

The Effects of Corporate Governance Practices on the Choice between Efficient and Opportunistic Earnings Management

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Received: June 3, 2016

Accepted: July 14, 2016

Online Published: August 10, 2016

doi:10.5539/ijbm.v11n9p1

URL: <http://dx.doi.org/10.5539/ijbm.v11n9p1>

Abstract

This study aims to explore the preferences of the publicly listed companies on the S&P 500 index regarding their earnings management (efficient or opportunistic) as well as the impact of the corporate governance practices (audit committee, board independence and audit quality) on their decision. Using two separate regression models, it was found that American firms listed on the S&P 500 index tend to conduct efficient earnings management, which is in line with the findings of prior research. Moreover, it emerged that the earnings management selection does not depend on the amount (high vs small) of audit fees paid by the companies. Additionally, the governance practice of employing more outside directors in the audit committees leads to more efficient earnings management. Finally, according to the study results, the impact of discretionary accruals on future profitability is not significantly related to the proportion of independent members on the board of directors.

Keywords: types of earnings management, future profitability, corporate governance

1. Introduction

According to Siregar and Utama (2008), earnings management is classified to efficient and opportunistic, where the former emphasizes on increased earnings information by disclosing private information and the latter on maximizing the interests of the management. Prior research, such as Balsam et al. (2002), Burgstahler and Dichev (1997) and Jiraporn et al. (2008) provide evidence that this is consistent with the opportunistic perspective. Additionally, Jiraporn et al. (2008, pp. 622-623) report that a series of scandals (e.g. Enron, Worldcom) has reinforced the public perception that firm managers definitely prefer the opportunistic than the efficient earnings management in order to satisfy their own interests at the expense of the stockholders'. In order to face this situation, regulators issued various measures such as the Sarbanes–Oxley Act, which imposes some of the board members to hold high financial expertise.

Furthermore, Jiraporn et al. (2008) mentioned that given the conflict between managers' and shareholders' motives the flexibility provided by the Generally Accepted Accounting Principles (GAAP) may lead to opportunistic earnings management. This would create a distortion in the reported earnings. Opportunistic earnings management is harmful to stockholders and the public because management chooses to maximize its utility over informing stakeholders.

On the contrary, Krishnan (2003) and Subramanyam (1996) concluded that there is a trend for efficient earnings management because of the observed positive relationship between discretionary accruals (a criterion of earnings management) with future profitability. This has been attributed to the potential enhancement of the informational value of earnings (Jiraporn et al., 2008). This implies that earnings management can be done in an efficient and beneficial manner, without causing damage to stockholders and the public. Consequently, Jiraporn et al (2008) stated that "earnings management can be viewed as either opportunistic or beneficial". Siregar and Utama (2008) used the word efficient instead of beneficial, but the connotation is identical.

Krishnan (2003) found that external auditing, a corporate governance proxy, may be employed to considerably

restrain opportunistic earnings management. The existence of an audit committee and the proportion of an independent board can also be used to the same end (Siregar & Utama, 2008). Therefore, it may be assumed that the type of earnings management depends on the corporate governance mechanisms a firm exercise.

Although the prior research on earnings management is rather important, there is little to no research regarding the type of earnings management. Siregar and Utama (2008) argued that the existing literature on earnings management only observes the effect of institutional investors and corporate governance practices on the scale of earnings management. Furthermore, there is a lack of research about the role of corporate governance factors in the choice of the earnings management types. Siregar and Utama (2008) studied the linkages between the selection of the earnings management type and the corporate governance practices employed, but their sample was relatively small consisting only of Indonesian companies. Jiraporn et al.'s (2008) study of earnings management focused on the impact on the severity of agency costs on the extent of earnings management.

Considering the above, this study aims to contribute to the existing literature by conducting a large-scale analysis in a first world country in terms of the effects of corporate governance practices on both opportunistic and efficient earnings management. Such a study has not been performed so far. The underlying principle of this study is to make a distinction between the opportunistic and efficient utilizations of earnings management. In addition, the impact of three different corporate governance proxies is examined on these types of earnings management. These proxies are the audit quality (i.e. Big Four auditors versus non-Big Four auditors), the proportion of an independent board and the existence of an audit committee.

In this light, next section deals with the literature review in relation to opportunistic and efficient earnings management, and about the aforementioned corporate governance proxies. Afterwards, the research hypotheses, the research methodology and the sample selection process are presented, and the research results succeed. The paper concludes with a discussion of our conclusions, limitations of our research and areas for future inquiry.

2. Literature Review and Hypotheses

2.1 Opportunistic Earnings Management

Prior research revealed the existence of opportunistic earnings management (Siregar & Utama, 2008) and that the management dodges to report losses or a drop in earnings (Burgstahler & Dichev, 1997). Furthermore, Balsam et al. (2002) stated that unexpected discretionary accruals are negatively related to stock returns around the earnings announcement date, which implies that the market considers discretionary accruals as an opportunistic type of earnings management (Siregar & Utama, 2008). Healy's (1985) inquiry also concluded that executives manage earnings downwardly when their bonuses are at maximum. In addition, DeAngelo and DeAngelo (1989) discovered that managers who face the possibility of losing their jobs often use their accounting judgment to give the perception of a better own performance to voting stockholders. Also, Dechow and Sloan (1991) revealed that CEOs who are at the end of their career reduce R&D spending in order to raise reported earnings.

Another way of earnings management is when firms need to meet expectations set by capital markets. Teoh et al. (1998) reported that income-increasing abnormal accruals are common shortly before initial public offerings. Moreover, Jiraporn et al. (2008) mentioned the existence of a high level of asymmetry of information between the issuers and investors at the time of the offering. Additionally, prior research revealed that in the time period before a merger, the acquiring firms usually try to increase their stock prices by managing their earnings upwards (Erickson & Wong, 1999).

Summarizing, it is evident that managers use opportunistic earnings management throughout the years. Opportunistic earnings management is notable in several areas including capital markets and stock-for-stock mergers.

2.2 Efficient Earnings Management

Scott (1997) stated that efficient earnings management occurs when management desires to improve earnings informativeness by communicating private information. Subramanyam (1996) concluded that discretionary accruals are efficient since they are positively related to future profitability which implies that discretionary accruals can convey to the public useful information about a firm's future profitability. The aforementioned positive relationship was also confirmed by Gul et al. (2000) and Krishnan (2003). Additionally, Louis and Robinson (2005) also supported the hypothesis that earnings management adds information value. Considering the prior research on earnings management it emerges that the empirical evidence is rather ambiguous since both the opportunistic and the efficient earnings management are utilized by firms.

2.3 Corporate Governance

Corporate governance is defined as “The framework of rules and practices by which a board of directors ensures accountability, fairness, and transparency in a company’s relationship with its all stakeholders (financiers, customers, management, employees, government, and the community)” (Business Dictionary, 2015).

Sarkar et al. (2008) mentioned that corporate governance can be classified into two categories: internal and external mechanisms. The internal mechanisms are those related to board structure, executive compensation, and ownership structure and monitoring by large shareholders. External mechanisms relate to the market for corporate control, for example, the takeover market and protection offered to shareholders via the legal system in which the firm operates. Furthermore, in corporations with the separation of ownership and control, earnings management is usually conducted for several reasons, such as capital markets, contracting and regulatory motivations (Sarkar et al., 2008).

2.3.1 Audit Quality

The relation between earnings management and audit quality has been examined by several studies. Prior research indicated that lower audit quality is associated with more "accounting flexibility", as the discretionary accruals in firms audited by the non-Big Six auditors were higher than those in firms audited by the Big Six auditors (Francis et al., 1999; Becker et al., 1998). Moreover, a higher positive relationship with future profitability was found in firms being audited by the Big Six auditors than in those by the non-Big Six auditors (Krishnan, 2003). According to the same study, auditing can play an important role in retaining opportunistic earnings management.

On the contrary, Sandra and Kusuma (2004) mentioned that their research results do not support the hypothesis that the relationship between earnings management and stock returns in Indonesia is influenced by the audit quality, which probably implies that the auditor size is not an adequate indicator of audit quality in that country.

2.3.2 Audit Committee

Siregar and Utama (2008) suggested that at least three members should constitute an audit committee; the one acting as the chairman of the committee should be an independent board member, and the rest must be independent external parties. Dechow et al. (1996) revealed that earnings manipulation is lower in companies with a higher ratio of independent directors, smaller boards, and with an audit committee. Additionally, Peasnell et al. (2001) mentioned that the appointment of an audit committee by the board results in a reduction of earnings manipulation by the independent directors, as well as their effectiveness in doing so. Moreover, it was found that income-increasing earnings management is negatively related to the existence of a completely independent audit committee that gather more than once per semester (Chtourou et al., 2001). Furthermore, Klein (2002) stated that U.S. firms with an independent and active audit committee experience lower discretionary accruals. Moreover, prior research divulged that higher levels of independence of the audit committee lead to lower levels of earnings management (Klein, 2002), while Xie et al. (2003) mentioned that the level of earnings management in a firm is reduced more by the active than the independent audit committees.

2.3.3 Board Independence

Companies where the chairman of the board of directors is their CEO were found to be more likely to be punished by the SEC for violating GAAP (Dechow et al., 1996). This is in line with other studies (Chtourou et al., 2001; Peasnell et al., 2000) which concluded that high levels of board independence (high ratio of outside directors) leads to constraining earnings management activity. Finally, Sarkar et al. (2008) stated that according to the existing literature, there is a negative association between earnings management and the level of independence of both the board of directors and the audit committees. Thus, the consensus with respect to board independence’s effectiveness in earnings management is a stark contrast to the absence of any agreement regarding the role of an independent board in corporate governance and firm performance (Sarkar et al., 2008).

3. Hypotheses Development

According to Subramanyam (1996) earnings management can be tested whether it is opportunistic or efficient by measuring the efficacy of discretionary accruals to indicate future profitability. When discretionary accruals (an indicator of earnings management) are positively associated with future profitability this implies efficient earnings management. Otherwise, when they are negatively or insignificantly related to future profitability this is an indication of opportunistic earnings management (Siregar & Utama, 2008). Therefore, the first research hypothesis is:

H1: There is a relationship between discretionary accruals and future profitability.

As shown by the literature review about the existence of corporate governance in firms, there is a consensus that corporate governance practices suppress opportunistic earnings management (Siregar & Utama, 2008). DeAngelo (1981) and Becker et al. (1998) stressed that audit quality plays an important role to restrain managers from exercising opportunistic earnings management. Based on these studies, it is anticipated that a higher audit quality will lead to less opportunistic earnings management and in addition, discretionary accruals will have a greater impact on future profitability. Thus, the second hypothesis is:

H2: The effect of discretionary accruals on future profitability is higher in firms audited by Big Four auditors with higher audit fees compared to firms audited by Big Four auditors with lower audit fees.

Klein (2002) concluded that the less independent the audit committee is, the more the discretionary accruals in the firm will be. This indicates that the opportunistic earnings management is restricted when an audit committee exists. Less opportunistic earnings management means a higher impact of discretionary accruals on future profitability. Consequently, the third hypothesis is:

H3: The impact of discretionary accruals on future profitability is higher for firms with a lower ratio of inside directors on the audit committee compared to those with a higher percentage.

Finally, Peasnell et al. (2000) observed that there is a negative relationship between the income-increasing accruals and a higher percentage of outside directors in the UK. This is in line with the research of Chtourou et al. (2001) who concluded that opportunistic earnings management is restricted by the existence of an independent board. As mentioned before, it is expected that a decrease in opportunistic earnings management will lead to a higher impact of discretionary accruals on future profitability (Siregar & Utama, 2008). According to the above, the final hypothesis will be:

H4: The ratio of independent members of the board of directors is positively related to the impact of discretionary accruals on future profitability.

4. Research Methodology

4.1 Research Model

A modified version of the model Subramanyam (1996) used in his study for future profitability will be employed in order to test hypothesis 1. Specifically, the model employed in this study is:

$$X_{it+1} = \beta_0 + \beta_1 CFO_{it} + \beta_2 NDAC_{it} + \beta_3 DAC_{it} + \beta_4 INDEP_{it} + \beta_5 AUDCOM_{it} + \beta_6 AUDQUA_{it} + \beta_7 DCRISIS_{it} + \varepsilon \quad (1)$$

Where, the dependent variable X_{it+1} is:

- CFO_{t+1} = cash flows from operation one-year-ahead,
- $NDNI_{t+1}$ = non-discretionary net income one-year-ahead, and
- $\Delta EARN_{t+1}$ = change in earnings one-year-ahead.

While the Independent variables are:

- CFO = cash flows from operation;
- NDAC = non-discretionary accruals;
- DAC = discretionary accruals;
- INDEP = percentage of independent board;
- AUDCOM = proportion of outsiders in audit committee;
- AUDQUA = dummy variable, one if audit fees are in the top 50% and zero if audit fees are in the bottom 50%, and;
- DCRISIS = a year dummy for the period from 2007 onwards.

According to Bushee (2000), the year dummy variable is employed to examine the variation of future profitability over time, since when a company makes a large capital investment the institutional investors are obliged to inspect management actions in order to ensure they strive for long-term profitability.

The model used to test hypotheses 2, 3 and 4 emanated from a further modification of the model proposed by Subramanyam (1996). These hypotheses imply that the DAC coefficient (β_3) is influenced by AUDIT, BOD and AUDCOM. According to Siregar and Utama (2008), in order the DAC coefficient to vary, the model is:

$$X_{it+1} = \beta_0 + \beta_1 CFO_{it} + \beta_2 NDAC_{it} + \beta_3 DAC_{it} + \beta_4 DAC_{it} \times DFAM_{it} + \beta_5 DAC_{it} \times INST_{it} + \beta_6 DAC_{it} \times DSIZE_{it} + \beta_7 DAC_{it} \times AUDIT_{it} + \beta_8 DAC_{it} \times BOD_{it} + \beta_9 DAC_{it} \times AUDCOM_{it} + \beta_{10} DFAM_{it} + \beta_{11} INST_{it} + \beta_{12} DSIZE_{it} + \beta_{13} AUDIT_{it} + \beta_{14} BOD_{it} + \beta_{15} AUDCOM_{it} + \beta_{16} D99_{it} + \beta_{17} D00_{it} + \beta_{18} D01_{it} + \varepsilon \quad (2)$$

Redundant variables in this research are DFAM, INST, DSIZE, its interacting variables with DAC and the dummy variables for 1999 through 2001. We expect $\beta_7 > 0$ for hypothesis 2, $\beta_9 > 0$ for hypothesis 3 and $\beta_8 > 0$ for hypothesis 4. The impact of the discretionary accruals DAC on future profitability is moderated by the AUDQUA, INDEP and AUDCOM variables. Those variables interact with DAC since the coefficient results indicate the percentage increase of every variable on the association between discretionary accruals and future profitability (Siregar & Utama, 2008). This means that if AUDIT is 0, the impact of discretionary accruals on future profitability is β_3 , while, in case AUDIT is 1 the impact is $\beta_3 + \beta_7$. β_7 is the deviation between the interacting variables' coefficient of AUDIT. According to Siregar and Utama (2008), each of the three variables AUDIT, BOD and AUDCOM are considered as independent variables to examine the likelihood that each variable directly influences the future profitability.

Thus, the model selected to test *H2*, *H3* and *H4* is:

$$X_{it+1} = \beta_0 + \beta_1 CFO_{it} + \beta_2 NDAC_{it} + \beta_3 DAC_{it} + \beta_4 DAC_{it} \times INDEP_{it} + \beta_5 DAC_{it} \times AUDCOM_{it} + \beta_6 DAC_{it} \times AUDQUA_{it} + \beta_7 INDEP_{it} + \beta_8 AUDCOM_{it} + \beta_9 AUDQUA_{it} + \beta_{10} DCRASAS_{it} + \varepsilon \quad (3)$$

Where the variables' definition is the same as the model (1) selected for testing *H1*.

4.2 Variables' Definition

4.2.1 Future Profitability

As mentioned above, future profitability is measured by the variables:

1. CFO_{t+1} = cash flows from operation one year ahead.
2. $NDNI_{t+1}$ = non-discretionary net income (measured by the variables EARN-DAC) one year ahead.
3. $\Delta EARN_{t+1}$ = change in earnings ($EARN_{t+1} - EARN_t$) one year ahead.

These measures are based on a modification made by Siregar and Utama (2008) on prior inquiries (Subramanyam, 1996; Krishnan, 2003). Subramanyam (1996) and Krishnan (2003) used EARN as a measure of future profitability, but Siregar and Utama (2008) argued that $\Delta EARN_{t+1}$ is more suitable for the model since EARN has inherent weaknesses. A potential weakness of the EARN variable is that Earnings include discretionary accruals in them, so a significant positive correlation between discretionary accruals in year t and earnings in year t+1 may be attributed to other discretionary accruals created by the management in year t+1 instead of implying efficient earnings management (Siregar & Utama, 2008). Therefore, the change in earnings measured by $\Delta EARN_{t+1}$ is used as a measure of future profitability, as a surrogate for common earnings measures. Given the observed stationary nature of earnings and discretionary, the change in earnings could scrutinize the stationary nature of discretionary accruals (Siregar & Utama, 2008). CFO_{t+1} and $NDNI_{t+1}$ (measured by the variables EARN-DAC one year ahead) do not possess the innate problems of earnings since they are missing the discretionary accrual component.

4.2.2 Earnings Management

According to Siregar and Utama (2008) Total Accruals (ACCR) is computed by the formula:

$$\text{Total Accruals} = \text{Earnings} - \text{Cash Flows from Operation}$$

Where: Earnings (EARN) is the net income before extraordinary items and Cash Flows from Operation (CFO) is net cash flows from operating activities reported in the Statement of Cash Flows.

In order to decompose total accruals into its components (discretionary (DAC) and non-discretionary (NDAC)) the following three models were considered (Siregar and Utama, 2008):

The first model used is the Jones (1991) model:

$$ACCR_{it} = \alpha_0 + \alpha_1 \Delta REV_{it} + \alpha_2 PPE_{it} + \varepsilon_{it}$$

Where:

ACCR = as above, ΔREV = change in revenue from year t-1 to year t ($REV_t - REV_{t-1}$), PPE = gross property, plant and equipment in year t. All variables were scaled by beginning total assets.

The second model used is the model employed by Dechow et al. (1995):

$$ACCR_{it} = \alpha_0 + \alpha_1 [\Delta REV_{it} - \Delta REC_{it}] + \alpha_2 PPE_{it} + \varepsilon_{it}$$

Where: ACCR = as above, ΔREV = as above, ΔREC = change in net accounts receivables from year t-1 to year t ($REC_t - REC_{t-1}$), PPE = as above. All variables were scaled by beginning total assets.

The third and final model used is the Modified-Jones model (1991), a modification of the first model:

$$ACCR_{it} = \alpha_0 + \alpha_1 (1/Assets_{it-1}) + \alpha_2 [\Delta REV_{it} - \Delta REC_{it}] + \alpha_3 PPE_{it} + \varepsilon_{it}$$

Where: ACCR = as above, $1/Assets$ = inverse assets, ΔREV = as above, ΔREC = as above, PPE = as above. All variables were scaled by lagged total assets.

One of the above models has been selected by our study to decompose total accruals based on the adjusted R^2 calculated for each of them (Siregar & Utama, 2008).

Both NDAC and DAC are derived from the above models. NDAC are the fitted values and DAC are the residuals according to Siregar and Utama (2008). Following Subramanyam (1996), a cross-sectional method was used to estimate each model alone for every combination of a firm group and calendar year (Siregar and Utama, 2008).

4.2.3 Corporate Governance Practices

4.2.3.1 Auditor's Size

The auditor's size is commonly utilized to evaluate audit quality via a dummy variable where one equals high audit quality (e.g. Big Four auditors) and zero equals low audit quality (e.g. non-Big Four auditors), as it can be assumed that Big N firms provide higher quality audits (Becker et al., 1998). However, since every listed firm on the S&P 500 is being audited by a Big N firm, this study uses the size of audit fees as a proxy for audit quality. Following Siregar and Utama's (2008) approach, the dummy variable for audit quality employed in this study gets a value of 1 for the top 50% of ranked audit fees and a value of 0 equals the bottom 50% of ranked audit fees.

4.2.3.2 Board Independence

Siregar and Utama (2008) stated that the ratio of independent board members can be derived from dividing the number of independent commissioners by the total number of commissioners on the board.

4.2.3.3 Audit Committee

A dummy variable is commonly used to measure the existence of an audit committee, which gets the value of 1 for firms with an audit committee and 0 for firms without an audit committee. However, since every listed firm in the S&P 500 index is obligated to have an audit committee, this study utilized the percentage of outside directors on the audit committee as a measure for the governance practice of an audit committee. It is expected that higher ratios of outside directors will lead to more efficient earnings management.

4.3 Sample Selection

The research sample consists of the S&P 500 firms for the years 2004 to 2013. The large size of both the sample and the firms allows testing for audit quality, audit committee and board independence. According to Kawaller et al. (1987), the S&P 500 stock index depicts the market value of all outstanding common shares of the 500 selected firms. These 500 companies are the leading companies and they capture about 80% of the coverage of the available market capitalization according to the official S&P 500 website (Spindicescom, 2015).

The data on S&P 500 firms were gathered from the Wharton Research Data Services (WRDS) database. The information about the governance practices was selected by Risk Metrics. Companies from the financial, real estate and telecommunication sectors were excluded in order to enable the comparison of our results with those of Siregar and Utama's (2008) study. Furthermore, firms were selected with a fiscal year-end of December 31.

In summary, the following criteria were used for the sample selection:

1. The firm is listed in the S&P 500 index from 2004 to 2013.
2. Financial, real estate and telecommunication firms are excluded.
3. Firms delisted during the timeframe are excluded.
4. Firms have a December 31 fiscal year-end.
5. Firm-level data is available for each year in the sample period.

The procedure for sample selection is shown in Table 1. After the application of the criteria, there are 156 unique firms left in our sample. Every firm has 10 years of data so the total firm-year observations are 1560 (N=1560).

Table 1. Procedure of sample selection

Total number of companies listed on the S&P 500 as of December 31, 2004	500
Firms in financial, real estate and telecommunication industries	(92)
Delisting during period 2004-2013	(123)
Firms with non-December 31 fiscal year-end	(80)
Incomplete data	(49)
Total sample firms	156

Finally, total accruals were measured according to each of the three models mentioned in Section 4.2.2. The adjusted R^2 was used as a criterion to select the best model to decompose total accruals into its components (discretionary and non-discretionary). According to Table 2 the modified-Jones model presents the highest mean adjusted R^2 , thus this was selected for the main analysis. However, the regular Jones model and Dechow et al. model were still utilized in the sensitivity analysis.

Table 2. Analysis of earnings management measurement models

Part A: adjusted R^2											
Measurement Model	adjusted R^2										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Mean
Jones	0.013	0.023	0.002	0.047	0.004	0.203	0.128	0.196	0.128	0.31	0.06
Dechow	0.01	0.023	0.005	0.055	0.002	0.198	0.131	0.195	0.13	0.309	0.058
Modified-Jones	0.031	0.065	0.009	0.453	-0.001	0.169	0.181	0.192	0.183	0.281	0.10
Part B: predicted sign											
Jones (1991)											
$\Delta REV (+)$											
PPE (-)											
Dechow et al. (1995)											
$\Delta REV - \Delta REC (+)$											
PPE (-)											
Modified-Jones (1991)											
1/TA (-)											
$\Delta REV - \Delta REC (-)$											
PPE (-)											

Comparing these predicted signs with the predicted signs of Siregar and Utama (2008), it was found that all predicted signs are identical. However, since Siregar and Utama (2008) did not use the modified-Jones model (1991) we cannot compare those predicted signs. The sign that stands out in the modified-Jones model (1991) is the $\Delta REV - \Delta REC$ sign. This predicted sign is negative unlike the $\Delta REV - \Delta REC$ sign of the Dechow et al. model (1995). An explanation for this is that the modified-Jones model (1991) uses lagged assets as a scale compared to beginning total assets for the Dechow et al. model (1995). Another explanation can be that the inverse assets variable is added and, in turn, influences the predicted sign of the $\Delta REV - \Delta REC$ variable.

5. Results

5.1 Opportunistic versus Efficient Earnings Management

Tables 3 and 4 display the descriptive statistics and the correlations. According to Table 3, the sample firms have on average positive cash flows from operation one-year-ahead (CFO_{t+1}) and positive non-discretionary net income one-year-ahead ($NDNI_{t+1}$). Regarding the change in earnings one-year-ahead ($\Delta EARN_{t+1}$) it is not clear whether the change is positive or negative since the mean is so close to zero. On average, 82.1% of board members are independent and 39.1% of the directors of the sample firms are members of the audit committee. In line with the findings of Siregar and Utama (2008), CFO has a negative and significant correlation with both discretionary (DAC) and non-discretionary (NDAC) accruals. These findings are consistent with the smoothing nature of accruals (Siregar & Utama, 2008). A significant and positive correlation between INDEP and both AUDCOM and AUDQUA indicates that companies with a higher ratio of independent board members are more likely to have a higher percentage of directors who are members of the audit committee and tend to pay higher audit fees which in turn is a sign of higher audit quality.

Table 3. Descriptive statistics

	Mean	Median	Maximum	Minimum	Standard deviation
CFO _{t+1}	0.110	0.101	0.574	-0.106	0.062
NDNI _{t+1}	0.064	0.056	0.540	-0.171	0.063
ΔEARN _{t+1}	0.000	0.000	0.906	-0.914	0.063
CFO	0.103	0.094	0.555	-0.107	0.059
NDAC	-0.046	-0.040	0.201	-0.983	0.053
DAC	0.000	0.008	0.285	-0.933	0.053
INDEP	0.821	0.846	1.000	0.286	0.101
AUDCOM	0.391	0.385	0.889	0.000	0.113
	Proportion		Proportion		
	Dummy=1		Dummy=0		
AUDQUA	50.00%		50.0%		

Table 4. Correlations

	CFO _{t+1}	NDNI _{t+1}	ΔEARN _{t+1}	CFO	NDAC	DAC	INDEP	AUDCOM	AUDQUA
CFO _{t+1}	1.000								
NDNI _{t+1}	0.979***	1.000							
ΔEARN _{t+1}	0.040	0.043	1.000						
CFO	0.786***	0.759***	-0.077*	1.000					
NDAC	-0.353***	-0.303***	0.518***	-0.242***	1.000				
DAC	-0.349***	-0.348***	0.529***	-0.225***	0.971***	1.000			
INDEP	-0.060	-0.074*	-0.007	-0.047	0.043	0.063	1.000		
AUDCOM	0.096**	0.092**	-0.038	0.119***	-0.039	-0.037	0.239***	1.000	
AUDQUA	-0.174***	-0.154***	-0.001	-0.135***	0.068*	0.048	0.168***	-0.044	1.000

*: significant at 10%; **: significant at 5%; ***: significant at 1% (two-tailed).

Table 5 displays the findings from the regression analysis of the research model used to answer the first hypothesis. The coefficient for discretionary accruals (DAC) is positive and significant for CFO_{t+1}, NDNI_{t+1} and ΔEARN_{t+1}. These findings indicate that the firms of the study sample prefer efficient to opportunistic earnings management, which supports *H1* that there is a relationship between future profitability and discretionary accruals. These results are in line with those of Krishnan (2003), Gul et al. (2000) and Subramanyam (1996), who supported that the listed companies in the U.S.A. tend to select efficient earnings management.

Table 5. Regression analysis results for *H1*

Variable	Expected sign	CFO _{t+1}		NDNI _{t+1}		ΔEARN _{t+1}	
		Coefficient	<i>p</i> value	Coefficient	<i>p</i> value	Coefficient	<i>p</i> value
Intercept		0.013	0.155	0.035	0.031**	0.021	0.122
CFO	+	0.762	0.000***	0.068	0.013**	0.049	0.055*
NDAC	+	-0.231	0.002***	0.313	0.010***	0.119	0.292
DAC	+/-	0.300	0.000***	0.405	0.001***	0.538	0.000***
INDEP	+	-0.021	0.058*	-0.024	0.199	-0.021	0.199
AUDCOM	-	0.019	0.033**	-0.008	0.573	-0.011	0.427
AUDQUA	+	0.001	0.493	-0.004	0.206	-0.002	0.410
DCRISIS		0.007	0.002***	0.002	0.585	0.001	0.710
<i>N</i>		1404		1404		1404	
Adjusted R ²		0.627		0.322		0.280	
<i>F</i> -statistic		337.40		85.76		79.12	
<i>P</i> value (<i>F</i> -statistic)		0.000***		0.000***		0.000***	

*: significant at 10%; **: significant at 5%; ***: significant at 1% (two-tailed).

5.2 Corporate Governance Practices

Table 6 shows the results of the regression analysis of the research model used to examine the rest three research hypotheses, namely, *H2*, *H3* and *H4*. Firstly, the multicollinearity of the independent variables was examined before conducting regression analysis. The VIF (variance inflation factor) of each of the independent variables

(CFO, NDAC, DAC, INDEP, AUDCOM and AUDQUA) was found below 10 and thus, multicollinearity does not exist in our model.

Table 6. Regression analysis results for *H2*, *H3* and *H4*

Variable	Expected sign	CFO _{t+1}		NDNI _{t+1}		ΔEARN _{t+1}	
		Coefficient	<i>p</i> value	Coefficient	<i>p</i> value	Coefficient	<i>p</i> value
Intercept		0.014	0.144	0.036	0.024**	0.023	0.100*
CFO	+	0.762	0.000***	0.067	0.015**	0.047	0.065*
NDAC	+	-0.238	0.002***	0.358	0.003***	0.146	0.198
DAC	+/-	-0.028	0.873	1.047	0.000***	0.677	0.011**
DAC x INDEP	+	0.316	0.081*	-0.379	0.183	0.051	0.850
DAC x AUDCOM	-	0.124	0.454	-0.835	0.001***	-0.479	0.051*
DAC x AUDQUA	+	0.078	0.057*	-0.138	0.033**	-0.059	0.337
INDEP	+	-0.022	0.046**	-0.022	0.250	-0.020	0.219
AUDCOM	-	0.019	0.036**	-0.013	0.389	-0.013	0.324
AUDQUA	+	0.001	0.615	-0.003	0.322	-0.002	0.489
DCRISIS		0.007	0.001***	0.002	0.574	0.001	0.684
<i>N</i>		1404		1404		1404	
Adjusted R ²		0.627		0.400		0.281	
<i>F</i> -statistic		237.15		84.17		55.87	
<i>P</i> value (<i>F</i> -statistic)		0.000***		0.000***		0.000***	

*: significant at 10%; **: significant at 5%; ***: significant at 1% (two-tailed).

Regarding the second hypothesis (*H2*), this is supported at a significance level of 10% in the case that CFO_{t+1} is the dependent variable. However, the effect is significantly negative at 5% when the dependent variable is NDNI_{t+1}. Results are inconclusive and not significant when ΔEARN_{t+1} is the dependent variable. This indicates that firms with higher audit fees (higher audit quality), do not exercise more efficient earnings management than firms with small audit fees. This may suggest the level of audit fees is not a good measure for audit quality.

According to Table 6, Hypothesis 3 is not supported, since in the model where CFO_{t+1} is the dependent variable, the effect of DACxAUDCOM is positive. However, the *p*-value indicates a non-significant positive effect, thus, it cannot be concluded that discretionary accruals have a higher impact on future profitability when companies have a higher ratio of inside directors in the audit committee compared to companies with a lower ratio. On the contrary, the other two models show that there is a significant negative effect at respectively the 1% and 5% level in the models where the dependent variable is NDNI_{t+1} and ΔEARN_{t+1}. These findings indicate that a higher ratio of inside directors in the audit committee would lead to opportunistic earnings management and, in turn, more efficient earnings management may be attained by appointing more outside directors in audit committees.

Finally, according to Table 6, the Hypothesis 4 is only supported at the 10% level by the model, where CFO_{t+1} is the dependent variable. However, the other two models with NDNI_{t+1} and ΔEARN_{t+1} as the dependent variables give inconclusive and non-significant results and therefore, we cannot accept Hypothesis 4. An explanation, according to Siregar and Utama (2008), could be that publicly listed firms appoint a higher amount of independent board members just to comply with regulations. Thus, a high ratio of independent board members is not fully effective as a monitoring mechanism.

5.3 Sensitivity Analysis

As mentioned before, the modified-Jones model presented the highest mean adjusted R² thus, this model was employed in the main analysis. However, the regular Jones model and the Dechow et al. model were still utilized in the sensitivity analysis of the statistical tests conducted for all the 4 hypotheses. More specifically, the discretionary accruals were also measured according to the regular Jones model and Dechow et al. model. For both models, the coefficient for discretionary accruals is positive for all three dependent variables (CFO_{t+1}, NDNI_{t+1}, ΔEARN_{t+1}). This is consistent with this study's main findings. The sensitivity analysis suggests that listed firms in the S&P 500 index tend to conduct efficient earnings management, which is consistent with the aforementioned findings of Krishnan (2003), Gul et al. (2000) and Subramanyam (1996) regarding the listed companies in the U.S.A.

In order to test whether 50% is a good cutoff for the dummy variable for audit quality, a sensitivity analysis was

performed using a cutoff of 25%:75%, where the top 25% of audit fees are used to generate the value of 1 for the dummy variable. The lowest 75% of audit fees corresponded to 0 for the dummy variable AUDQUA. Results are significantly positive when $\Delta EARN_{t+1}$ is the dependent variable, which indicates that companies with higher audit fees do use more efficient earnings management than firms with small audit fees when the cutoff is 25%:75% instead of 50%:50%. However, the other two dependent variables have a negative significant effect and an insignificant effect, respectively. This is in line with the findings mentioned above.

Sensitivity analysis was also performed with regard to the crisis period from 2008 onwards, aiming to investigate if the results in this period are significantly different from the period before the crisis. The effect of the crisis is only significant when $\Delta EARN_{t+1}$. Since only one of the three different dependent variables indicate that there is a significant difference, it is not confirmed that earnings management in crisis periods differs from the non-crisis periods.

Finally, a sensitivity analysis was also performed by including in the analysis the initially omitted 92 firms from the financial, telecommunications and real estate sectors. The p -values of the model (1) regarding the first hypothesis are similar to the p values of the model without these 92 firms. Predicted signs are similar as well, so we can conclude that including those 92 firms would not have changed the results in the main analysis.

6. Conclusion, Limitations and Recommendations

The findings in this study indicate that American firms listed on the S&P 500 index tend to conduct efficient earnings management. Although previous studies were ambiguous whether firms conducted efficient or opportunistic earnings management, this study confirms previous findings by Krishnan (2003), Gul et al. (2000) and Subramanyam, which argued that the listed companies in the U.S.A opt to efficient earnings management.

Furthermore, it was found that higher audit fees do not lead to more efficient earnings management. However, this study revealed that the governance practice of appointing more outside directors in audit committees will contribute to more efficient earnings management. Moreover, it cannot be concluded that a higher ratio of independent members of the board of directors results in more efficient earnings management, since this was supported only by one out of the three models employed.

According to the study's results, the effect of discretionary accruals on future profitability is inconclusive and non-significant for firms with higher audit fees compared to firms with lower audit fees when the dummy variable cutoff is 50%:50%. However, according to the sensitivity analysis performed, the results are significantly positive when the cutoff is 25%:75% in case that the dependent variable is the change in earnings one-year-ahead. These findings indicate that a smaller cutoff of the level of audit fees for the dummy variable would be a better measure for audit quality. Moreover, the existence of an independent board does not significantly affect the type of earnings management a firm selects. Siregar and Utama (2008) stated that most publicly traded public companies only appoint independent board members just to comply with the regulations set.

However, there are some limitations in this study. Since every firm on the S&P 500 index uses a Big Four audit firm, this criterion could not be used as a measure of audit quality and thus, the level of audit fees was employed in this study. However, the selection of the right cutoff proportion of the dummy variable to truly depict the effect of audit quality on future profitability is difficult. This study used the arbitrary 50%:50% cutoff, but this cutoff did not give conclusive results. Furthermore, since the study by Siregar and Utama (2008) was published, every listed firm on the S&P 500 is obliged to have an audit committee, therefore, this study used the ratio of outside directors on the committee as a measure for audit committee. However, the results are significant and in line with the predicted signs.

Despite these limitations, this study uses three different measures of future profitability, namely cash flows from operation one-year-ahead, non-discretionary net income one-year-ahead and change in earnings one-year-ahead. Future research could try to investigate which of these three measures are the best, and also attempt to find another measure for future profitability besides these three measures.

Future studies on this particular subject could try to focus on specific industries rather than an entire index. As the sensitivity analysis showed in this study, findings indicate that including financial, telecommunication and real estate sectors does not significantly change the results, but, for example, up and coming industries like Information Technology could probably influence results significantly.

A suggestion concerning audit quality could be to find the perfect cutoff proportion for audit fees as a proxy for audit quality given that the arbitrary 50%:50% does not give significant results. Finally, it would be suggested that future studies use a bigger sample. Using the S&P 1500 index rather than the smaller S&P 500 index would

increase the total amount of firms and the percentage of market capitalization of those firms.

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