific year.

Considering Model 2, we incorporate two additional independent variables namely R&D-IE and FCF-IE. R&D-IE is the measure of a firm’s R&D investment to total assets falling in investment efficient group. Similarly, FCF-IE is the measure of firm’s FCFs to total assets falling in investment efficient group:

\[ \text{R&D} = \frac{\text{Research and development expenditure}}{\text{Total assets}}. \]

Following Chung et al. (2005) and Rahman and Mohd-Saleh (2008), we measure the FCFs as follows:

\[ \text{FCF} = \frac{\text{Operating income before depreciation} - \text{Total taxes} - \text{Interest expenses} - \text{Preferred and common stock dividend}}{\text{Total assets}}. \]

After calculating the R&D and FCF, we then focused on the firms that are investment efficient. For this purpose, we followed Richardson (2006):

\[ \text{I}_{\text{New}} = \text{BTM}_{t-1} + \text{Leverage}_{t-1} + \text{Cash}_{t-1} + \text{Age}_{t-1} + \text{Size}_{t-1} + \text{Stock return}_{t-1} + \text{I}_{\text{New } t-1} + \text{Year dummy} + \text{Industry dummy}, \]

where \( \text{I}_{\text{New}} = \text{R&D expenditure} + \text{Capital expenditure} - \text{Cash receipt from sales of property, plant and equipment divided by lagged total assets}, \text{BTM}_{t-1} = \text{lagged book to market ratio}; \text{Leverage}_{t-1} = \text{previous year total debt divided by last year total assets}; \text{Cash}_{t-1} = \text{lagged cash and equivalent scaled by lagged total assets}; \text{Age}_{t-1} = \text{the period since the company is listed on the stock exchange (Lagged value)}; \text{Stock Return}_{t-1} = \text{change in the market value of the firm divided by the previous year market value}; \text{and I}_{\text{New } t-1} = \text{Investment calculated as above in year } t-1. \]
The regression is run each year for each industry in the panel data. The residuals from the Equation (4), depict the investment inefficiency. Since we are interested in firms investment efficiency rather than over investment or underinvestment, therefore, following Ma and Jin (2016) we took the absolute value of residuals. A higher level of residuals signifies over investment, and a lower level of residuals depicts underinvestment; consequently we made the middle two quartiles to indicate investment efficiency. Investment efficiency is a dummy variable that makes the value of 1 if the firms absolute investment efficiency value falls in to the middle two quartiles, zero otherwise. After the calculation of investment efficiency, we arranged our sample firms as the firms with R&D and FCF investment having the values of 1 that denotes investment efficiency.

3.3.3 Life cycle measurement. Following Anthony and Ramesh (1992) and Xu (2007), we divide the firms into three life cycle stages. The division of these groups is based on the dividend payout ratio, sales growth, capital expenditure scaled by the total value of the firm and firm age. The first stage of the life cycle is the growth group characterized by high level of dividend payout, sales growth and capital expenditure ratio. Generally, these firms are young. The second group called as mature firms have a moderate level of dividend payout, sales growth and capital investment. These firms have a firm age in the middle two quartiles of the whole sample firm's age. The last group named as the stagnant group has a low level of dividend payout, sales growth and capital expenditure. These firms are older than the other two groups. Each year partition is made on the above criteria for each industry. A firm's ranking may vary each year based on the group it may fall in. Table I elaborate the life cycle expectation during each stage.

3.3.4 Product market competition measurement. Herfindahl–Hirschman index is widely used to measure the product market competition and is also followed in our study. This index is calculated by summing up the sales-based squared market shares of all the firms in the industry during a particular year:

\[
HHI_{jt} = \sum_{i=1}^{N_{jt}} S_{ijt}^2,
\]

where \(S_{ijt}\) denotes the market share of the firm “i” in industry “j” in year “t”. \(N_{jt}\) is the number of firms in industry “j” in year “t.” Following Yu et al. (2017), we excluded firms with either missing sales values or where sales are negative. Also excluded are the industries that contain less than five firms during a particular year.

4. Research findings
4.1 Descriptive results and correlation analysis

Table II, Panel A reports the summary statistics of the overall data. The average stock price during the nine-year period of all the firms included in the sample is 16.78. The average leverage value in Chinese A-listed firms is 47.2 percent. The average values of EPS and BPS
Table II. Variables attributes

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: overall summary statistics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>19,273</td>
<td>16.78</td>
<td>15.54</td>
<td>0.730</td>
<td>413.5</td>
</tr>
<tr>
<td>Growth</td>
<td>17,956</td>
<td>2.582</td>
<td>16.28</td>
<td>-0.975</td>
<td>145.0</td>
</tr>
<tr>
<td>Leverage</td>
<td>20,519</td>
<td>0.472</td>
<td>1.030</td>
<td>0.00712</td>
<td>0.94</td>
</tr>
<tr>
<td>Size</td>
<td>20,519</td>
<td>21.82</td>
<td>1.323</td>
<td>13.76</td>
<td>28.51</td>
</tr>
<tr>
<td>Firm age</td>
<td>20,178</td>
<td>8.872</td>
<td>6.416</td>
<td>1</td>
<td>26</td>
</tr>
<tr>
<td>EPS</td>
<td>22,908</td>
<td>0.376</td>
<td>0.682</td>
<td>-22.41</td>
<td>60.42</td>
</tr>
<tr>
<td>BPS</td>
<td>22,908</td>
<td>4.475</td>
<td>3.178</td>
<td>-47.07</td>
<td>9.740</td>
</tr>
<tr>
<td>R&amp;D/TA</td>
<td>12,317</td>
<td>0.00194</td>
<td>0.00887</td>
<td>0</td>
<td>0.277</td>
</tr>
<tr>
<td>FCF/TA</td>
<td>14,211</td>
<td>-0.202</td>
<td>0.480</td>
<td>-67.07</td>
<td>9.740</td>
</tr>
<tr>
<td>R&amp;D-IE</td>
<td>10,317</td>
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<td>0.00576</td>
<td>0</td>
<td>0.277</td>
</tr>
<tr>
<td>FCF-IE</td>
<td>12,211</td>
<td>-0.0703</td>
<td>0.170</td>
<td>-37.13</td>
<td>0.540</td>
</tr>
<tr>
<td><strong>Panel B: partition based on lifecycle stages</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Growth firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>2,455</td>
<td>13.76</td>
<td>11.37</td>
<td>1.520</td>
<td>174.0</td>
</tr>
<tr>
<td>Growth</td>
<td>2,655</td>
<td>63.36</td>
<td>26.02</td>
<td>-0.707</td>
<td>145.0</td>
</tr>
<tr>
<td>Leverage</td>
<td>2,674</td>
<td>0.326</td>
<td>0.196</td>
<td>0.0250</td>
<td>0.932</td>
</tr>
<tr>
<td>Size</td>
<td>2,674</td>
<td>22.61</td>
<td>1.210</td>
<td>18.52</td>
<td>27.34</td>
</tr>
<tr>
<td>Firm age</td>
<td>2,674</td>
<td>9.998</td>
<td>4.855</td>
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<tr>
<td>EPS</td>
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<td>0.715</td>
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<tr>
<td>BPS</td>
<td>2,797</td>
<td>4.983</td>
<td>2.642</td>
<td>-4.966</td>
<td>62.25</td>
</tr>
<tr>
<td>R&amp;D/TA</td>
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<td>0.00297</td>
<td>0.0129</td>
<td>0</td>
<td>0.277</td>
</tr>
<tr>
<td>FCF/TA</td>
<td>2,674</td>
<td>-0.248</td>
<td>0.233</td>
<td>-2.416</td>
<td>0.507</td>
</tr>
<tr>
<td>R&amp;D-IE</td>
<td>2,277</td>
<td>0.00152</td>
<td>0.0108</td>
<td>0</td>
<td>0.277</td>
</tr>
<tr>
<td>FCF-IE</td>
<td>2,674</td>
<td>-0.101</td>
<td>0.191</td>
<td>-1.690</td>
<td>0.304</td>
</tr>
<tr>
<td><strong>Mature firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>7,226</td>
<td>14.92</td>
<td>14.08</td>
<td>1.690</td>
<td>413.5</td>
</tr>
<tr>
<td>Growth</td>
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<td>28.29</td>
<td>16.99</td>
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<td>145.0</td>
</tr>
<tr>
<td>Leverage</td>
<td>7,773</td>
<td>0.493</td>
<td>0.493</td>
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</tr>
<tr>
<td>Size</td>
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<td>22.04</td>
<td>13.24</td>
<td>13.76</td>
<td>28.51</td>
</tr>
<tr>
<td>Firm age</td>
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<td>11.47</td>
<td>5.616</td>
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<td>26</td>
</tr>
<tr>
<td>EPS</td>
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<td>0.355</td>
<td>0.742</td>
<td>-5.573</td>
<td>17.53</td>
</tr>
<tr>
<td>BPS</td>
<td>8,363</td>
<td>4.178</td>
<td>3.075</td>
<td>-23.96</td>
<td>60.42</td>
</tr>
<tr>
<td>R&amp;D/TA</td>
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<td>0.00217</td>
<td>0.00930</td>
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<td>0.229</td>
</tr>
<tr>
<td>FCF/TA</td>
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<tr>
<td>R&amp;D-IE</td>
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<td>0</td>
<td>0.229</td>
</tr>
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<td>FCF-IE</td>
<td>7,541</td>
<td>-0.0947</td>
<td>0.192</td>
<td>-37.13</td>
<td>0.540</td>
</tr>
</tbody>
</table>

(continued)
### Panel C: partition based on product market competition

#### Concentrated industry

<table>
<thead>
<tr>
<th></th>
<th>Price</th>
<th>16.45</th>
<th>16.60</th>
<th>370.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth</td>
<td>6,740</td>
<td>0.514</td>
<td>0.631</td>
<td>0.0105</td>
</tr>
<tr>
<td>Leverage</td>
<td>6,446</td>
<td>0.089</td>
<td>0.207</td>
<td>0.286</td>
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<tr>
<td>Firm age</td>
<td>6,446</td>
<td>0.351</td>
<td>0.390</td>
<td>2.746</td>
</tr>
<tr>
<td>EPS</td>
<td>6,446</td>
<td>0.00152</td>
<td>0.00803</td>
<td>0.216</td>
</tr>
<tr>
<td>R&amp;D/TA</td>
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<td>0.0820</td>
<td>0.179</td>
<td>3.713</td>
</tr>
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<td>FCF/TA</td>
<td>6,446</td>
<td>-0.0892</td>
<td>0.181</td>
<td>-3.713</td>
</tr>
<tr>
<td>R&amp;D-IE</td>
<td>6,446</td>
<td>-0.0892</td>
<td>0.181</td>
<td>-3.713</td>
</tr>
<tr>
<td>FCF-IE</td>
<td>6,446</td>
<td>-0.0892</td>
<td>0.181</td>
<td>-3.713</td>
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</tbody>
</table>

#### Competitive industry

<table>
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<tr>
<th></th>
<th>Price</th>
<th>17.11</th>
<th>15.34</th>
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<tr>
<td>Growth</td>
<td>10,300</td>
<td>1.687</td>
<td>12.93</td>
<td>145.0</td>
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<tr>
<td>Leverage</td>
<td>11,737</td>
<td>0.433</td>
<td>1.144</td>
<td>0.00712</td>
</tr>
<tr>
<td>Size</td>
<td>11,737</td>
<td>2.171</td>
<td>3.159</td>
<td>27.10</td>
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<tr>
<td>Firm age</td>
<td>11,737</td>
<td>7.990</td>
<td>6.253</td>
<td>26</td>
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<tr>
<td>EPS</td>
<td>11,737</td>
<td>0.375</td>
<td>0.653</td>
<td>15.38</td>
</tr>
<tr>
<td>B/S</td>
<td>11,737</td>
<td>4.700</td>
<td>3.122</td>
<td>7.283</td>
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<tr>
<td>R&amp;D/TA</td>
<td>9,982</td>
<td>0.00031</td>
<td>0.00941</td>
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</tr>
<tr>
<td>FCF/TA</td>
<td>10,223</td>
<td>0.00031</td>
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<td>0.277</td>
</tr>
<tr>
<td>R&amp;D-IE</td>
<td>9,982</td>
<td>0.00014</td>
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<tr>
<td>FCF-IE</td>
<td>10,223</td>
<td>-0.00802</td>
<td>0.181</td>
<td>-3.713</td>
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(continued)
### Table II

#### Difference of means test

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<tr>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D/TA</td>
<td>0.00297</td>
<td>0.00217</td>
<td>0.00154</td>
<td>0.000063</td>
<td>0.00231</td>
<td>0.00152</td>
<td>0.00079**</td>
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<tr>
<td>FCF/TA</td>
<td>0.248</td>
<td>0.206</td>
<td>0.167</td>
<td>0.062**</td>
<td>0.059</td>
<td>0.203</td>
<td>0.13**</td>
<td>0.00042**</td>
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<tr>
<td>R&amp;D-IE</td>
<td>0.00352</td>
<td>0.00188</td>
<td>0.000470</td>
<td>0.00061</td>
<td>0.00104</td>
<td>0.000612</td>
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<tr>
<td>FCF-IE</td>
<td>0.110</td>
<td>0.0947</td>
<td>0.0564</td>
<td>0.0063**</td>
<td>0.0501</td>
<td>0.0802</td>
<td>0.0820</td>
<td>-0.0018**</td>
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#### Panel D: correlation analysis

<table>
<thead>
<tr>
<th></th>
<th>Price</th>
<th>EPS</th>
<th>BPS</th>
<th>R&amp;D-IE</th>
<th>FCF-IE</th>
<th>Size</th>
<th>Leverage</th>
<th>Growth</th>
<th>Firm age</th>
<th>VIF</th>
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<tr>
<td>Price</td>
<td>1</td>
<td>0.4950*</td>
<td>0.6101*</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.66</td>
</tr>
<tr>
<td>EPS</td>
<td>0.4950*</td>
<td>1</td>
<td>1.66</td>
<td>0.6101*</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>1.89</td>
</tr>
<tr>
<td>BPS</td>
<td>0.4705*</td>
<td>0.6101*</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>1.97</td>
</tr>
<tr>
<td>R&amp;D-IE</td>
<td>0.0320*</td>
<td>-0.0097</td>
<td>-0.0089</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>1.29</td>
</tr>
<tr>
<td>FCF-IE</td>
<td>0.0785*</td>
<td>0.0706*</td>
<td>0.0584*</td>
<td>-0.0610*</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>1.07</td>
</tr>
<tr>
<td>Size</td>
<td>-0.1403*</td>
<td>0.1705*</td>
<td>0.3044*</td>
<td>0.0056</td>
<td>-0.0995*</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>1.05</td>
</tr>
<tr>
<td>Leverage</td>
<td>-0.0817*</td>
<td>-0.1290*</td>
<td>-0.1515*</td>
<td>-0.01</td>
<td>-0.1214*</td>
<td>-0.0004</td>
<td>1</td>
<td></td>
<td></td>
<td>1.02</td>
</tr>
<tr>
<td>Growth</td>
<td>-0.0409*</td>
<td>0.0241*</td>
<td>-0.0229*</td>
<td>-0.0380*</td>
<td>0.0441*</td>
<td>0.0467*</td>
<td>0.0167*</td>
<td>1</td>
<td></td>
<td>1.02</td>
</tr>
<tr>
<td>Firm age</td>
<td>-0.2648*</td>
<td>-0.1244*</td>
<td>-0.2213*</td>
<td>0.0052</td>
<td>-0.1410*</td>
<td>0.2696*</td>
<td>0.1168*</td>
<td>0.1122*</td>
<td>1</td>
<td>1.2</td>
</tr>
</tbody>
</table>
for the Chinese listed firms is 0.37 and 4.47 per share, respectively. The FCF shows an average negative value while the R&D/TA is 0.19 percent.

Further looking at Panel B, we get a picture of all the three life cycle stages. The stagnant firms show less growth (0.595) as compared to mature (2.83) and growth (6.53) firms. Growth firms take a higher level of leverage (0.52) than that of the stagnant (0.41) and mature firms (0.49). The level of R&D/TA in mature and growth firms is much greater 0.217 percent and 0.297 percent as compared to stagnant firms which are 0.154 percent. This emphasizes on the fact that the growth firms require more R&D investment to expand as compared to other two groups. The average FCF/TA for all the three groups is negative, but the negative value is much higher in growth firms (−0.24) than that of the mature (−0.21) and stagnant firms (−0.17). One of the possible explanations for this higher negative value of mature firms is having a high level of capital expenses. Since the FCF is calculated after deducting the capital expenditure from the income before interest and taxes, therefore we get an average high negative value of FCF/TA in growth firms.

Panel C depicts the summary statistics based on the product market competition. The panel is divided into two groups. The first panel shows the firms falling in concentrated industries while the second group reports the summary statistics of firms laying in competitive industries based on the Herfindahl–Hirschman index. The average market price per share in concentrated sectors is 15.62 while in competitive industries is 17.71. Firms in competitive industries invest more in R&D activities (0.231) than their counterparts (0.15). This shows that competition makes the firm invest more in R&D investment to gain a competitive advantage. Correspondingly, due to the high capital investment, the value of FCF/TA in competitive industries (−20.3) is less than that of the concentrated industries (−18.9). The investment efficiency of concentrated industry (37.18 percent) is slightly higher than the competitive firms (35.62 percent).

Table III shows the correlation coefficient for the variables. The coefficient values among independent variables are much less than 0.8 which shows no presence of multicollinearity problem. We also test the multicollinearity diagnostic through VIF analysis and find all the values well low at the critical level. The market price per share shows a positive and significant relationship with EPS, BPS, FCF-IE and R&D-IE supporting our null hypothesis.

4.2 Regression results

4.2.1 Value relevance of R&D and FCF investment. The value relevance of earnings and book value is depicted in Model 1 of Table IV while the value relevance of FCF-IE and R&D-IE is shown in Model 2. Both models reveal that the earning and book value are value relevant in Chinese listed firms (EPS $\beta = 8.52 \ p\text{-value} < 0.01$; BPS $\beta = 1.24 \ p\text{-value} < 0.01$) in

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS</td>
<td>8.523*** (0.190)</td>
<td>7.185*** (0.186)</td>
<td>7.167*** (0.194)</td>
</tr>
<tr>
<td>BPS</td>
<td>1.237*** (0.0394)</td>
<td>1.057*** (0.0407)</td>
<td>0.485 (0.821)</td>
</tr>
<tr>
<td>FCF-IE</td>
<td>3.593*** (0.507)</td>
<td>69.82*** (14.69)</td>
<td>−18.40 (28.73)</td>
</tr>
<tr>
<td>R&amp;D-IE</td>
<td></td>
<td></td>
<td>3.242*** (1.189)</td>
</tr>
<tr>
<td>BPS × R&amp;D-IE</td>
<td></td>
<td>10.49 (7.019)</td>
<td></td>
</tr>
<tr>
<td>BPS × FCF-IE</td>
<td></td>
<td>0.628*** (0.207)</td>
<td></td>
</tr>
<tr>
<td>EPS × R&amp;D-IE</td>
<td></td>
<td>178.2*** (50.62)</td>
<td></td>
</tr>
<tr>
<td>EPS × FCF-IE</td>
<td></td>
<td>3.242*** (1.189)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>8.560*** (0.781)</td>
<td>9.530*** (0.738)</td>
<td>9.354*** (0.738)</td>
</tr>
<tr>
<td>$F$-stats</td>
<td>328.48***</td>
<td>458.18***</td>
<td>290.09***</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.410</td>
<td>0.397</td>
<td>0.400</td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$
Table IV.

Value relevance of R&D and FCF across different life cycle stages

<table>
<thead>
<tr>
<th>Variables</th>
<th>VR stagnant</th>
<th>VR mature</th>
<th>VR growth</th>
<th>VR effect stagnant</th>
<th>VR effect mature</th>
<th>VR effect growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS</td>
<td>9.569*** (0.441)</td>
<td>7.272*** (0.243)</td>
<td>4.867*** (0.334)</td>
<td>10.00*** (0.462)</td>
<td>7.159*** (0.259)</td>
<td>4.755*** (0.346)</td>
</tr>
<tr>
<td>BPS</td>
<td>0.967*** (0.0777)</td>
<td>0.873*** (0.0554)</td>
<td>1.211*** (0.0980)</td>
<td>0.961*** (0.0809)</td>
<td>0.929*** (0.0622)</td>
<td>1.195*** (0.106)</td>
</tr>
<tr>
<td>FCF-IE</td>
<td>4.265*** (1.118)</td>
<td>2.359*** (0.603)</td>
<td>1.452 (1.091)</td>
<td>2.093 (1.450)</td>
<td>−0.889 (1.132)</td>
<td>2.501 (2.078)</td>
</tr>
<tr>
<td>R&amp;D-IE</td>
<td>124.2*** (43.91)</td>
<td>89.33*** (18.21)</td>
<td>54.99** (21.93)</td>
<td>−84.01 (80.61)</td>
<td>5.468 (35.94)</td>
<td>−2.347 (51.75)</td>
</tr>
<tr>
<td>BPS × R&amp;D-IE</td>
<td>29.52 (19.85)</td>
<td>19.09* (9.806)</td>
<td>−4.879 (10.66)</td>
<td>−0.103 (0.415)</td>
<td>35.40*** (94.97)</td>
<td>2.189*** (2.578)</td>
</tr>
<tr>
<td>BPS × FCF-IE</td>
<td>0.191 (0.398)</td>
<td>0.790*** (0.304)</td>
<td>−0.103 (0.415)</td>
<td>62.50 (39.01)</td>
<td>35.40*** (94.97)</td>
<td>2.189*** (2.578)</td>
</tr>
<tr>
<td>EPS × R&amp;D-IE</td>
<td>129.6 (158.6)</td>
<td>62.50 (39.01)</td>
<td>35.40*** (94.97)</td>
<td>2.189*** (2.578)</td>
<td>2.189*** (2.578)</td>
<td>2.189*** (2.578)</td>
</tr>
<tr>
<td>EPS × FCF-IE</td>
<td>14.71*** (3.162)</td>
<td>0.838 (1.391)</td>
<td>0.191 (0.398)</td>
<td>0.790*** (0.304)</td>
<td>62.50 (39.01)</td>
<td>35.40*** (94.97)</td>
</tr>
<tr>
<td>Constant</td>
<td>7.526*** (1.289)</td>
<td>7.522*** (0.989)</td>
<td>5.088** (2.047)</td>
<td>7.390*** (1.284)</td>
<td>7.227*** (0.991)</td>
<td>5.260*** (2.052)</td>
</tr>
</tbody>
</table>

| F-stats         | 101.71 | 166.38 | 44.99 | 113.47 | 188.64 | 50.78 |
| R²              | 0.579  | 0.464  | 0.399 | 0.385  | 0.466  | 0.404 |

**Notes:** Standard errors in parentheses. *p < 0.1; **p < 0.05; ***p < 0.01
Model 1 while FCF-IE and R&D-IE are value relevant in Model 2 (FCF-IE \( \beta = 3.59 \) p-value < 0.01; R&D-IE \( \beta = 69.82 \) p-value < 0.01). The results of Model 1 are consistent with the researches done in the Chinese context by (Liu and Liu, 2007; Ge et al., 2010; Shan, 2015). The \( R^2 \) reported in Model 1 is 0.41 which is slightly less than reported by Shan (2015) whose \( R^2 \) value was 0.49 for the period 2001–2005. The \( R^2 \) reported for Model 2 is reported at 0.397.

Model 3 of Table IV shows the effect of FCFs and R&D expenditure on the value relevance of accounting information. For this purpose, the interaction terms FCF-IE × EPS, FCF-IE × BPS, R&D-IE × EPS and R&D-IE × BPS are introduced. The results show a positive and significant effect of FCFs on the value relevance of earnings (\( \beta = 3.24, SE = 1.19, p\text{-value} < 0.01 \)) and book value (\( \beta = 0.63, SE = 0.21, p\text{-value} < 0.01 \)). The effect of R&D expenditures on the value relevance of earnings is positive and significant (\( \beta = 178.2, SE = 50.62, p\text{-value} < 0.01 \)) while the book value has an insignificant effect. The F-statistics of the model is 290.09 significant at 1 percent level while the \( R^2 \) reported for the model is 0.4.

4.2.2 Life cycle effect on the value relevance of R&D and FCF investment. Table V displays the effect of R&D and FCF expenditure on the value relevance of earnings and book value over the product life cycle stages. EPS, BPS, R&D and FCF have a positive and significant association in all the three stages of the product life cycle. Only the FCF relationship with the market value of price is insignificant. The effect of R&D and FCF on the value relevance of earnings and book value is also displayed in the last three columns for the three life cycle stages. In stagnant firm’s sample, only the interaction term FCF-IE × EPS is significant meaning that the market does not value the stagnant firm’s R&D and FCF. For the mature firms book value of R&D (\( \beta = 19.09, SE = 9.81, p\text{-value} < 0.1 \)) and FCF (\( \beta = 0.79, SE = 0.31, p\text{-value} < 0.01 \)) are value relevant. Looking at the growth firms we find that R&D and FCF investment are value relevant for earnings (FCF-IE × EPS: \( \beta = 2.189, SE = 2.58, p\text{-value} < 0.01 \); R&D-IE × EPS \( \beta = 354, SE = 94.97, p\text{-value} < 0.01 \)). The reported \( R^2 \) for growth firms is 0.41 while stagnant firms report 0.38 \( R^2 \).

Above results show that market gives less response to the earnings and book value of R&D and FCF investment in stagnant firms. Mature firms are more stable firms, and the market responds more to their book values rather than earnings. That is the reason why the book values of R&D and FCF investment are value relevant. The growth firms, shows a higher level of growth and pays a high level of dividends, therefore, the value relevance of earnings for R&D and FCF expenditure becomes significant.

4.2.3 Value relevance of R&D and FCF investment in product market competition. Table V shows the effect of R&D and FCF investment on the value relevance of earnings and book

<table>
<thead>
<tr>
<th>Variables</th>
<th>Concentrated market</th>
<th>Competitive market</th>
<th>Concentrated market</th>
<th>Competitive market</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS</td>
<td>3.740*** (0.345)</td>
<td>8.836*** (0.223)</td>
<td>3.503*** (0.358)</td>
<td>8.992*** (0.234)</td>
</tr>
<tr>
<td>BPS</td>
<td>0.978*** (0.0750)</td>
<td>1.057*** (0.0486)</td>
<td>1.067*** (0.0810)</td>
<td>1.028*** (0.0520)</td>
</tr>
<tr>
<td>FCF-IE</td>
<td>4.601*** (0.964)</td>
<td>2.924*** (0.577)</td>
<td>0.515 (1.524)</td>
<td>1.84** (0.855)</td>
</tr>
<tr>
<td>R&amp;D-IE</td>
<td>−4.332 (33.28)</td>
<td>88.57*** (13.47)</td>
<td>−296.9*** (98.59)</td>
<td>0.748 (28.83)</td>
</tr>
<tr>
<td>BPS × R&amp;D-IE</td>
<td>30.58* (16.03)</td>
<td>18.96** (8.115)</td>
<td>1.302*** (0.379)</td>
<td>−0.0335 (0.244)</td>
</tr>
<tr>
<td>BPS × FCF-IE</td>
<td>581.8*** (173.0)</td>
<td>55.62 (53.76)</td>
<td>5.530*** (1.425)</td>
<td>5.747*** (0.406)</td>
</tr>
<tr>
<td>EPS × R&amp;D-IE</td>
<td>8.341*** (0.961)</td>
<td>5.714*** (0.401)</td>
<td>8.099*** (0.965)</td>
<td>470.93</td>
</tr>
<tr>
<td>EPS × FCF-IE</td>
<td>50.01</td>
<td>622.6</td>
<td>79.63</td>
<td>0.472</td>
</tr>
</tbody>
</table>

**Table V.** Value relevance of R&D and FCF and effect of product market competition
value in competitive and concentrated industries. The FCF are value relevant in both concentrated ($\beta = 4.61$, SE = 0.96, $p$-value < 0.01) and competitive industries ($\beta = 2.93$, SE = 0.57, $p$-value < 0.01). However, R&D expenditures are value relevant only for competitive industries ($\beta = 88.57$, SE = 15.47, $p$-value < 0.01). The effect of R&D and FCF on the value relevance of book value is significant for concentrated industries ($\beta = 30.58$, SE = 16.03, $p$-value < 0.1; $\beta = 1.31$, SE = 0.38, $p$-value < 0.01) while only R&D are value relevant for the book value ($\beta = 18.99$, SE = 8.12, $p$-value < 0.05) in competitive industries. The effect of R&D on earnings in concentrated industries is significantly related to the stock price ($\beta = 581.8$, SE = 173, $p$-value < 0.01) while FCF has a positive effect on earnings in concentrated industries ($\beta = 5.53$, SE = 1.43, $p$-value < 0.01). The $R^2$ value for competitive industries (0.47) is much higher than the concentrated industries (0.33).

5. Discussion and practical implications
Life cycle stages predict different information contents for R&D and FCF in an efficient investment setup. Agency theory predicts that firms with funds at disposal are prone to opportunistic behavior unless the funds are utilized efficiently. An important question that arises is how the market incorporates the information contents of R&D and FCF at different life cycle stages? Another important issue that needed to be answered was the effect of product market competition on the value relevance of R&D and FCF. This study contributes to the literature of value relevance by adding a new measure of R&D and FCF by keeping in view the efficient investment. The results show that the R&D and FCF are value relevant in Chinese A-listed firms. R&D and FCF are priced differently at different life cycle stage. The incremental power of R&D and FCF depends upon the life cycle stage.

The discretionary nature of R&D and FCF make investors uncertain about valuing the stocks. After the adoption of international accounting standards in 2007, the Chinese listed companies have made an effort to report the R&D expenditures in the balance sheet. The investors can now determine the present value of all the future cash flows of investing activities. The results of the study are significant for the Chinese investors who should incorporate the R&D and FCF along with investment efficiency. The investors should keep in mind the life cycle stage while investing in a certain stock. The competitive markets have more information content than the concentrated markets. The corporate managers can benefit from this study while issuing new shares. The market responds positively to the stock having investment efficient R&D and FCF investment. For the policy implication perspective, the security market regulator should devise the effective pro-effective product market regulations.

6. Conclusion and recommendations
Although some studies have focused on the value relevance of R&D and FCF, few studies have investigated the value relevance over the life cycle stages and during the product market competition. This study examines the effect of R&D and FCF investment on the value relevance of accounting information over the product lifecycle and during the product market competition. Ohlson (1995), model is used to predict the value relevance of accounting information from the year 2008 to 2016. The R&D and FCF used in this study are for efficient investment firms. Finally, the sample is divided into growth, mature and stagnant firms based on the life cycle hypothesis while centered on product market competition we have divided the sample firms into concentrated industries and competitive industries.

The result shows that the investment efficient firm’s R&D and FCF are value relevant to the overall sample. The effect of R&D and FCF on the value relevance of earnings and book value is also positive and significant. This implies that the market gives weight to the information content of FCF and R&D. However, the market responds more to the earnings than the book value in case of R&D expenditures.
Life cycle stages depict different information content at each stage. Our second objective was to find out whether the market incorporates the information content of R&D and FCF in each stage. The findings of the effect of R&D and FCF on the value relevance of accounting information signifies that the information content ($R^2 = 0.46$) of the mature stage is higher than that of the growth and stagnant stages. The market does not respond to value relevance of R&D and FCF at the stagnant stage. Mature firms are more stable firms, and the market reacts more to their book values rather than earnings. That is the reason why the book values of R&D and FCF investment are value relevant. The growth firms, show a higher level of growth and pay a high level of dividends, therefore, the value relevance of earnings for R&D and FCF expenditure becomes significant.

At last, we explore the value relevance of R&D and FCF investment in product market competition. For this purpose, the firms are divided into two sub-samples as competitive industries and concentrated industries based on Herfindahl–Hirschman index. The result shows that R&D expenditures are value relevant only for competitive industries. The effect of R&D and FCF on the value relevance of book value is significant for concentrated industries, while only R&D are value relevant for the book value competitive industries. The effect of R&D on earnings in concentrated industries is significantly related to the stock price while FCF has a positive impact on earnings in competitive industries. The explanatory power measured by $R^2$ value for competitive industries (0.47) is much higher than the concentrated industries (0.33).

Despite of accounting for all the possible scenarios, this study still can be improved on future account. This study only explores the effect of EPS, BPS, R&D and FCF on the value relevance of accounting information. Other determinant such as size, growth, leverage and firm age is ignored. Since the R&D expenditure is discretionary, therefore the findings cannot be generalized to all the sectors. A sector wise comparative study can be done in future, to understand the differences in the information contents of R&D and FCF. Also, the tax effect of R&D is ignored in this study. For future call, the value relevance of tax effect on R&D can be explored.

References


Financial statements disclosure on Indonesian local government websites

A quest of its determinant(s)

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Abstract

Purpose – The purpose of this paper is to examine the extent to which audit opinion, audit findings, follow-up audit recommendations, level of education, level of welfare and heads of local governments’ commitment influence the disclosure of financial statements on the official website of local government.

Design/methodology/approach – The data of this research comprise 68 financial statements during the period 2015–2016 collected from 34 local governments across Indonesia by employing the census method. The data then are analyzed using logistic regression.

Findings – The results of this study show that audit opinion has a positive significant influence on the disclosure of financial statements on local government websites in Indonesia, while the audit findings, follow-up audit recommendations, level of education, level of welfare and heads of local governments’ commitment have no significant influences on the disclosure of financial statements local governments’ websites across Indonesia.

Originality/value – The study contributes to the public sector accounting research by enhancing our understanding to the disclosure of financial statements on local government websites.

Keywords Local government, Disclosure, Financial statements, Website, Indonesia

Paper type Research paper

1. Background

Information technology development has remarkably changed our day-to-day lives, including the way local citizens obtain information from their local governments. This change also drives local governments across Indonesia to be more transparent than ever before by providing their financial statements on their websites.

Indonesia has commenced to develop e-government since the release of Presidential Instruction No. 3 of 2003. The purpose of e-government is to ease public access to information provided by local governments. The instruction requires local governments to develop their official websites.

In addition, Government Regulation (PP) No. 65 of 2010, Article 13 states that the local government is obliged to utilize and develop the advancement of information technology to transmit financial information through the official website. However, the regulation of local government’s financial disclosure on the website is still voluntary.

Preliminary study conducted by the researchers shows there were 16 local governments disclosed their financial statements on their respective websites, while 18 counterparts did not. This number slightly increased in 2016, in which there were 17 local government disclosed their financial statements, while the rest (17 local governments) still did not make it available to the public (Figure 1).
Verawaty (2014) suggests that there is a gap in the practice of the disclosure of financial information through e-government and the majority of local governments have not optimized the use of Internet technology. However, the government has an obligation to make financial statements as a form of accountability to the public.

There are several factors that are conceived to affect the local governments to make the disclosure of its financial statements on the local website, one of which is related to the audit conducted by BPK (Supreme Audit Agency). In Indonesia, the BPK is an external auditor who performs the audit process against the Government’s financial statements. The final result of the BPK audit on the financial statements is the audit opinion, and the audit opinion is given to the financial statements compiled by the local governments. Opinions become one of the indicators of the quality of financial statements compiled by the local governments. According to Handayani (2010), the audit opinion affects the publication of government financial reporting online. Increasing irregularities found by BPK through its audit, it will possibly impact on the disclosure of their financial statements. Local governments that have poor audit result having tendency to make their financial statements not available to the public (on their websites).

The audit findings conducted by the BPK need to be followed-up by the auditees. According to BPK Regulation No. 2 year 2017 about follow-up monitoring on implementation recommendations BPK examination results, the follow-up study results are classified into four categories: follow-up has been in accordance with the recommendations, the follow-up has not been in accordance with recommendations, the recommendations are ignored and (4) recommendations cannot be followed up by auditee.

According to the prevailing regulations, local governments has to be responsible for managing state financial and are obliged to follow up the findings of inspection conducted by BPK. Hartono (2006) suggests that the follow-up audit recommendations are an important element in the performance assessment of the management. The speed of the local governments in conducting the follow-up audit recommendations will impact the desire to reveal its financial report on the government website as a form of improvement and of local governments’ adherence to the prevailing regulations.

Pérez et al. (2008) stated the level of public education, affect local governments to disclose their financial statements. The level of public education in a country will have an impact on the development of e-government of that country (Evans and Yen, 2005). Some previous studies have also found a significant positive effect on the level of education on information disclosure (Chaudhuri et al., 2005).

Financial information disclosure also depends on the per capita income of the region. The higher per capita income results in higher political monitoring and draws the community attention. So, there is a great tendency to provide information to the public.

![Figure 1](image.png)

**Source:** Data processed (2018)

**Figure 1.**
Number of local governments disclosing and veiling their financial statements
Rahim and Martani (2015) expressed that the region where its society is relatively more prosperous has tendency to be more demanded in terms of financial statements disclosure and even non-financial information to their local government. It might be because they have contributed to the region through local taxes and retributions.

The local head commitment to accountability and transparency is then essential to contribute to organizational accountability. The more committed heads of local governments to their financial statements, the better audit opinion they obtain that subsequently drive them more to publish their financial statements to the public to be looked good in the public eyes.

This study also then wishes to seek the determinant(s) of Indonesian local governments’ financial statements disclosure and the extent of its influence. Based on the description above, the title of this study is “Financial Statements Disclosure of Indonesian Local Governments’ Websites: A Quest of Its Determinant(s)”. The purpose of this study is to test and analyze the influence of audit opinions, audit findings, follow-up audit recommendations, education level, welfare level and local head commitment to the disclosure of financial statements on the websites of local governments across Indonesia.

2. Literature review and hypothesis development

2.1 Agency theory on local government

Generally, the relationship between society and state organizations is similar to the relationship between the principal and the agent. The principal authorizes and trusts power to its agent; the agent then is responsible to its principal. The third party required to test the feasibility of a government accountability report. In this context, government auditors are expected to act as the eligibility examiner to convince the public.

Lupia and McCubbins (2000) explained that the principal and agent relationships are rooted in economic theory, decision theory, sociology and organizational theory. The agency theory analyzes the contractual arrangement between two or more individuals, groups or organizations. One of the principal makes a contract, either implicitly or explicitly, with the other party (agent) in hopes that the agent will act/perform the work as intended by the principal (in which case the delegation authority). Delegation occurs when a person or one group (principal) chooses an agent to act in accordance with the interests of the principal.

2.2 Learning organization theory

Learning organization theory is “a concept where the organization is able to continuously perform the self-learning process so that the organization has a speed of thinking and action in responding to various changes that appear” (Senge, 1990). However, the learning organization is “an organization where members continually develop their capacity to create the results they really want, new thinking patterns are cultivated, group aspirations are given freedom and its members continuously do learning to learn something together. So in an organization that has the performance and objectives, therein must have a relationship and process that is sustainable (system thinking) between members with members, members with the team (Senge, 1990).”

It can generally be described that as an organization, governments need to follow technological developments. Therefore, the local government as an organization needs to continue to respond various changes that arise, one of which is the need for fast, affordable and easy access to information.

2.3 Financial statements disclosure on government websites

The development of technology and information system also affected the government system in Indonesia. Nowadays, various financial management activities in both central and
local governments have been supported by adequate technological systems. The goal is for
government financial statements to be reported in a timely manner. Besides being able to
present timely financial statements, technology and information are a way for the
government to improve the transparency and accountability of local financial statements.
Internet-like technologies can be used to report financial statements. In line with Law No. 14
of 2008 on public Information disclosure states that “the public agency must be open and
responsible for any public information.”

2.4 Influence of audit opinion on the financial statements disclosure on local government
websites
The opinion is a professional statements of the auditor regarding the fairness of financial
information presented in the financial statements. This is described in the Law No. 15 of 2004
that opinion made BPK is a professional statement of the examiner regarding the fairness of
financial information presented in financial statements based on four criteria of Standar
Akuntansi Pemerintah/Government Accounting Standard compliance, adequacy of
disclosure, regulatory compliance and effectiveness of internal control systems.

An accountable presentation of financial statements is one indicator of the good
performance of local governments. According to BPK (2017) there are five type of audit
opinions: unqualified, unqualified with explaining paragraph, qualified, adverse, disclaimer.
Local governments obtaining less credible audit opinions like unqualified with explaining
paragraph, qualified, adverse, disclaimer, tend to cover up their financial statements, while
local government granted unqualified opinion (the best one) behaves conversely, by making
the financial statements available to the public.

Handayani (2010) found that the level of irregularities occurring in an entity will
negatively impact the level of disclosure. An entity will likely not disclose the information if
the irregularities level is getting higher. However, Nosihana and Yaya (2016), found that
opinion has no effect on internet financial reporting through e-government. Based on the
explanation above, the hypotheses that are proposed are:

H1. Audit opinion influence financial statements disclosure on local government
websites in Indonesia.

2.5 The influence of audit findings on the financial statements disclosure on local
government websites
The results of the BPK audit are outlined in the audit report (LHP) containing a number of
audit findings. Each of the findings may consist of one or more issues relating to internal
control system weaknesses and non-compliance with the provisions or relevant regulations.
The details of the audit findings usually relate to state-loss findings, potential loss findings
and administrative findings. Audit report conducted by BPK found weaknesses on local
governments' financial statements in the area of the internal control system and compliance
to applicable regulations.

The findings of the audit are a violation of the prevailing provisions on both internal
control and compliance with the legislation found by the auditor at the time of inspection.
In other words, the finding of the audit is a condition that does not conform to the prevailing
criteria. At the end of each examination, auditors will provide recommendations on the
improvement of audit findings. The findings and recommendations will be communicated
with the inspection object for repairs and corrections (Liestiani, 2008).

Liestiani’s (2008) research found that the number of audit findings relates significantly
positive to the level of LKPD disclosure. Hilmi and Martani (2012) state that more findings
will cause the BPK to ask for increased disclosure and correction. More disclosure is done
as an effort to deal and correction act on the findings of the audit found in BPK and showed publicly the quality improvement carried out by the local governments on the advice of the BPK. It can be concluded that the more findings from the BPK inspection results will have an impact on the express by the entity. Based on the description, it can be developed hypotheses:

\[ H2. \text{ Audit findings influence the disclosure of the financial statements on the local government website of Indonesia.} \]

2.6 The influence of follow-up audit recommendations on the financial statements disclosure on local government websites

Akmal and Tugiman (2006) wrote that the follow-up audit recommendations is defined as a process to determine the adequacy, effectiveness and timeliness of corrective actions performed by management against the recommendations of the findings reported checks. Including the related findings obtained by the examiner both internal and external.

Akmal and Tugiman (2006) state that the follow-up of audit results is defined as a process to determine the adequacy, effectiveness and timeliness of corrective actions performed by management against the recommendations of the findings reported checks. This includes the related findings obtained by the examiner both internal and external. Determination of corrective action to be taken in carrying out recommendations from the findings of the reported inspection is the responsibility of management of the inspected units. The internal examiner is responsible for providing a way out for management to take the corrective action so that its implementation can be timely. In deciding on the extension of follow-up, the internal examiner should consider implementing the procedure with the same follow-up properties of the other party in the organization (Hartono, 2006).

Setyaningrum (2015) stated that follow-up audit results were measured with more recommendations done by the government and expected to improve the quality of financial statements represented at the disclosure level increasingly higher. The more follow-up checks are made, the better the financial management of the local governments. Based on the above exposure, the hypotheses that can be developed are:

\[ H3. \text{Follow-up audit recommendations influence the disclosure of financial statements on the websites of Indonesian local government.} \]

2.7 The influence of the education level on the disclosure of the financial statements on local government websites

Mangkunegara (2003) states the level of education is a long-term process that uses systematic and organized procedures, which the management learns conceptual and theoretical knowledge for general purposes. Education and culture are important factors that have an impact on the use of internet in a country (Chaudhuri et al., 2005; Gong et al., 2007). According to Losh (2004), increased access to technology in an area encourage the community to increasingly access the government website. So, the government will provide information regarding policies and services to improve the knowledge of the community. Gandia and Archidona (2008) expressed an increase in the level of access to technology and the better the level of public education, the higher the desire to consult related services through the government website. Previous research found a positive influence on the level of education on information disclosure (Chaudhuri et al., 2005; Pe’rez et al., 2008). Based on the explanation above, the hypotheses that are proposed are:

\[ H4. \text{Education level influence on financial statements disclosure on local government websites in Indonesia.} \]
2.8 The influence of the welfare level on the financial statements disclosure on local government websites

Styles and Tennyson (2007) said that the higher per capita income will result in the higher political monitoring and also monitoring by the community so that the pressure to provide information to the public is increasingly greater. Styles and Tennyson (2007) and Serrano et al. (2009) found a positive correlation between the per capita income level and the level of information disclosure on the website.

Martani et al. (2013) found a significant positive relationship between the welfare level of the population with the level of disclosure of financial information on the local government website. Usually, the pressure of information requests is mainly from the areas that have a population with high welfare level and this populace is generally not only limited to financial information but also want non-financial information. Non-financial information, especially public services conducted by the government, will be asked by many people with high welfare so that the pressure to disclose this information is greater. One of the indicators that can be used to measure the population welfare level is regional per capita income. The high level of welfare encourages people to be more concerned with the governance of the government, encouraging local governments to conduct greater disclosure of information. The description derived from the following hypotheses:

\[ H5. \text{Society welfare level influence on financial statements disclosure on local government websites in Indonesia.} \]

2.9 Heads of local government commitment on the financial statements disclosure on local government websites

Commitment requires a positive response of members’ organization to do more beyond their obligations (Mowday et al., 1979). It means that their commitment should surpass organization’s expectation.

In relation to the quality of local government’s financial statements, it is apparent that it is determined, one of them, by the head of local governments’ commitment (Silviana, 2012). The commitment of heads of local governments in realizing transparent financial statement is vital. One form of transparency over financial statements is to what extent heads of local governments can disclose the statements, including through the local government websites.

The initiative to publish and disclose their financial statements through their websites will give more access to the stakeholders to know vision, mission, program and financial accountability of their local government.

According to Law No. 14 of 2008 on Public Information Openness, public officials must be more transparent, accountable and more oriented to community service. Therefore, it is important that the role of local heads’ commitment to disclose their governments' financial statements through their websites as a form of accountability to their respective stakeholders. Based on the explanation above, the proposed hypothesis is:

\[ H6. \text{The commitment of heads of local governments influences the financial statements disclosure on local government websites in Indonesia.} \]

2.10 Conceptual framework

The conceptual framework is shown in Figure 2.

3. Research model

3.1 Research approach

The scope of this research is only on the local governments in Indonesia. The variables examined were the disclosure of financial statements on local government websites, audit
opinions, audit findings, follow-up audit recommendations, education levels, welfare levels and heads of local governments’ commitment. However, the focus of this research is on the report information disclosed in the local government websites in 2015–2016.

An associative quantitative study is a type of research because it examines the influence of one variable on another, while this research approach uses quantitative analysis. According to Arikunto (2006, p. 118), “Variables are objects of research or what concern in a research topic.” The object of this research is the disclosure of financial statements on local governments’ websites, audit opinions, audit findings, follow-ups audit recommendations, education levels, welfare levels and heads of local governments’ commitment.

3.2 Analysis unit
According to Sekaran and Bougie (2013, pp. 175-176), “The analysis unit relates to the level of data aggregation collected before being analyzed. The analysis Unit itself is very dependent on the research focus of researchers which can be individuals, spouses, groups, organizations, territories, countries, times, divisions, industries, and objects.” The analysis unit in this research is the local government in Indonesia.

3.3 Population and sample
The population and samples in this research are the local governments in Indonesia. According to Arikunto (2006, p. 130) “Research that examines the whole or all elements of the research area or population is population research or population study or census research.” This research is a census study that will examine 34 provinces in Indonesia. However, this research has established criteria of data related to the research available on the government web.

3.4 Definition of operational variables
3.4.1 Financial statements disclosure on the local government website. The disclosure of the local governments’ financial statements on the website is the government’s responsibility for the finances that have been managed online (Perez et al., 2014). In addition to the business sectors, public sectors such as local governments can use advances in technology and Internet networking to convey financial information to various stakeholders. Law No. 14 of 2008 on public Information disclosure states that “every public entity must utilize and develop information technology to publicly convey information to the public.” In addition, Article 13 of the Government Regulation No. 65 of 2010 on the local financial Information system states that “local governments must submit financial
information through the official website." This variable is measured as Verawaty (2015) research using binary or dichotomic variables that are 0 “not reported” or 1 “reported” LKPD online.

3.4.2 Audit opinion. The audit opinion is the reasonableness of information on the audited financial statements (BPK, 2017). Variable measurements are viewed from a scale of 1 to 5 by looking at the audit opinion that uses the “Disclaimer (1), Adverse (2), Qualified with the exception (3), Unqualified with the exclusion language (4) and Unqualified (5)” (Nosihana and Yaya, 2016).

3.4.3 Audit findings. Audit findings found by BPK auditors range from administrative to substantive and prevailing violations (Liestiani, 2008). The findings of the audit are a violation of the prevailing provisions on both internal control and compliance with the legislation found by the auditor at the time of examination (Liestiani, 2008). This research employs a proxy of audit finding developed by Prasetyaningsih (2015) with the formula as follows:

\[
\text{Audit findings} = \frac{\text{Audit findings (in million rupiahs)}}{\text{Total local expenditure budget realization (in million rupiahs)}}.
\]

3.4.4 Follow-up audit recommendations. According to Kristiawan (2014), the follow-up of the audit result is the activity or decision made by the principal of the inspected entity or another competent party to carry out the examination results. Follow-up audit results of BPK inspection must be done by the principal of the inspected entity, by calculating the percentage of the number of recommendations minus the number of recommendations that have not been followed up, unfinished follow-up not in accordance and recommendation cannot be in follow-up divided by the total number of recommendations:

\[
PPTLHP = \frac{\sum \text{rmk} - (\sum \text{btl} + \sum \text{bstl} + \sum \text{tdtl})}{\sum \text{rmk}} \times 100\%,
\]

where PPTLHP is the percentage of follow-up completion; Btl is the not yet follow-up; Bstl is the not completed followed up/follow up not according to the recommendation; Tdtl is the cannot be followed up; and Rkm is the recommendation.

3.4.5 Educational level. The education level is a long-term process that uses systematic and organized procedures, which the managerial workforce uses to learn conceptual and theoretical knowledge for general purposes (Mangkunegara, 2003). Variable level education uses the indicators used by Perez et al. (2014), with the formula:

\[
\text{Higher educational} = \frac{\text{Total students in higher education institution}}{\text{Total local population}} \times 100\%.
\]

3.4.6 Welfare level. Rahim and Martani (2015) said the welfare level can be seen from the income per capita of each region. In this research information on the gross regional domestic product per capita, each local area obtained from the Indonesian Central Statistical Agency:

\[
\text{Welfare level} = \frac{\text{Gross regional domestic product}}{\text{Total local population}}.
\]

3.4.7 Heads of local governments’ commitment. According Law No. 23 of 2014 on local government, regional finance management must be managed in an orderly, efficient, economic, effective, transparent and accountable manner. The local head commitment variable refers to the local head committed to transparency in the organizing of his administration, particularly the management of the local budget or finances. This variable
can be seen through the vision and mission of Rencana Pembangunan Jangka Menengah Daerah/Local Government Medium Term Plan (RPJMD) or Rencana Pembangunan Jangka Panjang Daerah/Local Government Long Term Plan if not found RPJMD over the province. In addition, the vision of the heads of local governments can be found at some reports prepared by respective local government namely: LPPD (local-government accountability report submitted to the central government), LKPJ (local-government accountability report submitted to the local parliament) and ILLPD (local-government accountability report made available to the public). Heads of local governments’ commitment variable are measured using a binary: 0 for “not committed” and 1 for “committed.”

3.5 Data collection method
Data are obtained by accessing various websites related to the data desired by researchers according to research purposes. Variables of the local governments’ financial report disclosure on government websites and the commitment of heads of local governments were obtained by accessing the official website of the local governments in Indonesia. Data were related to audit opinions, audit findings and follow-up audit recommendations from audit report (LHP) on the website of BPK. However, the level of education and population welfare data is obtained from the website of the Indonesian Bureau of Statistics (BPS).

3.6 Data analysis technique
Logistic regression is a statistical method where the dependent variable is binary (Sarwono, 2014, p. 206). According to Sarwono (2014), a binary variable is a categorical variable having two possibilities expressed 1 for existing or yes and 0 for non-existing or no. In general, the equation of logistic regression is as follows:

\[ \ln \left( \frac{p}{1-p} \right) = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + \epsilon, \]

where \( \ln \left( \frac{p}{1-p} \right) \) is the disclosure of local government financial statements on the website \( Y \); \( b_0 \) is the constant; \( X_1 \) is the audit opinion; \( X_2 \) is the audit findings; \( X_3 \) is the follow-up audit recommendations; \( X_4 \) is the education level; \( X_5 \) is the welfare level; \( X_6 \) is the Heads of Local Governments’ Commitment; \( b_1 \)–\( b_6 \) is the regression coefficient; and \( \epsilon \), error.

4. Result and discussion
4.1 Descriptive statistic
In general, the official website or website is owned by every province in Indonesia, but not all official websites of the local governments present complete information related to its financial statements. The data of this research comprise 68 financial statements during the period 2015–2016 collected from 34 local governments across Indonesia by employing census method.

Descriptive statistics describe the frequency, maximum value (highest), minimum value (lowest), average (mean) and standard deviation from the data (Table I).

4.2 Test of quality data
This test is conducted to confirm hypotheses in this study, using logistic regression analysis the logistic with a significance level at 95 percent. The first step is assessing the feasibility of the study’s regression model. To assess the feasibility of a regression model (goodness of fit), this study employs Hosmer and Lemeshow Test. The results of the Hosmer and Lemeshow Test are illustrated in the Table II.

Table II shows that the value of significance is 0.324. A decent regression model will show significant value on Hosmer and Lemeshow Test more than 5 percent (Ghozali, 2005). The significance values shown in those tables are above 5 percent or more than 0.05 so that
the goodness of fit model is good and the regression model is acceptable. The next stage in logistic regression analysis is to assess the overall model of regression (overall model fit). To assess the overall regression model namely by observing the value-2 log likelihood (LL) Block number $= 0$ and block number $= 1$. As for the value-2 LL block number $= 0$ and block number $= 1$ is presented in Table III. If the value-2 LL on block number $= 2$ and 3 is smaller or there is a decrease compared to block number $= 1$. Then, it can be concluded that the overall regression model is feasible (Ghozali, 2005). Referring to Table III value-2 LL on block number $= q$ is 89.449, whereas the value-2 LL on block number $= 2$ and 3 is 89.446. Thus, the overall regression model is feasible because of a decrease in the value of-2 LL on block number 1. The Omnibus Tests of Model Coefficients in logistic regression analysis aims to know whether all variables are free or one of the free variables affects the dependent variables. The results of the Omnibus Tests of Model Coefficients are indicated by Table IV.

Table IV indicates that the model significance value is 0.002. A good regression model will show the significance value of less than 5 percent (Ghozali, 2005). Based on the results of the SPSS, the level of significance is below 5 percent or 0.002. It indicates that independent variables affect the disclosure of financial statements on the local government website simultaneously or at least one of the independent variables used in the study affected the disclosure of financial statements on the local government websites.

### Table I. Descriptive statistic

| Financial statements disclosure on website | 68 | 0 | 1 | 0.49 | 0.503 |
| Audit opinion | 68 | 3 | 5 | 4.74 | 0.683 |
| Audit findings | 68 | 0.0014 | 10.3641 | 0.380913 | 1.2610270 |
| Follow-up audit recomm. | 68 | 1.5165 | 71.0045 | 25.992085 | 18.0549185 |
| Education level | 68 | 0.00 | 0.22 | 0.0297 | 0.02933 |
| Welfare level (in thousand rupiahs) | 68 | 6,637 | 17,468 | 9,934.93 | 2,069.325 |
| Heads of LG commitment | 68 | 0 | 1 | 0.72 | 0.452 |

Source: SPPS output

### Table II. Goodness of fit regresi logistik

<table>
<thead>
<tr>
<th>Step</th>
<th>$\chi^2$</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9.227</td>
<td>8</td>
<td>0.324</td>
</tr>
</tbody>
</table>

Source: SPPS output

### Table III. Overall model fit

<table>
<thead>
<tr>
<th>Iteration history$^{a,b,c}$</th>
<th>$-2$ log likelihood</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iteration</td>
<td>Constant</td>
<td></td>
</tr>
<tr>
<td>Step 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>89.449</td>
<td>0.529</td>
</tr>
<tr>
<td>2</td>
<td>89.446</td>
<td>0.542</td>
</tr>
<tr>
<td>3</td>
<td>89.446</td>
<td>0.542</td>
</tr>
</tbody>
</table>

Notes: $^a$Constant is included in the model; $^b$Initial $-2$ Log likelihood: 89.446; $^c$Estimation terminated at iteration number 3 because parameter estimates changed by less than 0.001

Source: SPSS output
As for the value of Cox and Snell $R^2$ as well as Nagelkerke $R^2$, based on the output of the SPSS, the value of Cox and Snell $R$ is 0.160 and the value of Nagelkerke $R^2$ is 0.213 which means 21.3 percent variable disclosure of financial statements on the local government websites, influenced by independent variables: audit opinion, audit findings, follow-up audit recommendations, education level, welfare level and heads of local governments’ commitment (Table V).

### 4.3 Hypothesis testing

In logistics regression tests, the regression equation can be known through the variables in the equation table. Based on Table VI of logistics regression test results below. Then can be compiled equation of logistic regression as follows:

$$\ln \frac{p}{1-p} = -7.710 + 1.029X_1 + 0.375X_2 + 0.025X_3 - 14.065X_4 - 0.000X_5 - 0.577X_6 + e,$$

$\ln\left(\frac{p}{1-p}\right)$ is the disclosure of local government financial statements on the website (Y); $X_1$ is the audit opinion; $X_2$ is the audit findings; $X_3$ is the follow-up audit recommendations; $X_4$ is the education level; $X_5$ is the welfare level; $X_6$ is the Heads of Local Governments’ Commitment; and $e$ is the error.

### Model summary

<table>
<thead>
<tr>
<th>Step</th>
<th>2 log likelihood</th>
<th>Cox and Snell $R^2$</th>
<th>Nagelkerke $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>82.386$^a$</td>
<td>0.160</td>
<td>0.213</td>
</tr>
</tbody>
</table>

*Note: $^a$Estimation terminated at iteration number 5 because parameter estimates changed by less than 0.001*

### Table IV.

Omnibus tests of model coefficients

<table>
<thead>
<tr>
<th>Step</th>
<th>$\chi^2$</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step</td>
<td>20.449</td>
<td>6</td>
<td>0.002</td>
</tr>
<tr>
<td>Block</td>
<td>20.449</td>
<td>6</td>
<td>0.002</td>
</tr>
<tr>
<td>Model</td>
<td>20.449</td>
<td>6</td>
<td>0.002</td>
</tr>
</tbody>
</table>

*Source: SPSS output*

### Table V.

Cox dan Snell $R^2$ dan Nagelkerke $R^2$

<table>
<thead>
<tr>
<th>Variables in the equation</th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1$^a$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_1$</td>
<td>1.029</td>
<td>0.509</td>
<td>4.063</td>
<td>1</td>
<td>0.043</td>
<td>2.798</td>
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<tr>
<td>$X_2$</td>
<td>0.375</td>
<td>0.517</td>
<td>0.526</td>
<td>1</td>
<td>0.468</td>
<td>1.455</td>
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<tr>
<td>$X_3$</td>
<td>0.025</td>
<td>0.016</td>
<td>2.452</td>
<td>1</td>
<td>0.117</td>
<td>1.025</td>
</tr>
<tr>
<td>$X_4$</td>
<td>-14.065</td>
<td>15.612</td>
<td>0.812</td>
<td>1</td>
<td>0.368</td>
<td>0.000</td>
</tr>
<tr>
<td>$X_5$</td>
<td>0.000</td>
<td>0.000</td>
<td>3.020</td>
<td>1</td>
<td>0.082</td>
<td>1.000</td>
</tr>
<tr>
<td>$X_6$</td>
<td>-0.577</td>
<td>0.616</td>
<td>0.875</td>
<td>1</td>
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<tr>
<td>Constant</td>
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<td>3.386</td>
<td>5.184</td>
<td>1</td>
<td>0.023</td>
<td>0.000</td>
</tr>
</tbody>
</table>

*Note: $^a$Variable(s) entered on Step 1: $X_1$, $X_2$, $X_3$, $X_4$, $X_5$ and $X_6* *

*Source: SPSS output*
4.4 Discussion

4.4.1 Influence of audit opinion on the financial statements disclosure therein local governments’ websites. The first hypothesis \((H1)\) in this study, the audit opinion affects the disclosure of financial statements on the local government website. Based on the results of the logistics regression test on Table VI, the coefficient regression variable of audit opinion is 1029 and the significance rate is 0.043, smaller than 5 percent or 0.05. This indicates that the better the local governments audit opinion the better it will encourage the local governments to conduct financial statements disclosure on the website.

According to Mulgan (1997), in the context of the public sector, the relationship between principal and agents such as the relationship between society and the government can be analogous. Society is the principal and the government is an agent. The principal authorizes the arrangement to the agent and provides resources to the agent (in the form of taxes and others). As a form of accountability for the authority given, the agent provides a report of accountability to the principal. The disclosure of financial statements online is a form of government responsibility as an agent to provide information related to the financial report to the society as the principal for easy access to information.

Disclosure of audit results of financial statements in the form of opinion is a form of transparency to the public as a form of accountability to society as a principal. Disclosure of online financial statements can be a medium for the local governments to provide information on the finances it manages. On the other hand, people can assess the performance of the government, in addition to participating in the progress and development of the region, through the supervision of financial management by local governments. In addition, the disclosure of financial statements online can provide convenience for local governments to realize accountable and transparent governance and convey information to the entire population economically, effectively and efficiently.

4.4.2 The influence of audit findings on the financial statements disclosure therein local governments’ websites. The second hypothesis \((H2)\) in this study, the audit findings affect the disclosure of financial statements on the local government website. Based on the results of a logistic regression test on Table VI, the coefficient of regression variable audit findings is 0375 and the level significance of 0.468, greater than 5 percent or 0.05. This means that the audit findings variables have no effect on the disclosure of financial statements on local government websites.

Liestiani’s (2008) research found that the number of audit findings relates positively and significantly to the level of LKPD disclosure. Handayani (2010) states the higher level of irregularities; according to them, the local governments tend to cover the information, so the level of disclosure is lower and vice versa. However, this research is in accordance with the research of Hilmi and Martani (2012), which finds that the number of findings has no effect on the level of disclosure of LKPD.

Lupia and McCubbins (2000) explain that relationships between the principal and agent are rooted in economic theory, decision theory, sociology and organizational theory. The principal theory of the agent analyzes the contractual arrangement between two or more individuals, groups or organizations. One of the principal makes a contract, either implicitly or explicitly, with the other party (agent) in hopes that the agent will act/perform the work as intended by the principal (in which case the delegation authority). Delegation occurs when a person or one group (principal) chooses an agent to act in accordance with the interests of the principal.

The number of audit findings based on the BPK report requires local governments to immediately follow the findings. More findings indicate that there are still many mistakes in the preparation of financial statements, whether the fraud or misrepresentation is done so that it will impact the performance of local governments.
4.4.3 The influence of follow-up audit recommendation on the financial statements disclosure therein local government websites. The third hypothesis (H3) in this study, the follow-up audit recommendations affects the disclosure of financial statements on the local government website. Based on the results of the logistics regression test on Table VI, the coefficient of variable regression follow-up audit result is 0.025 and the significance value of 0.117 is greater than 5 percent or 0.05. This means that follow-up audit recommendations variables have no effect on the disclosure of financial statements on the local government websites. This suggests that follow-up audit recommendation conducted by the local governments does not encourage local governments to conduct financial statements disclosure on the local government websites.

Setyaningrum (2015) stated that the follow-up of the examination result period was measured by the number of recommendations by the government so that the quality of financial statements represented at the level of disclosure becomes increasingly higher. This suggests that there needs to be a strong commitment from the local governments to promptly correct the mistakes made. The response to the fix is a manifestation of the local governments' responsibility in the effort to realize the transparency of financial information to the community.

According to Gilardi (2001), the relationship of agency is a delegation of chains of delegation, a delegation of people to his deputy in Parliament, from Parliament to the government. Therefore, it has become the obligation of the local government to account for what it manages to the public. This is because the revenue of the area is also obtained from the tax paid by the community.

The disclosure of financial statements on local government websites conducted by governments can increase the trust of external parties especially communities against governments. The disclosure of financial statements on the local government website provides convenience for external parties to acknowledge the local governments' commitment to correct errors in the preparation of its financial statements.

4.4.4 The influence of the education level on the financial statements disclosure therein local government websites. The fourth hypothesis (H4) in this study, the level of education affects the disclosure of financial statements on local government websites. Based on the results of the logistics regression test on Table VI, the variable regression coefficient of the education level is -14.065 and the significance value of 0.368, greater than 5 percent or 0.05. This means that a variable level of education does not affect the disclosure of financial statements on local government websites or the growing number of people studying in colleges in an area increasingly do not encourage the disclosure of financial statements on local governments' websites.

The results of the study were not in accordance with the research results of Evans and Yen (2005), Chaudhuri et al. (2005) and Pérez et al. (2008), who found an education level influence on e-government advances, as more wanted information provided by the government online.

Based on the results of the survey conducted by the Asosiasi Penyelenggara Jasa Internet Indonesia/Association of Internet Service Providers Indonesia (APJII) year 2016, composition of internet users in Indonesia is worker/self-employed (62 percent), housewives (16.6 percent), university students (7.8 percent), students (6.3 percent) and others (0.6 percent).

Concerning reason for accessing internet, the users access it for: update information (25.3 percent), work (20.87 percent), leisure time (13.5 percent) socialization (10.33 percent), related education (9.2 percent), entertainment (8.8 percent) and business, trade and search for goods (8.5 percent).

The above data reflect that there are significant number of people using internet for supporting their work and updating their information. It means that local governments should be more transparent to the public, including public access to their financial statements because it is part of their accountability to the citizens that have elected their leaders in managing public offices.
The role of information technology and education is crucial in today’s world. So if a country wants to progress then it should support science and information technology. The growing technology will certainly affect easy access to science and also develop it. According to Garry and Lamont (2003), the aspect of knowledge has an important role in contributing valuable contributions to organizational capabilities. The role of the knowledge management system is very important in facilitating innovation by the organization and the learning process in the organization. The condition explains how important knowledge is to improve organizational capacity, especially in innovation and transformation.

In the theory of learning organizations, the transformation of an organization refers to how the organization changes. Each organization will be in a continuously changing situation. To be able to survive and thrive, the organization must grow and make adjustments. To anticipate organizational changes, an organization needs to learn so as to survive or even be able to demonstrate better performance.

4.4.5 The influence of welfare level on the financial statements disclosure on local governments’ websites. The fifth hypothesis (H5) in this study, the level of welfare has a significant effect on the disclosure of financial statements on local government websites. Based on the results of the logistics regression test on Table VI, the variable regression coefficient of the welfare level is 0.000 and the significance value is 0.082, greater than 5 percent or 0.05. That is, the variable level of welfare has no significant effect on the disclosure of financial statements on local government websites or the higher the welfare level in an area does not encourage the government’s desire to disclose financial statements on local government websites.

The results of this study were not in accordance with the research results of Styles and Tennyson (2007) that found that the welfare of the population has a significant positive relationship to the disclosure of financial information on the website. The results of the descriptive statistical analysis show that the average value of the welfare variable is 9,934.93 and the standard deviation is 2,069.325. This means the standard deviation of the welfare level of each region in Indonesia is quite varied.

The needs of a society that increasingly will be public information require that local governments should continue to improve the information needed by the community. When associated with the theory of learning organization, the transformation of an organization refers to how the organization changes. Basically, the change is something that remains constant in the organization. Each organization will be in a continuously changing situation. To be able to survive and thrive, the organization must grow and make adjustments, one of them through its human wellbeing inhabitants. Through a good level of welfare, the government can maximize information technology for its community needs. Information technology has become an integral part and is an infrastructure that is essential for organizations or adding value or competitive advantage. Dalt (2010) states that innovative concepts have always emerged to face a difficult management challenge. Organizations are experimenting with new ways of managing that can better answer the demands of today’s environment and customers. Two of the latest management innovations are shifting to learning organizations and managing technology-based workplaces.

Areas that have high local income means having a higher level of well-being, a society with higher welfare should pay more attention to the implementation of the government than have lower welfare. Increasing demands on accountability and transparency of government implementation as a form of monitoring. Expression of transparency can be done through the disclosure of financial statements on government websites.

4.4.6 The heads of local governments’ commitment on the financial statements disclosure on local governments’ websites. The sixth hypothesis (H6), the heads of local governments’ commitment has an effect on the disclosure of financial statements on local government websites.
websites. Based on the results of the logistics regression test on Table VI, the regression coefficient of variable the heads of local governments’ commitment is -0.577 and significance value of 0.350, greater than 5 percent or 0.05. The heads of local governments’ commitment variables have no significant effect on the disclosure of financial statements on the local government website.

Public officials are required to be more transparent, accountable and more oriented to community service. That is, it is important for local heads to commit to disclose financial statements on the internet as a form of accountability for managed funding sources. However, this study was different from Azhar et al. (2014) who expressed the commitment of local head to influence the transparency of financial reporting of local governments.

Bergman and Lane (1990) stated that the average agent–principal relationship is a very important approach to analyzing public policy commitments. The creation and application of public policy relating to the contractual issues, i.e., information that is not asymmetric information, moral hazard and adverse selection.

Internet financial reporting conducted by local governments can build community trust and other stakeholders to the government. This is a concrete form of organizing local government activities, especially in the management of regional budgets, which has been in accordance with the prevailing rules. In addition, it can support the efforts to create regional financial management in an orderly, efficient, economic, effective, transparent and accountable manner. Thus, with the financial reporting on the Internet, backed by a strong commitment by the local head in doing transparency will realize good governance of a government.

5. Conclusion, limitation and research implication

Results of this study show that the audit opinion has a significant positive influence on the financial statements disclosure of Indonesian local government websites. However, the findings of audits, follow-up audit recommendations, education level, welfare level and heads of local governments’ commitment have no significant influence on the disclosure of financial statements of local government websites nationwide.

The study has limitation in terms of data availability because data are partly unavailable on the web of the local governments, so that the researchers need to go extra miles to find the data in work units (SPOD) under respective local governments being studied.

Implication of this research provides an overview that the disclosure of financial statements of the local government websites is one of the ways to be more transparent to the stakeholders. It is can be achieved by imposing stricter sanctions for local governments that have not made their financial statements disclosure available to the public electronically (via website).

The loose regulation merely imposing voluntary disclosure has driven local governments to feel "enough" with the current level of transparency. So, we need an imperative regulation that can drive local governments to be more transparent and accountable by scaling up the regulation from voluntary to mandatory disclosure.

Further research can be explored more by adding and investigating others variables such as size of local parliaments, spending of the local budgets, debts and number of population.

References


Further reading


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The effect of company characteristics and auditor characteristics to audit report lag

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Abstract

Purpose – The purpose of this paper is to examine and analyze the factors that affect an auditor’s efficiency in completing the audit process proxied by audit report lag. The factors used in this study are selected by looking at the characteristics of the company and the characteristics of an auditor.

Design/methodology/approach – Company characteristics were proxied by the audit committee effectiveness, financial condition, accounting complexity and profitability, whereas auditor characteristics were proxied with auditor reputation, audit tenure and auditors industry specialization. Populations of this study were all manufacturing companies listed in Indonesian Stock Exchange in 2014–2016. Based on the purposive sampling method, the number of samples obtained from 231 companies was 77. Multiple linear regression method was used to analyze this study. Hypothesis testing was done by statistical t-test (partial).

Findings – The results showed that partially variables of the audit committee effectiveness and profitability had a significant negative effect on audit report lag while the variable financial condition had a significant positive effect on audit report lag. Meanwhile, variables of the accounting complexity, auditor reputation, audit tenure and auditors’ industry specialization did not show significant influence on audit report lag.

Originality/value – This study tests both company’s and auditor’s characteristic on audit report lag that as far as authors know never been tested simultaneously.

Keywords Audit committee effectiveness, Accounting complexity, Auditors characteristics, Financial condition, Firms characteristics

Paper type Research paper

1. Introduction

Shareholders are entitled to obtain information on the financial condition and results of the company’s operations. The information is used by the shareholders to evaluate the performance of the management and make a decision on whether the company is providing benefits or not to them. Therefore, the financial statements are a form of management accountability for the management of the entity’s resources entrusted to it. In addition, the financial statements are also a means of communication of the management to shareholders. In order for the financial statements to be valuable to the user at the time of decision making, the financial statements should contain qualitative characteristics that are characteristic of financial statement information. The qualitative characteristics of financial statements based on the Basic Framework of Preparation and Presentation of Financial Statements of Financial Accounting Standards are understandable, relevant, reliable and comparable. Relevant qualitative and reliable qualitative characteristics are the primary quality characteristics of a financial report. The financial statements are said to contain
relevant information if the financial statements have the ability to influence the decision of the manager or users of the financial statements so that the existence of the financial statements is able to alter or support their expectations about the results or consequences of the action taken.

Delivery timeliness of financial statements to the public is essential to maintaining the relevance of information in the financial statements. Due to inadvertent delays in the delivery of financial statements, the information generated in the financial statements will lose the ability to influence user decisions (Praditya dan Fitriany, 2013). For investors, the timely delivery of financial statements will reduce uncertainty in investment decision making (Ashton et al., 1989) and the dissemination of asymmetric information among investors in the capital market (Jaggi and Tsui, 1999). Timely delivery of financial statements will help to reduce the occurrence of leak, rumors and insider trading in the stock market (Owusu-Ansah, 2000). Timeliness of financial statement submission also provides valuable information for shareholders in the decision-making process (Al-Ajmi, 2008).

Therefore, the Capital Market and Financial Institution Supervisory Agency (Bapepam and LK) make regulations regarding the deadline for submitting financial statements. The role of Bapepam and LK was replaced by the Financial Services Authority (OJK) starting on October 27, 2011 in Law No. 21 of 2011. The regulation governing the deadline for submission of annual financial statements of an issuer or a public company shall be the Decision of the Chairman of the Capital Market Supervisory Agency Number KEP-346/BL/ 2011. In Rule Number XK2 stating the annual financial statements shall be presented comparative with the same period of the previous year, shall be accompanied by an accountant’s report in the context of an audit of the financial statements and shall be submitted to Bapepam and LK and announced to the public no later than the end of the third month after annual finance report. However, for companies whose shares are listed on the Foreign Exchange, the date of submission of the financial statements follows the date set by the Foreign Exchange.

However, the timeliness of the delivery of financial statements in accordance with the prevailing regulations is confronted with obstacles, one of which is that financial statements should be audited by independent public accountants. The timeliness of the delivery of financial statements depends on the period of completion of the audit process. This is because the financial statements cannot be published before the audit is completed (Johnson, 1998).

In the process of completion of the audit, the auditor must comply with the auditing standards set by the Public Accountant Association. One of the auditing standards that must be met by an independent auditor is the Standards of Field Work. In addition, in the implementation of the auditing standards, the auditor should also consider the audit risk to be faced. Therefore, for the fulfillment of audit pelakasanaan according to standard and because of audit risk encountered auditors require a longer time in the process of completion of the audit so that this will impact on the timeliness of financial reporting. Essentially, the timeliness of audit task completion indicates that the auditor should work efficiently without overriding the reliability of the information generated in the financial statements.

This study aims to determine the factors that affect the efficiency of time in the assignment. Researchers produced time efficiency in the assignment by using an audit report lag. Understanding of the factors affecting the audit report lag will likely provide an understanding of the efficiency of time in audit assignments (Habib and Bhuiyan, 2011). Some previous reports of audit report lag are often called auditors’ signature or audit delay. Al-Ajmi (2008) defines auditors’ signature lag, i.e., the number of days starting from the closing date of the company’s book until the auditor’s signature date in the audit report after the auditor makes an opinion regarding the company’s financial statements.
The factors that affect audit report lag have been examined by some previous research studies, they have been examined in the country and abroad. Related to these research studies, researchers choose factor or variable that influences audit report lag by looking from the side of company characteristic and auditor characteristic. Previous research has shown that factors affecting the length of audit report lag are related to corporate characteristics, such as industry size, the presence of extraordinary items, etc. (Ashton et al., 1989), and auditor characteristics, such as the breadth of the auditor’s work, the experience of the audit staff, the auditor’s insensitivity and tenure audit (Bamber et al., 1993). This study focused on factors derived from firm characteristics and auditor characteristics. This is because the main factor causing the length of audit report lag comes from within the two entities. Each company (auditee) has different characteristics so that the risks faced and procedures used by the auditor will also be different while the auditor as the executor also has different skills and expertise in conducting a corporate audit.

Corporate characteristic factors that influence audit report lag include the effectiveness of the audit committee, accounting complexity, financial condition and profitability. The researcher chooses the firm characteristic factors based on the auditor’s responsibilities and the testing procedures that the auditor must perform during audit assignments such as non-substantive and substantive testing.

In addition to factors from the side of the company that affect audit report lag, factors from the auditor’s side also influence the report lag. Auditor characteristic factors that affect audit report lag include auditor reputation, audit tenure and auditor industry specialization.

The remainder of this paper is structured as follows. Section 2 develops the literature review. Section 3 describes the research methodology. Section 4 specifies the empirical results. Section 5 discusses results and Section 6 summarizes the paper and presents concluding remarks.

1.1 Research problems
Based on the background described earlier, the issues discussed in this research are:

1. Corporate characteristics consisting of the effectiveness of the audit committee, financial condition, accounting complexity and profitability affecting audit report lag; and

2. Auditor characteristics consisting of auditor reputation, audit tenure and industry specialization affecting audit report lag.

2. Literature review
Agency theory provides an explanation of the agency relationship; it is the relationship between the owners of the company or shareholders as a principal with the management company as an agent. In the agency relationship, there is a contract between one or more persons domiciled with another person who is an agent to perform a work in accordance with the principal’s interests, accompanied by the delegation of decision-making authority to the agent (Jensen and Meckling, 1976). This agency theory is motivated by the existence of principals or shareholders who are not possible to carry out all the functions required in the management of a company due to the limited ability, time, etc., so that the principal appoints the agent of company management to replace the task of managing the company’s activities (Sudana, 2011). The existence of a conflict of interest between the agent and the principal can lead to the asymmetry of information that is the imbalance of information owned by both parties where the agent has more information than the principal about the company. This is because management as a party has more
detailed information about the company to hold or not provide perfect information to the shareholders because it is more profitable for management.

3. Research methodology

3.1 Operational definitions

3.1.1 Audit report lag. Audit report lag is the length of days required by the auditor to complete the audit process of the company’s financial statements after the closing date of the company’s books (Carslaw and Kaplan, 1991; Bamber et al., 1993). The lag report audit is measured by counting the number of days after the closing date of the company’s book (January 1) up to the date of signing of the independent auditor’s report (LAI) by the auditor stated in the company’s audited financial statements.

3.1.2 The effectiveness of the audit committee. The effectiveness of the audit committee is an audit committee that qualifies members with the authority and resources to protect the interests of stakeholders by ensuring the reliability of financial reporting, internal control and risk management, as well as through diligent monitoring. This variable is measured by summing the scores of the committee effectiveness index built by DeZoort et al. (2002). The index consists of four elements, namely, composition, authority, resources and persistence, which are then divided into ten requirements. Higher scores indicate that audit committees are more effective. The measurement of the effectiveness of variables of the audit committee are described in Table I.

3.1.3 Financial condition. The probability of bankruptcy is used as a proxy in assessing a company’s financial condition as measured using the Zmijewski Model (Habib and Bhuiyan, 2011). The Zmijewski Model is based on several financial ratios: return on assets (ROA) (net income/total assets), financial leverage (total debt/total assets) and liquidity (current assets/current debt). The formula of Zmijewski Model is as follows:

$$ZFC = -4.336 - 4.513(\text{ROA}) + 5.679(\text{FINL}) + 0.004(\text{LIQ}).$$

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Proxy</th>
<th>Score</th>
<th>Source</th>
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<tbody>
<tr>
<td>Composition</td>
<td>Independence</td>
<td>1: if it meets the requirements 0: does not meet the requirements</td>
<td>Ika dan Ghozali</td>
</tr>
<tr>
<td>Resources</td>
<td>Expertise</td>
<td>1: if it meets the requirements 0: does not meet the requirements</td>
<td>Ika dan Ghozali</td>
</tr>
<tr>
<td>Authority</td>
<td>Charter of the Audit Committee</td>
<td>2: if explaining in detail 1: a brief statement 0: do not reveal at all</td>
<td>Ika dan Ghozali</td>
</tr>
<tr>
<td>Perseverance</td>
<td>Meeting</td>
<td>1: if it meets the requirements 0: does not meet the requirements</td>
<td>Ika dan Ghozali</td>
</tr>
</tbody>
</table>

Table I. Measurement of the effectiveness of the audit committee
From the Zmijewski Model, if the higher ZFC value indicates the higher the level of bankruptcy or financial failure of the company that raises the risk of high audit so increasing ARL.

3.1.4 **Complexity of corporate accounting.** Accounting complexity is the complexity of the accounting process that occurs in an enterprise caused by the company, which has several segments or subsidiaries that operate. In accordance with Sengupta (2004) and Al-Ajmi (2008) studies, accounting complexity was measured using dummy variables. If the firm reports more than one major segment, it gets a score of 1, vice versa if the company only reports one major segment, then scores 0.

3.1.5 **Profitability.** Profitability is the company’s ability to generate profits using company-owned resources, such as company assets. Profitability is measured by using profitability ratio, i.e., ROA. The greater ROA of the company gains shows the more efficient use of company assets to generate profits. In this study, ROA is formulated as follows:

\[
\text{ROA} = \frac{\text{Net income}}{\text{Total assets}}
\]

3.1.6 **Auditor reputation.** The reputation of the auditor (KAP) is a public trust that is held by the auditor (KAP) on behalf of the big one it has. The auditor’s reputation is divided into two major groups: Big Four and Non-Big Four KAP. Auditor reputation variables are measured using dummy variables. Companies that are audited by the Big Four will be scored 1, whereas companies audited other than the Big Four will be scored 0.

3.1.7 **Tenure audit.** Tenure audit is the length of the engagement period between the auditor (KAP) and the auditee associated with the use of audit services that have been agreed on an ongoing basis without any change with the other auditors. In identifying the appropriate audit tenure, caution and compliance with applicable regulations are required. This is related to the existence of the problem of KAP rotation in pseudo where there is a rotation of KAP but substantially KAP is still the same KAP. Therefore, in this study measuring the audit tenure only uses real rotation. This is because of the experience and understanding of the auditor to the client in accordance with the duration of the provision of audit services in real terms.

3.1.8 **Specialization industrial auditor.** The auditor that specialists say is an auditor who has a specific understanding of a particular industry that causes them to gain a more comprehensive understanding of the industry’s characteristics (Maletta and Wright, 1996; Owhoso, 2002). Specialist auditors are measured using dummy variables. The industry-specific auditor will be given a score of 1 while a score of 0 is given to auditors who do not have an industry specialization.

The measurement of auditor industry specialization refers to the research of Gul et al. (2009) using the market share approach. The approach can be identified by using the percentage of total assets of a company audited by a firm in a particular industry. The formula of the approach model is as follows:

\[
\text{SPEC} = \frac{\text{Jumlah Klien KAP dalam Industri}}{\text{Jumlah Seluruh Emiten dalam Industri}} \times \frac{\text{Rerata Aset Klien KAP dalam Industri}}{\text{Rerata Aset Seluruh Emiten dalam Industri}}
\]

From the above formula, the auditor is said to have an industry specialization if the SPEC amount is equal to or greater than 30 percent, according to Reichelt and Wang (2009) research.

3.2 **Types and data sources**
The type of data used in this study is quantitative data. Quantitative data are data in the form of numbers. Due to its shape, these data can be processed and analyzed using
mathematical calculation techniques or statistics. In this research the data source is secondary data. In this study the required data are data in audited financial statements (audited financial report) and annual report (annual report) of a company during the period 2014–2016, obtained from the website of Indonesian Stock Exchange (www.idx.co.id).

3.3 Method of collecting data
Prior to conducting the research, the researcher must design how the procedures or steps are performed to collect the data. Data are collected from data sources. Due to data source use secondary data that are data in audited financial report (audited financial report) and company annual report; hence, the method of collecting data used in this research is the method of documentation. Researchers see the document in the form of audited financial statements (audited financial report) and the annual report of the company.

3.4 Data analysis technique
The analysis technique used in this research is multiple linear regression analysis which is used to know the influence of independent variables (effectiveness of audit committee, financial condition, accounting complexity, profitability, auditor reputation, audit tenure and auditor industry specialization) to dependent variable (audit report lag). A statistical model is widely used to examine the relationship of influence between the dependent variable and the independent variable. In this study, statistical calculations done by using the Statistics Packages For Social Science (SPSS) version 20 program are as follows:

\[
ARL_{i,t} = \alpha + \beta_1 ACEFeC_{i,t} + \beta_2 ZFC_{i,t} + \beta_3 SUBS_{i,t} + \beta_4 ROA_{i,t} + \\
+ \beta_5 REP_{i,t} + \beta_6 TEN_{i,t} + \beta_7 ASI_{i,t} + \epsilon_{i,t}.
\]

The regression model in this study is as follows:
ARL_{i,t} = audit report lag; \( \alpha \) = intercept; ACEFeC_{i,t} = effectiveness of the audit committee; ZFC_{i,t} = financial condition; SUBS_{i,t} = accounting complexity; ROA_{i,t} = profitability; REP_{i,t} = auditor reputation; TEN_{i,t} = tenure audit; ASI_{i,t} = industry specialization of auditors; \( \epsilon_{i,t} \) = size of error for company.

In addition, this research uses techniques such as:

1. Descriptive statistics, which results from descriptive statistics for the variables used are presented in descriptive statistics tables in the form of maximum values, minimum values, mean values and standard deviation values.

2. Test classical assumptions such as normality, multicollinearity, heteroscedasticity and autocorrelation. They are used in this study and can provide representative results (BLUE: best, linear, unbiased, estimator).

3. Testing the hypothesis with \( t \)-test. \( t \)-Test is conducted to test whether or not the influence of independent variables to the dependent variable is partially. The test is univariate by using \( t \)-test method. Determination level is of 5 percent.

4. The coefficient of determination is essentially used to measure the model's ability to explain the variation of the dependent variable (Ghozali, 2009).

4. Results
4.1 Description of research variables
(Table II).
4.2 Classical assumption testing

4.2.1 Normality test. Based on Figure 1, it appears that the data spread around the diagonal line and follow the direction of the diagonal line. Thus, it can be concluded that the P-P plot graph shows the data are normally distributed.

4.2.2 Multicollinearity test. Based on Table III it is known that all independent variables (effectiveness of the audit committee (ACEFEC), bankruptcy probability (ZFC), accounting complexity (SUBS), profitability (ROA), auditor reputation (REP), tenure audit (TEN) and industry) have a tolerance value > 0.1 and VIF < 10. It can be concluded that all independent variables in the regression model tested in this study did not occur multicollinearity.

4.2.3 Heteroscedasticity test. The scatterplot diagram in Figure 2 shows that spreading dots do not accumulate and do not form a distinctive pattern. Thus, it can be concluded that the results of this test state that the regression model is free from symptoms of heteroskedasticity or homoskedasticity occur.

4.2.4 Autocorrelation test. Based on the Durbin–Watson test presented in Table IV, the regression for Equation (1) shows the value of 1.687, which means that the Durbin–Watson value is still in the range of autocorrelation-free regions as they are between −2 to +2.

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARL</td>
<td>231</td>
<td>40</td>
<td>151</td>
<td>78.15</td>
<td>15.75</td>
</tr>
<tr>
<td>ACEFEC</td>
<td>231</td>
<td>4</td>
<td>14</td>
<td>10.55</td>
<td>2.724</td>
</tr>
<tr>
<td>ZFC</td>
<td>231</td>
<td>-4.8192</td>
<td>12.9049</td>
<td>-1.794143</td>
<td>2.4232024</td>
</tr>
<tr>
<td>ROA</td>
<td>231</td>
<td>-0.1611</td>
<td>0.4317</td>
<td>0.063125</td>
<td>0.0900350</td>
</tr>
<tr>
<td>TEN</td>
<td>231</td>
<td>1</td>
<td>6</td>
<td>2.41</td>
<td>1.518</td>
</tr>
<tr>
<td>Valid n (listwise)</td>
<td>231</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Processed results of SPSS data

Table II. Descriptive statistics

Figure 1. Normality test chart
4.3 t-Test

From Table VI it is concluded that the estimated linear regression model is feasible to be used to explain the effect of all independent variables on dependent variable.

### Table III.

Multicollinearity

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Tolerance</th>
<th>VIF</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACEFEC</td>
<td>0.881</td>
<td>1.135</td>
<td>Free multicollinearity</td>
</tr>
<tr>
<td>ZFC</td>
<td>0.799</td>
<td>1.251</td>
<td>Free multicollinearity</td>
</tr>
<tr>
<td>SUBS</td>
<td>0.933</td>
<td>1.072</td>
<td>Free multicollinearity</td>
</tr>
<tr>
<td>ROA</td>
<td>0.621</td>
<td>1.610</td>
<td>Free multicollinearity</td>
</tr>
<tr>
<td>REP</td>
<td>0.390</td>
<td>2.564</td>
<td>Free multicollinearity</td>
</tr>
<tr>
<td>TEN</td>
<td>0.985</td>
<td>1.015</td>
<td>Free multicollinearity</td>
</tr>
<tr>
<td>ASI</td>
<td>0.456</td>
<td>2.191</td>
<td>Free multicollinearity</td>
</tr>
</tbody>
</table>

**Note:** aDependent variable: ARL

**Source:** Processed results of SPSS data

### Figure 2.

Heteroscedasticity test

**Source:** Processed results of SPSS data

### Table IV.

Autocorrelation results

<table>
<thead>
<tr>
<th>Model</th>
<th>Model summary$^b$</th>
<th>Durbin–Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Predictors: (constant), ASI, SUBS, TEN, ZFC, ACEFEC, ROA, REP; $^b$dependent variable: ARL</td>
<td>1.678</td>
</tr>
</tbody>
</table>

**Notes:**

**Source:** Processed output results of SPSS data

---

4.4 F-test

From Table VI it is concluded that the estimated linear regression model is feasible to be used to explain the effect of all independent variables on dependent variable.
4.5 Determination coefficient test

In Table VII, the value of $R^2$ of 0.108 indicates that the effectiveness of the audit committee, probability of bankruptcy, accounting complexity, profitability, auditor reputation, audit tenure and auditor industry specialization are able to explain variations in audit report lag by 0.108 or 10.8 percent; the remaining 0.892 or 89.2 percent is explained by other variables outside the independent variables used in the study.

5. Discussion

5.1 The effect of the effectiveness of the audit committee on audit report lag

The audit committee is part of the corporate governance component of the company proven to reduce audit report lag. There are several reasons that are suspected to underlie this. First, the audit committee can perform the task of overseeing the financial reporting process effectively. The audit committee can encourage the management of the company to be able to deliver the financial statements in a timely manner. Second, the audit committee has an important role in the effectiveness of the company’s internal controls so that the more effective the audit committee the more effective the internal control of the company. The effective impact of internal controls is the decrease in substantive testing conducted by the auditor due to low risk control so that it can reduce audit report lag. Third, the audit
committee also has a role to ensure that external audits are running effectively by considering several factors, including independence, scope of assignment, cost efficiency and objectivity of the external auditor.

5.2 The influence of financial condition on report lag audit
Companies that are experiencing financial difficulties tend to experience longer audit lag reports. It is hoped that a company with a weak financial condition will pose a greater audit risk of giving an opinion in accordance with the company’s financial condition. To reduce the audit risk, the auditor will expand its audit procedures so that this will cause the auditor to take longer time in the audit process. In addition, companies with the weak financial condition will have problems in terms of going concern, while the auditor is also responsible for evaluating his or her going concern auditee. Therefore, audit report lag will be longer if the company is experiencing a weak financial condition or going concern problem. Auditors will more often discuss and negotiate with their clients to find out management plans in the face of going concern corporate issues. Not only that, the auditor is also obliged to evaluate the effectiveness of the management plan in solving the problem going concern company.

5.3 The influence of accounting complexity to audit report lag
This study did not find any significant effect between variables accounting complexity proxied with reporting of company segment to audit report lag. The initial hypothesis argues that firms with high accounting complexity (having more than one major segment) will result in high levels of audit complexity and audit risk so that it will make the auditor take longer time in the audit process. However, such matters can be anticipated by the auditor with careful preparation in the early stages of auditing and an organized schedule so as to reduce the audit time budget. In addition, firms with high accounting complexity are also supported by good internal controls so that the audit risk issues generated will decrease. With good internal controls to make the control risk will decrease the automatic audit risk will also be reduced so that it can reduce the length of audit report lag.

5.4 The effect of profitability on audit report lag
The results of this study indicate that the higher the profitability obtained by a company, the shorter will be the audit report lag, vice versa. This is in accordance with the signal theory that companies that have good information (good news) will give a positive signal to the public that is by way of delivering financial statements as soon as possible. If the profitability of a company is higher, then the financial statements produced by the company will contain good news (good news). This is because companies that obtain high profitability indicate the success of the company’s performance in managing its resources. The existence of good news encourages the company to ask the auditor to complete the audit process immediately so that the good news can be quickly conveyed to the shareholders or investors so that it will impact on increasing the value of the company. On the other hand, audit report lag will be longer if the company profitability is low. This is because low profitability is bad news that will have a negative impact on the value of the company such as a bad reaction of shareholders or investors that allow the impairment of corporate value. To avoid such things, companies will slow down to publish financial reports to the public. The company will ask the auditor to schedule a slower-than-expected audit process that will extend the audit report lag.
In addition, firms with low profitability (losses) also have greater audit risk because they are likely to be the cause of financial distress or fraud, thus making the auditor to expand its audit procedures. This will lead to longer audit lag reports.

5.5 The influence of the auditor’s reputation of report lag’s audit
This research did not find any significant influence between auditor reputation variable to audit report lag. There are several reasons underlying those results. First, it relates to reputation and credibility. Big Four’s KAP in terms of protecting reputation and credibility is by convincing stakeholders that they meet all disclosure requirements rather than prioritizing to complete the audit process as soon as possible. Therefore, this study shows that firms audited by the Big Four KAP do not result in a faster audit report lag than companies audited by the Non-Big Four KAP.

Second, many local Non-Big Four KAPs cooperate with other international KAPs, such as Paul Hadiwinata, Hidajat, Arsono, Achmad, Suharli; and partners affiliated with PKF, Amir Ahadi Jusuf, Aryanto, Mawar & Rekan; affiliated with RSM Tanubrata Sutanto Fahmi Bambang; affiliated with BDO, Doli, Bambang, Sulistiyan, Dadang and Ali; affiliated with BKR, Mirawati Sensi Idris; affiliated with Moore Stephens, and so on. This makes local KAP not much different from Big Four’s KAP in terms of resources and technology so audit report lag between KAP Big Four and Non-Big Four does not show any difference.

Third, in line with the increasingly fierce competition in the business world, all KAPs, both those with the Big Four and Non-Big Four, wish to retain their respective clients by working effectively and efficiently in completing the audit process so that audit report lag between Big KAP Four and Non-Big Four shows no significant difference.

5.6 The effect of audit tenure on audit report lag
This research indicates that audit tenure has no significant negative effect on audit report lag. This is because all auditors (KAP) are required to work professionally in completing the audit process in a timely manner so as not to harm the stakeholders who want to use the financial statements as a means for decision making. It is also in accordance with the theory of compliance (compliance theory) that it becomes imperative for an individual or organization such as an auditor to complete the audit process in a timely manner in accordance with applicable regulations. This is because the regulation has the authority to dictate or regulate the behavior of individuals or organizations.

In addition, this study is limited to tenure auditors proxied with KAP tenure without considering individual auditor tenure, while the implementation of the audit process of financial statements conducted by an auditor or partner of a KAP so that the long audit engagement between the KAP and the client does not indicate a long audit tenure for an auditor. This is also supported by the regulation stipulating that the auditor audits the auditor for the longest time in three consecutive years. Therefore, the results of this study conclude that longer audit tenure does not make the audit report lag shorter, vice versa.

5.7 The influence of auditor industry specialization to audit report lag
This study did not find any significant influence between the variables of industry auditor specialization on audit report lag. This is because the auditor’s specialization status cannot be explicitly identified. According to some sources, there are different methods of determining industry specialization. Gramling and Stone (2001) and Dunn and Mayhew (2004) define industry specialization by referring to the market share identified through the sale of a company to a particular industry, while Balsam et al. (2003) determine industry specialization with reference to the number of clients in an industry. On the contrary, Gul
et al. (2009) identify industry specialization with reference to the total assets of the client company. In addition, the auditor industry specialization can also be identified through auditing fees as used by Habib and Bhuiyan (2011). Therefore, any discrepancies in the method will result in the absence of consistency over the test results of the auditor industry specialization on any method used. This study of industry specialization is determined by using a market share approach that can be identified through the percentage of total assets of a company audited by a firm’s KAP in a particular industry. The auditor is said to have an industry specialization if the SPEC amount is equal to or greater than 30 percent. These calculations resulted two KAPs belonging to have industry specialization, and the two KAPs are EY and PWC. It is alleged that the cause was not found to be significantly the result of testing the influence of audit industry specialization on audit report lag.

6. Conclusion

(1) The effectiveness of the audit committee has a significant negative effect on the audit report lag.
(2) Financial condition has a significant positive effect on the audit report lag.
(3) Accounting complexity does not affect audit report lag.
(4) Profitability has a significant negative effect on audit report lag.
(5) The auditor’s reputation has no effect on audit report lag.
(6) Tenure audit has no effect on audit report lag.
(7) The auditor industry specialization has no effect on audit report lag.

6.1 Suggestions

Based on the results of research that has been done, suggestions for further research are:

(1) The value of $R^2$ in this study is still too low that is equal to 0.108 or indicates that the variables used in the study are able to explain variations audit report lag by 0.108 or 10.8 percent while the rest 0.892 or 89.2 percent explained by other variables outside variables used in the study. Therefore, for the next researcher it is suggested to replace or add another independent variable to get higher $R^2$ value.

(2) It is better for the next researcher to use the sample of the research not only in the manufacturing company so that the results obtained have a wider scope.

Based on the results of the calculation of the specific auditor only two KAPs are obtained, it is advisable for further researchers to use different measurement methods if still using this variable and the same sample with this research in order to show better results.

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Further reading


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The effects of audit client tenure, audit lag, opinion shopping, liquidity ratio, and leverage to the going concern audit opinion

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Abstract

Purpose – The going concern audit opinion is an audit opinion issued by an auditor to evaluate the company’s ability in maintaining the business continuity. The purpose of this paper is to discover the effects of audit client tenure, audit lag, opinion shopping, liquidity ratio and leverage on the going concern audit opinion.

Design/methodology/approach – The study used secondary data obtained from financial reports and independent audit reports published by Indonesian Stock Exchange (ISE) as well as Indonesian Capital Market Directory. Besides, the population of the study included manufacturing companies registered in ISE from 2009 to 2013. Further, the present study applied purposive sampling technique which resulted in 16 companies used as the sample of the study. Then the hypothesis was examined by applying logistic regression.

Findings – Results of the hypothesis examination indicated that the variables of opinion shopping and leverage affected the going concern audit opinion, whereas the variables of audit client tenure, audit lag and liquidity ratio did not affect the going concern audit opinion.

Originality/value – Results of the hypothesis examination indicated that the variables of opinion shopping and leverage affected the going concern audit opinion, whereas the variables of audit client tenure, audit lag and liquidity ratio did not affect the going concern audit opinion.

Keywords Audit client tenure, Audit lag, Going concern audit opinion, Opinion shopping

Paper type Research paper

Introduction

A financial statement is one of the media for the management to communicate the financial information to the stakeholders to assess the company’s performance. A financial statement must have complete or comprehensive information in disclosing all facts done by the company during one period. The main purpose of the audit is to provide a sufficient trust that the financial statement has been reasonably presented according to the Generally Accepted Accounting Principles (Boynton et al., 2006). The result of the financial statement audit is an auditor opinion that is regarded as a public trust symbol to the information accountability presented in a financial statement (Aprilia, 2012).

In the ongoing process, the auditor is urged to evaluate a business continuity and a company’s ability in maintaining the business for a limitless period. Going concern is an assumption which obliges the economic entity to have operational and financial abilities in maintaining their business continuity (Purba, 2009). According to Carson et al,
an auditor is accountable for evaluating whether there is a substantial doubt about the company’s ability in sustaining their business continuity for a reasonable period of time. The going concern audit opinion is a modification audit in which, regarding the auditor’s consideration, it has a significant inability or uncertainty to the continuity of a company in running their operation (The Institute of Indonesian Public Accountant, 2011). The importance of going concern matters shows that it is needed to find out the factors influencing the going concern audit opinion in the relationship between auditor and client. According to Carson et al., the characteristics of the relationship between auditor and client encompassed audit client tenure, audit lag and opinion shopping.

Audit client tenure is the length of audit engagement between an auditor and a client (Knechel and Vanstrelen, 2007). The length of audit client tenure can improve the auditor’s competence in making an auditing decision according to the auditor’s ongoing knowledge, which is in line with the audit engagement. Nevertheless, due to the engagement length of audit client tenure, the auditor’s independence can weaken because it will grow a relationship between the management and the auditor, whereas the short audit client tenure will weaken the auditor’s competence because the auditor lacks knowledge about the company’s environment in the early years of doing the audit.

Audit lag is the number of days between the end date of the financial statement and the issuance date of the auditing report (Ryu and Roh, 2007). Carson et al. asserted that the going concern audit opinion was more frequently met when the opinion issuance was late, whereas, according to Januarti (2008), audit lag does not affect the going concern audit opinion in which the audit length does not influence the issuance of the going concern audit opinion.

According to The Security Exchange Commission (SEC), opinion shopping is an activity to look for an auditor with the goal of supporting the accounting treatment proposed by the management to achieve the goal of the company reporting although it may cause the report to be less successful. There are several factors that motivate a manager to conduct an opinion shopping. One of them is a willingness to achieve the target as well as the needs to maintain the continuity of the business. On one hand, the opinion shopping does not affect the going concern audit opinion in which it means the auditor’s independence is not affected even though he/she is threatened to lose clients, should he/she provide the going concern audit opinion (Praptitorini and Januarti, 2011). On the other hand, Lennox (2000) asserted that the opinion shopping influenced the going concern audit opinion.

The going concern audit opinion is also related to the financial situation of a company, in this case, the liquidity ratio and the leverage level. The liquidity ratio aims to measure the company’s ability to fulfill the current liabilities (Weston and Brigham, 2001; Masyitoh and Adhariani, 2010). The smaller the liquidity of a company, it shows the struggle of the company in paying out the liabilities. Therefore, an auditor will possibly provide an audit opinion with going concern. On one hand, Januarti and Fitrianasari (2008) discovered that the liquidity ratio influenced the determination of the audit opinion with the paragraph of going concern. On the other hand, Masyitoh and Adhariani (2010) found out that the liquidity did not affect the issuance of going concern opinion by the auditor.

Besides, the leverage measures how far the company’s assets are funded by debts (Riyanto, 2001). According Weston and Brigham (2001, p. 138), the leverage ratio aims to measure how far the company’s financial needs are covered by loans. The bigger the company’s assets are covered by loans, the more dependent the company to the loans in running their activities. Furthermore, the company should bear the bigger debts and interests. Ohlson (1980) asserted that the leverage had an influence in predicting the bankruptcy. Lennox (2000) also discovered that a company would frequently receive a going concern audit opinion when the leverage level was high. Nevertheless, Januarti and Fitrianasari (2008) argued that the leverage did not affect the going concern audit opinion.
The present study contributes to improving the previous studies in accordance with the influence of audit client tenure, audit lag, opinion shopping, liquidity ratio and leverage to the going concern audit opinion of a company. Results of the study indicated that the variables of the opinion shopping and the leverage affected the going concern audit opinion, whereas the variables of the audit client tenure, the audit lag and the liquidity ratio did not affect the going concern audit opinion.

The next section of the paper will present the literature review and the hypothesis development, the methods of study, the findings and discussions, and the last section consisting of conclusion, limitations and suggestions of study.

Literature review and hypothesis development

Agency theory

According to Astuti (2012), an agency problem will appear when a conflict of interest occurs between principals and agent. In this case, principals include the shareholders, whereas agent is the management. The relationship between the shareholders and the management can lead to the asymmetry of information. The shareholders want a decision resulting in high profits or the increase in the investment value, whereas the management wants an adequate compensation revenue of the work that the employees have done. Because of the difference in the desires, an independent third party is needed as a mediator between the principals and the agent.

An auditor is a party considered able to bridge the interests of the principals and the agent in managing the company’s finance, so that the auditor has a monitoring function over the work done by a manager through a financial statement as well as considering the continuity of the company’s business in running their business activities (going concern). The auditor’s accountability encompasses providing the assurance service in the form of an evaluation of the financial statement made by the agent about the reasonableness of the financial statement. This evaluation finally results in an audit opinion. The audit opinion given by the auditor can be a measurement for the principals to assess the agent’s performance in managing the company’s business activities.

The going concern audit opinion

According to PSA number 29 SA Section 208 (quoted by Agoes, 2012), the auditor’s opinion is grouped into five types: unqualified opinion, unqualified opinion with explanatory language, qualified opinion, adverse opinion and disclaimer of opinion. The going concern audit opinion is a modification audit in which, in the auditor’s consideration, there is a significant inability or uncertainty of the company’s continuity in running their operation (The Institute of Indonesian Public Accountant, 2011). The auditor can provide a going concern audit opinion if he/she finds a condition or an incident during the auditing process that leads to the auditor’s doubt about the sustainability of a company (Astuti, 2012).

Audit client tenure to the going concern audit opinion

Audit client tenure is the length of audit engagement between an auditor and a client (Knechel and Vansrelen, 2007), whereas, according to Januarti and Fitrianasari (2008), audit client tenure is the number of years when kantor akuntan public (KAP) conducts an audit engagement to the same company. A long audit engagement can cause the decreasing KAP independence because it can grow a relationship between the management and the auditor, whereas a short audit engagement can weaken the auditor’s competence because he/she lacks knowledge about the company environment in the early years of doing the audit (Knechel and Vansrelen, 2007):

H1. Audit client tenure affects the going concern audit opinion.
Audit lag to the going concern audit opinion
Audit lag is the number of days between the end date of the financial statement and the audit report issuance date (Ryu and Roh, 2007), whereas, based on Lee and Jahng (2008), audit report lag is a time period between the end of the company’s fiscal year and the audit report date. Carson et al. indicated a possibility of delay of the issued opinion because the auditor tended to do tests and the management might do a long negotiation when the business uncertainty was discovered. The auditor delays issuing an opinion with the hope that the management can solve the problem, so that they can avoid the going concern audit opinion:

\[ H2. \] Audit lag affects the going concern audit opinion.

Opinion shopping to the going concern audit opinion
Opinion shopping is defined by SEC as an activity to search for an auditor that is willing to support the accounting treatment proposed by the management to attain the goal of the company reporting. The company usually does an auditor shift to avoid receiving the going concern audit opinion (Alfasa, 2013). Several factors motivating the manager to conduct an opinion shopping include the willingness to fulfill the target as well as the needs to maintain the business sustainability (Praptitorini and Januarti, 2011):

\[ H3. \] Opinion shopping affects the acceptance of the going concern audit opinion.

The liquidity ratio to the going concern audit opinion
A company liquidity is defined as a company’s ability to carry out their current liabilities (Munawir, 2001). The liquidity ratio aims to measure the company’s ability in fulfilling their current liabilities (Weston and Brigham, 2001). In this circumstance, the smaller the liquidity of a company, it shows that the company only has few current assets to fulfill their accountability in repaying the debts whose maturity is less than a year. Thus, the auditor will probably provide a going concern audit opinion:

\[ H4. \] The liquidity ratio affects the going concern audit opinion.

Leverage to the going concern audit opinion
The leverage ratio aims to measure how far the company’s financial needs are covered by loans (Weston and Brigham, 2001; Riyanto, 2001). The liability that is getting bigger shows the company’s failure to repay the loans that are getting higher. Consequently, the auditor will possibly provide a going concern audit opinion (Figure 1):

\[ H5. \] Leverage affects the going concern audit opinion.

Methods of study
Research approach, type and data sources
The study in this final project applied an associative quantitative approach of causal relationship by conducting an experiment to the proposed hypotheses. The data of the study encompass the independent auditor reports and the companies’ financial statements. The data sources of the study were from the annual financial statements of the manufacturing companies that were listed in Indonesian Stock Exchange (ISE/BEI) during the period of 2009–2013.

Population and sample
The population of the study included all manufacturing companies listed in ISE during the period of 2009–2013. Then the purposive sampling technique was applied to choose the
sample of the study. Several criteria considered in taking the sample of the study encompassed the manufacturing companies that were listed consecutively during 2009–2013, the companies who did not do delisting during the research period of 2009–2013, the companies experiencing a negative net income for at least three years or a negative equity for a year during the observation period of 2009–2013, the companies which financial statements and audit reports were available in ISE and the companies which financial statements ended on December 31.

Variables of study
The independent variables of the present study are audit client tenure, audit lag, opinion shopping, liquidity ratio and leverage, whereas the dependent variable of the study is the going concern audit opinion.

The variable operational definition. The dependent variable of the study is the going concern audit opinion. This going concern audit opinion is an audit opinion issued by the auditor if there is a doubt about the entity’s ability in maintaining the business sustainability. This variable was measured by applying a dummy variable where the going concern audit opinion was labeled code 1, whereas things which were not included into the going concern audit opinion (unqualified opinion) were labeled code 0.

The independent variables of the study were:

1. Audit client tenure: audit client tenure is the length of audit engagement between the auditor and the same client (Knechel and Vanstrelen, 2007), whereas Januarti defined audit client tenure as the time period of the engagement established between the public accountant office (KAP) and the same auditee. In particular, audit client tenure is measured by calculating the years when the same KAP partner conducts an engagement with the auditee.

2. Audit lag: audit lag is the number of days between the end date of the financial statement and the issuance date of the audit report (Ryu and Roh, 2007). Besides, according to Lee and Jahng (2008), audit report lag is a time period between the end of the company’s fiscal year and the audit report date. In this case, audit lag is measured by calculating the length of KAP in doing the audit from the end date of the financial statements till the issuance date of the audit report.
Opinion shopping: opinion shopping is defined as an activity searching for an auditor who is willing to support an accounting treatment proposed by the management to achieve the company reporting goal. This variable is measured by changing the auditor because the company received a going concern audit opinion in the previous year, whereas code 0 is given to the company in a mandatory way and to others.

Liquidity ratio: the company liquidity is defined as a company's ability to fulfill their current liabilities or to analyze and interpret a company's current financial position (Munawir, 2001). This variable is measured by quick ratio which can well illustrate the liquidity level. Quick ratio is formulated in the following:

$$\text{QuickRatio} = \frac{\text{The total of current assets} - \text{Stock}}{\text{Account Payable}}$$

Leverage: leverage ratio aims to measure how far the company’s financial needs are covered by loans (Weston and Brigham, 2001, p. 138). This variable is measured by debt ratio that is a ratio showing a proportion between the liabilities and the company’s entire wealth. Leverage is formulated in the following:

$$\text{Debt to Total Asset Ratio} = \frac{\text{The Total of Liabilities}}{\text{The Total of Assets}}$$

The data analysis method applied in the present study included the logistic regression equation, the goodness of fit test, the overall model fit test, the determinant coefficient test, the model classification test and the hypothesis test. The level of significance in the hypothesis test was 5 percent.

Findings and discussions

The description of the object of the study
According to the criteria in Table I, there were 80 companies meeting the sample criteria of the study.

The descriptive statistical analysis
The description of results of the study explains the minimum value, the maximum value, the mean, and the deviation standard or the frequency distribution from each variable of the study.

The going concern audit opinion. Table II shows the frequency distribution of the going concern audit opinion and the non-going concern audit opinion every year. During the

<table>
<thead>
<tr>
<th>No</th>
<th>Sample criteria</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Manufacturing companies registered in ISE during 2009–2013 year</td>
<td>156</td>
</tr>
<tr>
<td>2</td>
<td>Registered after January 1, 2009</td>
<td>(20)</td>
</tr>
<tr>
<td>3</td>
<td>Delisting for the periods of 2009–2013</td>
<td>(19)</td>
</tr>
<tr>
<td>4</td>
<td>Not experiencing loss for at least 3 years or a negative equity for one-year financial statement during the research period (2009–2013)</td>
<td>(78)</td>
</tr>
<tr>
<td>5</td>
<td>Incomplete financial statements</td>
<td>(23)</td>
</tr>
<tr>
<td>6</td>
<td>Financial statements which did not end on 31 December</td>
<td>0</td>
</tr>
</tbody>
</table>

Table I. The sample criteria of the study

<table>
<thead>
<tr>
<th>Sample criteria</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>The total of samples per year</td>
<td>16</td>
</tr>
<tr>
<td>The total of samples during the research period (5 years)</td>
<td>80</td>
</tr>
</tbody>
</table>
research period, the sample of companies receiving the going concern audit opinion were 56, out of 80 companies. It indicated that the manufacturing companies receiving the going concern audit opinion were 70 percent.

Audit client tenure. Audit client tenure was calculated from the year of study backward to the year when the company employed the same partner. Table III showed the value of audit client tenure for a year, and for a maximum of six years. The average of audit client tenure

<table>
<thead>
<tr>
<th>Year</th>
<th>Count</th>
<th>% of total</th>
<th>Non-going concern Count</th>
<th>% of total</th>
<th>Going concern Count</th>
<th>% of total</th>
<th>Total Count</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>4</td>
<td>5</td>
<td>12</td>
<td>15</td>
<td>16</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>2010</td>
<td>5</td>
<td>6.3</td>
<td>11</td>
<td>13.7</td>
<td>16</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>2011</td>
<td>4</td>
<td>5</td>
<td>12</td>
<td>15</td>
<td>16</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>2012</td>
<td>4</td>
<td>5</td>
<td>12</td>
<td>15</td>
<td>16</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>2013</td>
<td>7</td>
<td>8.8</td>
<td>9</td>
<td>11.2</td>
<td>16</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>30</td>
<td>56</td>
<td>70</td>
<td>80</td>
<td>100</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

Table II. The frequency distribution of the going concern audit opinion

<table>
<thead>
<tr>
<th>The going concern opinion</th>
<th>Audit client Tenure</th>
<th>Audit Lag</th>
<th>Liquidity</th>
<th>Leverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-going concern</td>
<td>Mean 2.30</td>
<td>85.27</td>
<td>1.0045</td>
<td>1.2647</td>
</tr>
<tr>
<td></td>
<td>n 56</td>
<td>56</td>
<td>56</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>SD 1.292</td>
<td>19.039</td>
<td>2.18309</td>
<td>0.80855</td>
</tr>
<tr>
<td></td>
<td>Minimum 1</td>
<td>48</td>
<td>0.08</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>Maximum 6</td>
<td>177</td>
<td>10.51</td>
<td>2.99</td>
</tr>
<tr>
<td>Going concern</td>
<td>Mean 2.38</td>
<td>84.78</td>
<td>0.8919</td>
<td>1.1266</td>
</tr>
<tr>
<td></td>
<td>n 80</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>SD 1.286</td>
<td>16.545</td>
<td>1.84874</td>
<td>0.71561</td>
</tr>
<tr>
<td></td>
<td>Minimum 1</td>
<td>48</td>
<td>0.08</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>Maximum 6</td>
<td>177</td>
<td>10.51</td>
<td>2.99</td>
</tr>
<tr>
<td>Total</td>
<td>Mean 2.38</td>
<td>84.78</td>
<td>0.8919</td>
<td>1.1266</td>
</tr>
<tr>
<td></td>
<td>n 80</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>SD 1.286</td>
<td>16.545</td>
<td>1.84874</td>
<td>0.71561</td>
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<tr>
<td></td>
<td>Minimum 1</td>
<td>48</td>
<td>0.08</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>Maximum 6</td>
<td>177</td>
<td>10.51</td>
<td>2.99</td>
</tr>
</tbody>
</table>

Table III. The descriptive statistics of audit client tenure, audit lag, liquidity ratio and leverage
was 2.38 years with the deviation standard of 1.286. The average of audit client tenure in the companies receiving the going concern audit opinion had the average of audit engagement with the same KAP for 2.30 years and for a maximum of 6 years, whereas the audit client tenure in the companies receiving the non-going concern audit opinion has the average of audit engagement with the same KAP for 2.54 years and for the maximum of 5 years.

*Audit lag.* The descriptive statistics in Table III indicated that the time needed by KAP to complete the Audit Report from the end date of the financial statements was, on average, 84.78 days, the minimum duration needed was 48 days and the maximum duration was 177 days, with the deviation standard of 16.545. The average of audit lag in the companies receiving the going concern audit opinion was 85.27. The minimum time needed was 48 days, and the maximum was 177 days with the deviation standard of 19.039, whereas audit lag in the companies receiving the non-going concern audit opinion had the duration of 83.62 days, the minimum duration needed was 60 days and the maximum was 102 days, with the deviation standard of 8.454.

*Opinion shopping.* Table IV showed that during the research period, the number of companies doing opinion shopping and obtaining the non-going concern audit opinion was 1, whereas the number of companies doing opinion shopping and receiving the going concern audit opinion were 17. Besides, the number of companies not doing opinion shopping and receiving the non-going concern audit opinion were 23, whereas the number of companies not doing opinion shopping and receiving the going concern audit opinion were 39. Therefore, the total number of companies doing opinion shopping were 18 samples, and the total number of companies not doing opinion shopping were 62 samples.

*Liquidity ratio.* The descriptive statistics in Table III indicated that the average of the company liquidity level was 0.8919 with the deviation standard of 1.84874 and the minimum and maximum liquidity levels were 0.08 and 10.51, respectively. The liquidity level in the companies receiving the going concern audit opinion was averagely 1.0045 with the deviation standard of 2.18309 and the minimum liquidity level of 0.08, and the maximum of 10.51, whereas the liquidity level of the companies receiving the non-going concern audit opinion was, on average, 0.6291 with the deviation standard of 0.48982 and the minimum and maximum liquidity levels of 0.09 and 2.08, respectively.

*Leverage.* The descriptive statistics in Table III indicated that the average level of the company leverage was 1.1266 with the deviation standard of 0.71561 and the minimum leverage level of 0.21 as well as the maximum leverage level of 2.99. The leverage level on the companies receiving the going concern audit opinion was, on average, 1.2647 with the deviation standard of 0.80855 and the minimum and maximum leverage levels of 0.21 and 2.99, respectively, whereas the leverage level of the companies receiving the non-going concern audit opinion was 0.8044 with the deviation standard of 0.20221 and the minimum and maximum leverage levels of 0.4 and 1.13, respectively.

The model analysis and the hypothesis test

*The logistic regression analysis.* The hypothesis test in the present study applied the logistic regression analysis technique because the dependent variable in the study was binary or 

<table>
<thead>
<tr>
<th>Table IV.</th>
<th>The frequency distribution of the going concern opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-going concern</td>
<td></td>
</tr>
<tr>
<td>Non-opinion shopping</td>
<td>Count</td>
</tr>
<tr>
<td>Opinion shopping</td>
<td>Count</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
</tr>
</tbody>
</table>
dichotomy and the independent variable was the combination of non-metric and metric. The

data analysis was done by using the SPSS software, version 18.0. Before conducting the

hypothesis test, the study conducted a logistic regression model test.

To assess the feasibility of the regression model, a goodness of fit test was conducted. From the goodness of fit test, it was discovered that the $\chi^2$ was 7.424 with the significance level of 0.492. The significance level, which was more than 0.05, indicated that there was no difference between the prediction of the logistic regression model and the value of observation result. This test concluded that the model was feasible and acceptable.

Besides that, an overall model fit test was also conducted to assess whether the model hypothesized fitted the data. The overall model fit test was conducted by comparing the value of $-2$ initial Log Likelihood (Block number = 0) with the value of $-2$ last Log Likelihood (Block number = 1). Block Number 0 indicated that the value of $-\log$ Likelihood was 97.738, whereas in Block Number 1, the value of $-2$ Log Likelihood showed the value of 80.022. The value reduction of 17.716 with the significance level of 0.003 showed that the model hypothesized fitted the data. Based on this test, the regression equations of audit client tenure, audit lag, opinion shopping, liquidity ratio and leverage could be applied.

The determinant coefficient. The determinant coefficient showed the value of Nagelkerke $R^2$ of 0.282. It means the independent variables (audit client tenure, audit lag, opinion shopping, liquidity ratio and leverage) could affect the dependent variable (the going concern audit opinion) for 28.2 percent, whereas the remaining percentage for 71.8 percent affected other factors outside the variables being studied.

The classification test. The classification test was applied to clarify the illustration of the logistic regression model accuracy with the observation results (Table V).

The table indicated that from 24 samples receiving the non-going concern audit opinion, only 6 samples or 25 percent could be predicted precisely by the logistic regression model, and 18 samples could not be predicted precisely by the model, whereas, from 56 samples receiving the going concern audit opinion, 48 samples or 85.7 percent could be predicted precisely by the logistic regression model, and 8 samples could not be predicted precisely by the model. Based on the results, 54 out of 80 samples, or 67.5 percent, were able to be precisely predicted by the logistic regression model.

Hypothesis test. Hypothesis test was conducted partially or individually on each variable by applying Wald test. The hypothesis test was assessed by using the logistic regression on the significance level of ($\alpha$) 5 percent. The hypothesis was accepted if the significance value is less than 5 percent. If the significance value is more than 5 percent, the hypothesis is refused.

Table VI indicated that the audit client tenure had a significance level of 0.676 (greater than $\alpha$), the audit lag had a significance level of 0.752 (greater than $\alpha$), the opinion shopping had a significance level of 0.023 (smaller than $\alpha$), the liquidity had a significance level of 0.877 (greater than $\alpha$), and the leverage had a significance level of 0.021 (less than $\alpha$). Based on the hypothesis test above, a logistic regression model could be acquired as in the following:

$$\ln \frac{GC}{1-GC} = -0.674 + 0.097X_1 - 0.007X_2 + 2.667X_3 - 0.040X_4 + 1.565X_5.$$
Discussions

The influence of audit client tenure to the going concern audit opinion

According to the results of hypothesis test, the significance level of the logistic regression was 0.676. It indicated that audit client tenure did not affect the going concern audit opinion; thus, $H_1$ was refused. This result was suitable with the study conducted by Knechel and Vanstrelen (2007) in which they discovered that there was no relationship between audit client tenure and the going concern audit opinion. It indicated that the auditor’s independence was not affected by the length of audit engagement between the auditor and the client. Therefore, the auditor kept giving the going concern audit opinion to the companies which they doubted to be able to maintain their business sustainability without considering the length of audit engagement between the auditor and the client.

The influence of audit lag to the going concern audit opinion

Audit lag affects the going concern audit opinion because the auditor tends to spend more time to audit a problematic company; in this case, they take time to meet the management for a certain period of time when the company may possibly receive the going concern audit opinion (Ryu and Roh, 2007). However, according to the results of hypothesis test, the significance level with the logistic regression of 0.752 indicated that audit client tenure did not affect the going concern audit opinion. Consequently, $H_2$ was refused. This result showed that not all companies receiving the going concern audit opinion experienced a longer auditing process compared to the companies receiving a non-going concern audit opinion.

Pengaruh opinion shopping terhadap opini audit going concern

Based on Lennox (2000), opinion shopping affects the going concern audit opinion in which it means the companies will possibly receive the going concern audit opinion if an auditor change frequently happens after the companies receive the going concern audit opinion. That statement is supported by the results of the hypothesis test indicated by the significance level of the logistic regression for 0.023. It means that the opinion shopping affected the going concern audit opinion. Thus, $H_3$ was accepted. This result indicated that the auditor continued to act professionally and maintain his/her independence in doing the auditing process. The new auditor continued to provide a going concern audit opinion based on the real condition of the companies.

The influence of liquidity ratio to the going concern audit opinion

According to Januarti and Fitrianasari (2008), the liquidity ratio has an influence in determining the audit opinion with the language of going concern. Nevertheless, based on the hypothesis test, the significance level with the logistic regression of 0.877 indicated that the liquidity level did not affect the going concern audit opinion; therefore, $H_4$ was refused. The result of the study was in line with the statement of Masyihoh and Adhariani (2010),

<table>
<thead>
<tr>
<th>Step 1a</th>
<th>$B$</th>
<th>Wald</th>
<th>Sig.</th>
<th>Exp ($B$)</th>
<th>95% CI for Exp ($B$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit client tenure</td>
<td>0.097</td>
<td>0.175</td>
<td>0.676</td>
<td>1.102</td>
<td>0.699 1.737</td>
</tr>
<tr>
<td>Audit lag</td>
<td>−0.007</td>
<td>0.100</td>
<td>0.752</td>
<td>0.993</td>
<td>0.951 1.037</td>
</tr>
<tr>
<td>Opinion shopping</td>
<td>2.667</td>
<td>5.190</td>
<td>0.023</td>
<td>14.402</td>
<td>1.451 142.905</td>
</tr>
<tr>
<td>Likuiditas</td>
<td>−0.040</td>
<td>0.024</td>
<td>0.877</td>
<td>0.961</td>
<td>0.580 1.592</td>
</tr>
<tr>
<td>Leverage</td>
<td>1.565</td>
<td>5.309</td>
<td>0.021</td>
<td>4.781</td>
<td>1.263 18.091</td>
</tr>
<tr>
<td>Constant</td>
<td>−0.674</td>
<td>0.105</td>
<td>0.746</td>
<td>0.510</td>
<td></td>
</tr>
</tbody>
</table>

Table VI. The logistic regression test
in which they asserted that the liquidity did not affect the issuance of the going concern audit opinion by the auditor. Further, this result showed that not all companies receiving the going concern audit opinion had low liquidity level compared to the companies receiving the non-going concern audit opinion.

The influence of leverage to the going concern audit opinion
According to Ohlson (1980), leverage significantly affected the bankruptcy prediction. Based on the results of the hypothesis test, the significance level with the logistic regression of 0.021 indicated that the leverage affected the going concern audit opinion. Thus, \( H_5 \) was accepted. This result of the study was suitable with a study by Lennox (2000), who found out that companies tended to frequently receive the going concern audit opinion when their leverage level was high. Because the assets used by the companies to run their operational activities are mostly covered by debts, the companies tend to depend on debts in running their business activities. Consequently, the companies bear a huge debt in which it can cause the company to not be able to afford repaying the debts.

Conclusions and limitations of study
The present study indicated that the opinion shopping and the leverage affected the going concern audit opinion. It showed that the auditor tended to give a going concern audit opinion to the companies applying the opinion shopping and having a high leverage level, whereas audit client tenure, audit lag and liquidity ratio did not affect the going concern audit opinion. Consequently, the auditor tended not to provide a going concern audit opinion over the company’s audit client tenure, audit lag and liquidity ratio.

The present study has a limitation that can be considered in future studies. In this circumstance, the limitation was the variable of opinion shopping was only measured by considering the auditor change when the companies obtained a going concern audit opinion in the previous year. In this case, the present study did not predict the opinion which the companies would possibly receive when changing the auditor. The variables employed in the study were also limited in which the value of determinant coefficient of Nagelkerke \( R^2 \), which was 28.2 percent, indicated that there were other factors outside the variables being studied for 71.8 percent. Thus, future research is strongly advised to add more variables in identifying the relationship between the opinion shopping and the going concern.

References


Further reading


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The effects of auditor switching towards abnormal return in manufacturing company
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Department of Accounting,
Universitas Airlangga Fakultas Ekonomi dan Bisnis, Surabaya, Indonesia

Abstract
Purpose – The purpose of this paper is to examine the effects of simultaneous and partial auditor switching toward the abnormal return of manufacturing companies listed in Indonesia Stock Exchange between 2009 and 2012.
Design/methodology/approach – Auditor switching is divided into some types: lateral Big 4 to Big 4 (B4B4), lateral non Big 4 to non Big 4 (NB4NB4), cross-up (CU) and cross-down. The abnormal return is measured with a market-adjusted model. In this study, company size is used as the control variable and is measured using the natural logarithm of the total assets (LnTA) and return on equity. Multiple linear regression is used for analysis with significant value \(a = 5\) percent. The hypotheses were tested using \(t\)-test and \(f\)-test.
Findings – The result shows that simultaneous auditor switchings affect the abnormal return. In partial auditor switching, only CU switch has effects on the abnormal return.
Originality/value – This study provides additional literature on the effect of auditor switching, especially on an abnormal return.
Keywords Abnormal return, Auditor switching, Company size
Paper type Research paper

Introduction
Independence of public accounting is vital in auditing profession. One factor affecting the auditor’s independence is the length of the relationship the auditors have with their clients (Institut Akuntan Publik Indonesia, 2011). Professional Standards for Public Accountant (Standar Profesional Akuntan Publik) section 290.153 indicates that if a similar senior public accounting firm is hired by one similar client for relatively long period of time, this relationship will threaten the auditor’s independence. Therefore, the regulation related to auditor switching is made. The government has regulated the switch of auditor by releasing the Regulation of Minister of Finance of the Republic of Indonesia Number 17/PMK.01/2008 on the obligation to switch the public accounting firm after auditing for six consecutive years, and to switch a public accountant after auditing for three consecutive years (Kementerian Keuangan, 2008).

Sumadi (2010) and Junaidi et al. (2013) argue that auditor switching can be categorized into two: real auditor switching and artificial auditor switching. Real auditor switching is when a company switches its public accounting firm with another one from other affiliation, whereas artificial auditor switching is when a company uses a similarly affiliated public accounting firm, but still meets the requirements stated in the Regulation of Minister of Finance Number 17/PMK.01/2008 that a public accounting firm is counted as different firm

JEL Classification — L6, M42
when the number of the partner in the latter firm is less than 50 percent of that in the former firm (Sumadi, 2010). Auditor switching can also be classified into three: lateral auditor switching (switching accounting firm with another similar size firm); cross-up (CU) auditor switching (switching smaller accounting firm with a larger firm); and cross-down (CD) auditor switching (switching larger accounting firm with a smaller firm).

There are debating arguments related to auditor switching that encourage further research in areas including factors contributing to auditor switching and its impacts. Several previous studies analyzing the effects of auditor switching on the abnormal return showed different results. Research conducted by Soeprihadi and Adiwibowo (2010), Stunda (2012), Knechel et al. (2007) and Eichenseher et al. (1989) generally highlighted that CU auditor switching positively affected the abnormal return, while CD auditor switching negatively affected the abnormal return. Other research by Chang et al. (2010), Diaz (2009) and Dunn et al. (1999) resulted that auditor switching negatively affected the abnormal return. In addition, Nichols and Smith (1983) found that there was no significant influence between auditor change and stock. The inconsistent research findings in many research related to auditor switching have encouraged the writer to further research the influence of auditor switching on, particularly, the abnormal return.

This research aims at analyzing how investors react and respond the switch of the public accounting firm by the manufacturing companies listed in Indonesia Stock Exchange between 2009 and 2012. This research has similarity with that of Stunda (2012) in terms of dividing the auditor switching into lateral, CU, and CD auditor switchings. Auditor switching as a variable is divided into three types to help better identify the effects of each type by considering the switch as well as the firm size. This research uses the firm size and return on equity (ROE) as the control variables, so that the possible effects of auditor switching on the abnormal return will not be affected by other factors other than the ones used in the research.

The research shows that simultaneous auditor switchings affect the abnormal return as the dependent variable. Partial auditor switching, particularly the CU auditor switching, affects the abnormal return. The result of this research is expected to be taken as one of the considerations for the management of the company prior to switching the public accounting firm, and this can also be used to maintain the independency and objectivity of the auditor.

Literature review and hypothesis

Signaling theory

Leland and Pyle (cited in Scott, 2012, p. 475) state that company executives with more company related information tend to inform the potential users from which the company may increase its values by signaling through their annual reports. When investors receive good signal mentioned in the annual financial report, they will positively respond to it. In contrast, the investors will respond negatively when bad signal is perceived. The changes of the response can be observed through the changes of the stock price; in this particular case, the changes will be measured using the abnormal return.

Auditor switching

Stunda (2012) and Eichenseher et al. propose the classification of auditor switching into three: lateral, CU and CD auditor switchings. Lateral auditor switching is the switch from the auditor or the public accounting firm to a new similar size auditor or a public accounting Firm. Srimindarti (2006) argues that one main reason for a company to switch its public accounting firm is the high fee for CU auditor switching that is a switch to a new larger firm of public accounting. Smith (cited in Sumadi, 2010) proposes that a company involved in expanding activities expects to receive positive responses from investors by switching auditor with the larger and more settled public accounting firm. CD auditor switching is a
switch to a new smaller public accounting firm. Sinarwati (2010), in her research, shows that management change and financial difficulty may affect decision to switch auditors and accounting firms.

Sumadi (2010) proposes several reasons for company to undergo auditor switching. Among the reasons are the management receives unqualified audit opinion reports; the new company management tends to find a firm with equivalent reports and accounting policies; the management is being involved in expanding activities; or the management is facing financial problems. Several factors affecting auditor switching are shopping opinion, audit fee, characteristics of public accounting firm, unsatisfactory service from public accounting firm and the preference of the stock holders (Stefaniak, et al., 2009).

Abnormal return
Abnormal return or known as excess return is the difference between the realized and the expected return (Jogiyanto, 2012). A positive abnormal return occurs when the realized return is higher than the expected return, and vice versa. Abnormal return is considered as one of indicators of market response toward information. Jogiyanto (2012) proposes three models to identify expected return: mean-adjusted model, market model and market-adjusted model. The formula for calculating the abnormal return will be obtained after knowing the formula for the realized return.

Company size. The company size indicates categorization of company into a small or large company by measuring the sales, the capital, or the total assets owned. Djam'an et al. (2011) uses total assets to assess the size of the firm. It is shown that the total assets provide positive and significant influence on the abnormal return. This is in contrast with what Diaz (2009) finds, that is, the size of the company does not significantly influence the abnormal return.

Return on equity (ROE)
ROE is the ratio used to assess the ability of the company to earn profit based on certain capital stock (Hanafi and Halim, 2009). This ratio measures the level of capital return of the company. Kastutisari and Dewi (2012), in their research, conclude that ROE affects the abnormal return. A company with high ROE will encourage investors to invest in that company. The higher the investment invested, the higher the stock price observed in the abnormal return.

The effects of lateral, CU and CD switchings, company size and ROE on the abnormal return. The investors will react to financial and non-financial information published by the company. Lateral, CU and CD auditor switchings can be seen from the auditor report, and the information related to the company size as well as the ROE will be responded by the investors. Their responses can be seen in the changes of stock price that will be measured with the abnormal return:

H1. Lateral, CU, and CD auditor switchings, company size and ROE simultaneously affect the abnormal return.

The effect of Big 4 to Big 4 lateral auditor switching on abnormal return. The switch from a Big 4 to Big 4 accounting firm is taken since the company has accustomed to be the client of the Big 4 accounting firm as well as to maintain the good image of the company. Big 4 to Big 4 lateral auditor switching may affect positively the abnormal return, particularly when the switch is caused by the expanding activities of the company supported with good work performance as expected by the investors. Contrarily, when the company shows less satisfying work performance, then the switch will affect negatively the abnormal return:

H2. Big 4 to Big 4 lateral auditor switching affects the abnormal return.
The effect of non Big 4 to non Big 4 lateral auditor switching on the abnormal return. A company that switches its accounting firm from non Big 4 to non Big 4 may experience negative impact, especially when the switch is resulted from a financial distress and conflict with the previous auditor. The switch as an effort to maintain auditing fee may have positive impacts, especially when the company is allocating its cash for other priorities to increase the value of the company:

**H3.** Non Big 4 to non Big 4 lateral auditor switching affects the abnormal return.

The effect of CU auditor switching on the abnormal return. There are reasons that affect a company to switch its accounting firm from a non Big 4 to a Big 4 Auditing firm. One of the reasons is that the firm expects a positive response from the investors. Investors exposed to information of auditor switch to the Big 4 accounting firm will recognize the change as a positive signal that leads to an assumption of good work performance of the company. However, CU auditor switching can affect negatively the abnormal return, particularly if the switch aims at covering the conflict between the management and the auditor. Furthermore, this practice may negatively influence negatively the investors, particularly when the company frequently switches its accounting firms:

**H4.** CU auditor switching affects the abnormal return.

The effect of CD auditor switching on the abnormal return. CD auditor switching may positively or negatively affect the abnormal return. During the post-SOX period, there were some non Big 4 accounting firms that offered better service to its clients, and this resulted in qualified auditing opinion normally offered by Big 4 firms. However, some investors may take the information as a bad signal, indicating a practice of opinion shopping in which what is being reported is not similar to that of the actual situation. Opinion shopping is an effort a company takes to get a better audit opinion:

**H5.** CD auditor switching affects the abnormal return.

**Conceptual framework**

In this research, the conceptual framework is the effect of auditor switching on the abnormal return. Auditor switching variable will be divided into three, namely, lateral, CU and CD auditor switchings. Lateral auditor switching is divided into two: Big 4 to Big 4 and non Big 4 to non Big 4. Abnormal return is the difference between realized return and expected return, and in measuring the expected return, a market-adjusted model is used. This research also uses the size of the company and ROE as the control variables to limit the influence of other factors on the auditor switching (Figure 1).

**Research method**

**Approaches and data**

This research used a quantitative approach to test the hypotheses. This approach was adopted since all the data are measurable, and the result can be generalized (Anshori and Iswati, 2009). The data used were unbalanced panel data as the number of companies observed was different yearly. Panel data are the combination of time series and cross-sectional data (Gujarati and Porter, 2013). To obtain those data, secondary data were used. Following are the data and its sources used in this research:

1. Data of auditor switching were obtained from the auditor report documented in each company’s annual financial report published on the website of Indonesia Stock
Exchange (www.idx.co.id) between 2009 and 2012. The data were also taken from the factbook published by Indonesia Stock Exchange.

(2) Data of stock prices were obtained from finance.yahoo.com

Population and samples
The population of this research was manufacturing companies listed in Indonesia Stock Exchange between 2009 and 2012. This type of company was selected as the population since they have more sectors compared to other types of company. In addition, manufacturing companies were more involved and dominating in cases related to auditing switch. The period between 2009 and 2012 was preferred to respond to the Regulation of the Minister of Finance Number 17/PMK.01/2008, released by the Ministry of Finance that enquires the companies to switch their public accounting firms after six consecutive auditing years. The research duration was expanded to 2012 to cover the occurrence of all types of auditor switching mentioned above.

The samples were selected using the purposive sampling method in which the selected samples had to match with the set criteria as following:

(1) the manufacturing companies were listed in Indonesia Stock Exchange between 2009 and 2012;
(2) the manufacturing companies were not delisted during the period of 2009 and 2012;
(3) those companies undertook auditor switching during the period of 2009 and 2012; and
(4) those companies were supported with complete data available in IDX databases during the period of 2009 and 2012.

The definition of operational variables
The dependent variable of this research is the abnormal return. Jogiyanto (2012) defines abnormal return as the difference between realized return and expected return (the return expected by the investors). Realized return is the real return that actually happens at specific
Expected return is the return expected from the future investment. The steps and formula in calculating the abnormal returns are presented next.

**Calculating realized return**

\[
R_{i,t} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}},
\]

(1)

Where \( R_{i,t} \) is the realized return of security \( i \) at time \( t \); \( P_{i,t} \) is the stock price of security \( i \) in December of auditor report; and \( P_{i,t-1} \) is the stock price of security \( i \) in December of financial report.

This research used the monthly stock price in December. \( t \) index is the year in which auditor report was published, while \( t-1 \) is the year of the financial report.

**Calculating the expected return**

\[
E[R_{i,t}] = RM_{i,t},
\]

(2)

\[
RM_{i,t} = \frac{IHSG_t - IHSG_{t-1}}{IHSG_{t-1}},
\]

(3)

where \( E[R_{i,t}] \) is the expected return of security \( i \) at time \( t \); \( RM_{i,t} \) is the market return of security \( i \) at time \( t \); \( IHSG_t \) is the composite stock price index in December of auditing report; and \( IHSG_{t-1} \) is the composite stock price index in December of financial report.

**Calculating abnormal return**

\[
AR_{i,t} = R_{i,t} - E[R_{i,t}],
\]

(4)

where \( AR_{i,t} \) is the abnormal return of security \( i \) at time \( t \); \( R_{i,t} \) is the realized return of security \( i \) at time \( t \); and \( E[R_{i,t}] \) is the expected return of security \( i \) at time \( t \). \( t \) index in the formula above refers to the year the auditing report was published by an independent auditor, while \( t-1 \) index refers to the year when the financial report was written by the company.

The independent variables of this research are the three types of auditor switching as follows:

1. **Lateral auditor switching:**
   - Big 4 to Big 4: the switch of this type was measured using dummy variables by scoring 1 for companies switching from Big 4 to Big 4 firms, and scoring 0 for companies switching to firms other than Big 4 to Big 4.
   - Non Big 4 to non Big 4: the lateral auditor switching from non Big 4 to non Big 4 firms was measured using a dummy variable by scoring 1 for companies switching from non Big 4 to non Big 4 firms, and scoring 0 for companies switching to firms other than non Big 4 to non Big 4.

2. **CU auditor switching:** CU auditor switching would also be measured using dummy variable by scoring 1 for companies switching from non Big 4 to Big 4 firms, and scoring 0 for companies undertook other than CU auditor switching.

3. **CD auditor switching:** CD auditor switching was also measured using dummy variable by scoring 1 for companies switching from Big 4 to non Big 4 firms, and scoring 0 for companies undertook other than CD auditor switching.

The control variables of this research were the company size and the ROE. The total assets were used to measure the company size at the end the year. To calculate the influence of the company size on the control variables, the natural logarithm of the total assets was used.
ROE is the ratio used to assess the ability of the company to earn profit from certain capital stock (Hanafi and Halim, 2009). The ROE value can be calculated using the formula as follows (Gibson, 2009):

$$\text{ROE} = \frac{\text{Net Income} - \text{Dividends on Preferred Stock}}{\text{Average Total Equity}}.$$  \hspace{1cm} (5)

Data analysis
The data were analyzed statistically using SPPS program v.18. Multiple linear regression technique was used with the ordinary least square method. The regression model can be seen in the following formula:

$$AR_{it} = \alpha + \beta_1 B4B4_{it} + \beta_2 NB4NB4_{it} + \beta_3 CU_{it} + \beta_4 CD_{it} + \beta_5 \ln TA_{it} + \beta_6 \text{ROE}_{it} + \epsilon_{it},$$ \hspace{1cm} (6)

where $AR_{it}$ is the abnormal return of the manufacturing company; $\alpha$ is the intercept; $B4B4_{it}$ is Big 4 to Big 4 lateral auditor switching; $NB4NB4_{it}$ is non Big 4 to non Big 4 lateral auditor switching; $CU_{it}$ is cross-up auditor switching; $CD_{it}$ is cross-down auditor switching; $\ln TA_{it}$ is the natural log of the total assets; $\text{ROE}_{it}$ is the return on equity; and $\epsilon_{it}$ is the error measurement for the company.

Hypothetical tests
(1) A simultaneous test ($f$) was conducted to identify the effect of several independent variables simultaneously on the dependent variables (Ghozali, 2006). The criteria adopted for simultaneous test are:

- if $f_{\text{count}} > f_{\text{table}}$, then $H1$ is accepted ($\alpha = 5$ percent); and
- if $f_{\text{count}} < f_{\text{table}}$, then $H1$ is rejected ($\alpha = 5$ percent).

(2) A partial test ($t$) indicates to what extent the effect of independent variables partially affect the dependent variable (Ghozali, 2006). The partial test was conducted by comparing the significance of $t$-value from the test result and the value used in this research. The criteria for partial test are presented as follows:

- if the significance $t$-value of each variable obtained from the test is $< 5$ percent, then the independent variables partially affect the dependent variable; and
- if the significance $t$-value of each variable obtained from the test is $> 5$ percent, the independent variables do not partially affect the dependent variable.

Result and discussion
Description of the research object
There were 109 manufacturing companies, selected using a purposing sampling technique, involved in this research (Table I).

Descriptive statistical analysis
Below are the descriptive statistical analyses of each variable of this research using SPSS program v.18.

Based on Table II, each variable can be described as follows:

(1) Auditor switching: the manufacturing companies involved mostly switched from non Big 4 to non Big 4 public accounting firms, and very few of them undertook CD auditor switching. The mean of B4B4 auditor switching is 0.3, which means that...
30 percent of the total manufacturing companies involved switched their accounting firms from Big 4 to Big 4 firms. The mean of NB4NB4 auditor switching is 0.61, which means that 61 percent of the total manufacturing companies involved switched their accounting firms from non Big 4 to non Big 4 firms. The mean of CU auditor switching is 0.05, which means 5 percent of the manufacturing companies involved switched their accounting firms from non Big 4 to Big 4 firms. The mean of CD auditor switching is 0.04, which means that 4 percent of the total manufacturing companies involved switched their accounting firms from Big 4 to non Big 4 firms.

(2) Company size: this research used the natural logarithm of the total assets (LnTA) because the total assets of the company are very high. The highest LnTA value is 32.36, owned by Astra International Tbk in 2010, and the smallest LnTA is 23.08, owned by Alam karya Unggul Tbk in 2012. The overall value of LnTA of the companies is 27.65.

(3) ROE: the research shows that the highest ROE is 129 percent, owned by Delta Dunia Petroindo Tbk (DOID) in 2011, while the lowest ROE equals −134.93 percent by ICTSI Jasa Prima Tbk (KARW) in 2012. The overall value of ROE of the companies involved is 6.15 percent.

(4) Abnormal return: the biggest rate of abnormal return is 18.5439 by Indospring Tbk in 2011, and the lowest rate is −1.16, owned by Kertas Basuki Rachmat Indonesia Tbk in 2009. The overall rate of the abnormal return of the companies involved is 0.24.

Result and analysis
This research adopted four classical assumption tests: normality test, multicollinearity test, heteroscedasticity test and autocorrelation test. It is concluded that normality assumption was fulfilled, there was no multicollinear and heteroscedasticic data, and there was no autocorrelation between residual values.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
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<tr>
<td>1</td>
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<td>139</td>
<td>136</td>
<td>139</td>
<td>140</td>
</tr>
<tr>
<td>2</td>
<td>Delisted manufacturing company</td>
<td>(5)</td>
<td>(1)</td>
<td>(2)</td>
<td>(1)</td>
</tr>
<tr>
<td>3</td>
<td>Manufacturing company with no auditor switching</td>
<td>(100)</td>
<td>(76)</td>
<td>(127)</td>
<td>(114)</td>
</tr>
<tr>
<td>4</td>
<td>Companies with incomplete data</td>
<td>(8)</td>
<td>(8)</td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td>Research samples</td>
<td>26</td>
<td>51</td>
<td>9</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Overall samples</td>
<td>109</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table I.
Sample criteria of research

<table>
<thead>
<tr>
<th>Criteria</th>
<th>n</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>B4B4</td>
<td>109</td>
<td>0</td>
<td>1</td>
<td>0.30</td>
<td>0.462</td>
</tr>
<tr>
<td>NB4NB4</td>
<td>109</td>
<td>0</td>
<td>1</td>
<td>0.61</td>
<td>0.489</td>
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<tr>
<td>CU</td>
<td>109</td>
<td>0</td>
<td>1</td>
<td>0.05</td>
<td>0.210</td>
</tr>
<tr>
<td>CD</td>
<td>109</td>
<td>0</td>
<td>1</td>
<td>0.04</td>
<td>0.189</td>
</tr>
<tr>
<td>LnTA</td>
<td>109</td>
<td>23.08</td>
<td>32.36</td>
<td>27.57</td>
<td>1.52456</td>
</tr>
<tr>
<td>ROE</td>
<td>109</td>
<td>−134.93</td>
<td>129</td>
<td>6.15</td>
<td>29.674875</td>
</tr>
<tr>
<td>Abnormal return</td>
<td>109</td>
<td>−1.16</td>
<td>18.45</td>
<td>0.24</td>
<td>1.9657288</td>
</tr>
</tbody>
</table>

Table II. Descriptive statistical analysis
Based on the multiple linear regression test presented on Table III, the equation of the regression can be formulated as following:

$$ AR = 0.168 + 0.004 B_{4B4} - 0.533 CU + 0.340 CD + 0.003 ROE - 0.007 \ln TA. \tag{7} $$

The t count on the table for Big 4 to Big 4 (B4B4) lateral auditor switching variable is 0.036, with a significance value of 0.971. This value is higher than the significance value of $\alpha = 0.05$, and therefore $H_0$ is accepted and $H2$ is rejected. In other words, the Big 4 to Big 4 (B4B4) lateral auditor switching does not affect the abnormal return. The t count for CU auditor switching variable is $-2.391$, with a significance value of 0.019. This value is lower than the significance value of $\alpha = 5$ percent, and thus $H_0$ is rejected and $H4$ is accepted. In other words, CU auditor switching affects the abnormal return. The t count for CD auditor switching variable is $1.365$, with a significance value of 0.175. This value is higher than the significance value of $\alpha = 0.05$ percent, and thus $H_0$ is accepted and $H5$ is rejected. In other words, CD auditor switching does not affect the abnormal return. The t count for the company size proxied with total assets, as the control variable, is $-0.208$ with significance value of 0.836. This value is higher than the significance value of $\alpha = 5$ percent, and thus it can be concluded that the company size does not affect the abnormal return. The t count for the ROE, as the control variable, is $1.684$, with a significance value of 0.095. This value is higher than the significance value of $\alpha = 5$ percent, and thus it can be concluded that the company size does not affect the abnormal return.

Table IV indicates that the t count value is 2.249, with a significance value of 0.04. This value is lower than the significance value of $\alpha = 5$ percent, and thus it can be concluded that all

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
<th>Collinearity statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>$SE$</td>
<td>$\beta$</td>
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<tr>
<td>Variable independent</td>
<td>(Constant)</td>
<td>0.168</td>
<td>0.983</td>
</tr>
<tr>
<td></td>
<td>$B_{4B4}$</td>
<td>0.004</td>
<td>0.117</td>
</tr>
<tr>
<td></td>
<td>$CU$</td>
<td>$-0.533$</td>
<td>0.223</td>
</tr>
<tr>
<td></td>
<td>$CD$</td>
<td>0.340</td>
<td>0.249</td>
</tr>
<tr>
<td>Variable control</td>
<td>$\ln TA$</td>
<td>$-0.007$</td>
<td>0.036</td>
</tr>
<tr>
<td></td>
<td>$ROE$</td>
<td>0.003</td>
<td>0.002</td>
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**Table III.**

**Multiple linear regression analysis**

<table>
<thead>
<tr>
<th>Variables</th>
<th>$T$</th>
<th>$\text{Sig.}$</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$B_{4B4}$</td>
<td>0.036</td>
<td>0.971</td>
<td>$H2$ rejected</td>
</tr>
<tr>
<td>$CU$</td>
<td>$-2.391$</td>
<td>0.019</td>
<td>$H4$ accepted</td>
</tr>
<tr>
<td>$CD$</td>
<td>1.365</td>
<td>0.175</td>
<td>$H4$ rejected</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\ln TA$</td>
<td>$-0.208$</td>
<td>0.836</td>
<td>No effect</td>
</tr>
<tr>
<td>$ROE$</td>
<td>1.684</td>
<td>0.095</td>
<td>No effect</td>
</tr>
<tr>
<td>$R$</td>
<td>0.331</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.109</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.064</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F$</td>
<td>2.249</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\text{Sig.} F$</td>
<td>0.040</td>
<td></td>
<td>$H1$ accepted</td>
</tr>
</tbody>
</table>

**Table IV.**

**Proof of hypotheses**
independent variable of Big 4 to Big 4 (B4B4) lateral auditor switching, CU auditor switching and CD auditor switching, as well as the control variables, company size (LnTA) and the ROE, simultaneously affect the abnormal return as the dependent variable.

In table, it is seen that adjusted \( R^2 \) value is 0.064. This denotes that the effect of such variables as Big 4 to Big 4 (B4B4) lateral auditor switching, CU auditor switching, CD auditor switching, company size (LnTA) and ROE on the abnormal return is 0.064 or 64 percent, while the rest 0.936, or 93.6 percent, is affected by other variables such as earning per share (EPS), ROA, government announcement, political issues, national and international issues, funding announcement and others that are not part of this research.

The simultaneous effect of Big 4 to Big 4 lateral, CU, CD auditor switchings, company size and ROE on the abnormal return. The research shows that Big 4 to Big 4 lateral, CU, CD auditor switchings, company size and ROE simultaneously affect the abnormal return. This result is in line with the signal theory and it proves that Big 4 to Big 4 lateral, CU, CD auditor switchings, company size and ROE are all responded by the investors. The response from the investors explains that the information is considered by the auditors prior to the decision for investment. The findings of this research support the research finding of Dunn et al. (1999).

The effect of Big 4 to Big 4 lateral auditor switching on the abnormal return. The findings show that Big 4 to Big 4 lateral auditor switching does not affect the abnormal return. This can be explained with the fact that most switches undertaken are the partial switches (Junaidi et al., 2013). A partial rotation or switch refers to a condition as suggested by the government regulation that the company has switched its accounting firm and, therefore, the company and accounting firm relation does not exit. In fact, the company as the client and the accounting firm are essentially still in contact. This artificial auditor switch does not much affect the auditors as they belong to the same public accounting firm. This finding is similar to that of Stunda (2012).

The effect of CU auditor switching on the abnormal return. The research demonstrates that CU auditor switching negatively affects the abnormal return. These negative impacts can be resulted from various reasons like the audit tenure and EPS. If the audit tenure is very short, then this may lead to suspicion among the investors. In contrast, when the tenure is longer than six consecutive years, then the investors might reconsider and question the independence of the auditor. In addition, the companies, involved in this research, that CU switched its accounting firms tended to decrease their EPS. This finding is similar to that of Diaz (2009), Chang et al. (2010) and Dunn et al., (1999).

The effect of CD auditor switching on the abnormal return. The research shows CD auditor switching does not affect the abnormal return. This finding is in line with that of Nichols and Smith (1983). This strengthens the idea that CD auditor switching contributes very limited information in improving the abnormal return for company. This probably because the investors consider that non Big 4 accounting firms are as good as the Big 4 firms previously hired by the company. As a result, the switch does not affect the investors, which is reflected in the abnormal return.

The effect of company size on the abnormal return. The research demonstrates that the company size proxied with the total assets (LnTA) does not affect the abnormal return. This finding is similar to that of Diaz (2009). The investors might think that the amount of the total assets owned by a company not necessarily ensures the investors of a high return for their investment. These investors prefer other financial information, such as an increase or decrease rate return like EPS.

The effects of ROE on the abnormal return. The research shows that ROE does not affect the abnormal return. This finding is in contrast with that of Kastutisari and Dewi (2012). In their research, ROE affected the abnormal return. Many investors might consider ROE as
the ability of the company to earn profit from the investment, and do not illustrate and predict the future prospect and development of the company. Thus, many investors neglect ROE during their investment decision making.

**Conclusion and the limitation of the research**

Several inferences can be obtained from this research: Big 4 to Big 4 (B4B4) lateral auditor switching, CU auditor switching and CD auditor switching, and other control variables such as company size (LnTA) and return in equity (ROE) simultaneously affect the abnormal return as the dependent variable; and, partially, CU auditor switching affects the abnormal return, while Big 4 to Big 4 (B4B4) lateral, CD auditor switchings, company size (LnTA) and ROE do not affect the abnormal return.

There are some limitations during the research: the indicator used to measure auditor switching is limited solely to the switch of the accounting firm and not to the public accountant, due to limited access to the related data; referring to the previous research, the auditor switching was measured through the auditor report found in the company’s financial report as well as through the switch announcement published by the company in Indonesia Stock Exchange, while this research used only auditor report, considering that not all companies that switched their accounting firms announced their switches on Indonesia Stock Exchange.

**References**


Auditor switching towards abnormal return


Further reading


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Asian Journal of Accounting Research

Volume 4 Number 1 2019

Number 1

1. International editorial board
   Usman Shenu Aliyu

2. Board characteristic and corporate environmental reporting in Nigeria
   Suyudak, Nurin, Sri Rigei Haraldyani, and Sri Mangesti Rahayu

18. Stock return and financial performance as moderation variable in influence of
good corporate governance towards corporate value
   Suyudak, Nurin, Sri Rigei Haraldyani, and Sri Mangesti Rahayu

35. Debt maturity structure, institutional ownership and accounting conservatism:
evidence from Iranian listed companies
   Mahdi Salehi and Mohsen Sehat

52. Do diligent independent directors restrain earnings management practices? Indian
   lessons for the global world
   Nimisha Kapoor and Sandeep Goel

70. The role of country tax environment on the relationship between financial
derivatives and tax avoidance
   Oktavia Oktavia, Sylvia Veronica Siregar, Ratna Wardhani, and Ning Rahayu

95. The value relevance of R&D and free cash flow in an efficient investment setup:
evidence from Chinese A-listed firms
   Waqas Bin Khidmat, Man Wang, and Sadia Awan

112. Financial statements disclosure on Indonesian local government websites: a quest
   of its determinant(s)
   Wahyu Dino, Muhammad Hudaya, and Rifqi Novriyandana

129. The effect of company characteristics and auditor characteristics to audit report lag
   Muhammad Rifqi Abdillah, Agus Widodo Mardjulwono, and Habiburrochman Habiburrochman

145. The effects of audit client tenure, audit lag, opinion shopping, liquidity ratio, and
   leverage to the going concern audit opinion
   Ranzkat Akbar Simamora and Hendarjatno Hendarjatno

157. The effects of auditor switching towards abnormal return in manufacturing company
   Filmia Yunida Nawangsih and Iswajun Iswajun