IPRPD
International Journal of Business & Management Studies
ISSN 2694-1430 (Print), 2694-1449 (Online)
Volume 05; Issue no 05: May, 2024
DOI: 10.56734/ijbms.v5n5a8

STRATEGIC COMPENSATION AND FIRM PERFORMANCE: THE MEDIATING ROLE OF EARNINGS MANAGEMENT IN TAIWAN

I-Cheng Lin[1], Pei-Yu Yu[2], Chi-Yang Yao[3], Yan-Yan Luoa[4]

[1 2 3]Department of Finance, National Changhua University of Education, Taiwan

[4]Department of Finance, National Changhua University of Education, School of Economics and Management, Longyan University, Taiwan

Abstract

This study bridges a notable gap in the earnings management literature by incorporating R&D expenses into a novel research model. It categorizes earnings management into two types: predictive and opportunistic. This research explores the intricate relationship among earnings management, compensation structures, and firm performance—a triad of persistent concern to regulators, practitioners, and academics alike. Our findings reveal that in Taiwan, an emerging market, corporate governance mechanisms like compensation policies significantly influence executive behavior and overall firm performance. Specifically, we demonstrate that enhancing executive compensation can improve firm outcomes by encouraging executives to engage in predictive earnings management.

Keywords

Earnings Management, Executive Compensations, Firm Performances

1. Introduction

Executive compensation remains a pivotal concern within corporate governance, extensively explored in scholarly literature over the past two decades (Agha, 2013; Bugeja et al., 2016; Safari et al., 2016). It consistently appears in discussions on corporate governance (Cohen et al., 2013) and earnings management (Balsam, 1998; Gul et al., 2003; Davidson et al., 2005; Wilson & Wang, 2010; Wilson, 2011; Hossain & Monroe, 2015). A wealth of studies documents the diverse methods and contexts in which earnings management is applied, probing its association with regulations, compensation, firm performance, accounting standards, and governance structures.

This paper introduces R&D expenses into the discourse, constructing a new research model to analyze their interplay with discretionary accruals in earnings management. We differentiate between two types of earnings management: predictive and opportunistic. Our analysis suggests that firms with a positive (negative) correlation between discretionary accruals and future cash flows, indicative of predictive (opportunistic) earnings management, are more (less) inclined to use compensation as a motivational tool. Consequently, higher levels of compensation are anticipated for firms engaged in predictive, rather than opportunistic, earnings management.

Managers utilize different earnings management strategies based on varying circumstances. Some provide informative financial reporting signals through earnings manipulation, while others might misuse their discretion over accrual recognition for opportunistic ends. Acknowledging these distinctions, this study emphasizes the implications of earnings management types on investor outcomes. We identify three forms of earnings management: accruals-based, real activities, and classification shifting (McVay, 2006; Schipper, 1989), with discretionary accruals often serving as a proxy.

Incorporating both accrual-based and real activity earnings management, this paper employs R&D expenses, typically seen in real activities, alongside discretionary accruals to propose a novel model for analyzing net income. Our primary objective is to delineate the relationships between executive incentives (CEO compensation) and various earnings management behaviors. We map accruals and R&D expenses onto future cash flows to classify firms as either PEM (Predictive Earnings Management) or OEM (Opportunistic Earnings Management), discovering that CEOs in PEM firms generally receive higher compensation than those in OEM firms. This indicates a preference for awarding incentives to CEOs who positively impact future cash flows.

Further, we examine how earnings management correlates with firm performance, assuming a positive association for predictive and a negative one for opportunistic earnings management. The study also investigates the potential causality between CEO compensation and earnings management, considering lagged effects by using subsequent period compensation data. Additionally, we analyze the lagged relationship between firm performance and earnings management types.

To substantiate our findings, we conduct three robustness tests: segregating firms into electronic and non-electronic industries, categorizing electronic firms based on R&D spending levels, and dividing firms by growth stages to explore stage-specific impacts on the relationships between earnings management, compensation, and firm performance.

The remainder of the paper is organized as follows: Section 2 reviews related research, Section 3 outlines the methodology and variable definitions, Section 4 presents the sample and empirical results, and Section 5 concludes the study.

2. Related Research

Corporate governance encompasses a broad range of mechanisms designed to guide managerial decisions when ownership and control are separated. Larcker et al. (2007) define it as the "set of mechanisms that influence the decisions made by managers when there is a separation of ownership and control." This framework typically includes compensation contracts, boards of directors, and oversight by various stakeholders, such as shareholders and customers. From the agency theory perspective, corporate governance aims to align the interests of managers and shareholders.

Earnings management is a significant aspect of corporate governance, providing crucial information for investment decisions. Stakeholders, including analysts, investors, and boards, rely heavily on financial reports of earnings. Motivated by specific targets, managers may manipulate earnings, influenced by factors such as the desire to report positive profits, sustain performance levels, and meet analysts' expectations, as identified by Degeorge, Patel, and Zeckhauser (1999).

Schipper (1989) categorizes earnings management into accruals-based and real earnings management, with McVay (2006) adding a third category: classification shifting. Hsu et al. (2013) explore these types further, suggesting that managers may employ multiple forms simultaneously. Consequently, our study examines both accruals-based and real earnings management concurrently.

Discretionary accruals are widely used as proxies for earnings management. These accruals, stemming from the differences between accrual-based and cash-based accounting, allow managers under certain conditions to manipulate earnings (Healy, 1985; Jones, 1991). Roychowdhury (2006) provides evidence of actions like price discounts to boost sales temporarily, overproduction to reduce costs, and cuts in discretionary expenses to improve margins.

The role of R&D expenses in earnings management is particularly noteworthy. R&D is crucial for maintaining healthy operations, and its financing is essential. Perry and Grinaker (1994), Dechow and Sloan (1991), and Bushee (1998) discuss how R&D expenditures can be adjusted to meet earnings expectations. Lev and Sougiannis (1996) confirm the significant positive impact of R&D expenditures on future earnings.

Adut, Holder, and Robin (2013) distinguish between predictive and opportunistic earnings management, linking them to CEO compensation. They find that compensation levels correlate positively with predictive earnings management and negatively with opportunistic forms, highlighting the dual potential outcomes of earnings management: it can either enhance transparency or obscure financial realities.

Further research has explored how information from cash flows, earnings, and R&D expenditures can be used to design investment portfolios that outperform benchmarks (Dechow et al., 2001; Mohanram, 2005; Piotroski, 2000). This informs our investigation into the strategic use of discretionary accruals and their impact on future cash flows.

Based on this extensive review, we propose two hypotheses:

Hypothesis 1: Firms provide higher (lower) incentives for managers practicing predictive (opportunistic) earnings management.

Hypothesis 2: Predictive (opportunistic) earnings management firms exhibit better (poorer) firm performance.

3. Methodology

Dechow and Dichev (2002) suggest a new measure of accrual quality by considering the relationship between accruals and realized cash flows. Adut et al. (2013) extend the concept by characterizing firms as either predictive earnings management firms (PEM) or opportunistic earnings management firms (OEM). According to Adut et al. (2013), this characterization of firms is based on accrual characteristics, since PEM firms have accruals that are positively correlated with future cash flows.

As discussed in the previous section, R&D expenses play an important role in earnings management since they can be adjusted as discretionary accruals (DA). Therefore, we first incorporate the R&D expenses into the empirical model:

$$EARN_{it+1} = \gamma_0 + \gamma_1 OCF_{it} + \gamma_2 NDA_{it} + \gamma_3 DA_{it} + \gamma_4 RD_{it} + \gamma_5 \left(DA_{it} \times RD_{it}\right) \quad \textbf{(1)}$$

where *i* is the *i* company and *t* indexes *t* year; $EARN_{it+1}$ is the absolute value of the change in net incomes; OCF_{it} is the operating cash flows; NDA_{it} is non-discretionary accruals; DA_{it} is discretionary accruals, and RD_{it} is the research and development expense. Total assets deflate all variables.

Firms with positive (negative) γ_5 coefficients are designated as PEM (OEM). It is important that γ_5 must be significant at less than the five percent level. Before estimating equation (1), we need to calculate *NDA* and *DA*. The other variables can be obtained from the Taiwan Economic Journal (TEJ) and the Market Observation Post System (MOS).

First, we begin by calculating total accruals (*TA*) using the following equation:

$$TA_{it} = \left(\Delta CA_{it} - \Delta CASH_{it}\right) - \left(\Delta CL_{it} - \Delta STD_{it}\right) - DEP_{it} \qquad (2)$$

where *i* is the *i* company and *t* indexes *t* year; TA_{it} is the total accruals; ΔCA_{it} is the change in current assets; $\Delta CASH_{it}$ is the change in cash and cash equivalent; ΔCL_{it} is the change in current liabilities; ΔSTD_{it} is the change in the current portion of long-term debt; and DEP_{it} is the depreciation and amortization.

We use the model in Kothari, Leone, and Wasley (2005) to estimate *NDA* and *DA*. The regression is given below and the residual represents the discretionary accrual.

$$\frac{TA_{it}}{A_{it-1}} = \beta_0 + \beta_1\left(\frac{1}{A_{it-1}}\right) + \beta_2\left[\frac{\left(\Delta REV_{it} - \Delta REC_{it}\right)}{A_{it-1}}\right] + \beta_3\left(\frac{PPE_{it}}{A_{it-1}}\right) + \beta_4 ROA_{it} + \varepsilon_{it} \qquad (3)$$

where *i* is the *i* company and *t* indexes *t* year; TA_{it} is the total accruals; A_{it-1} is the prior period total assets; ΔREV_{it} is the change in revenue; ΔREC_{it} is the change in receivables; PPE_{it} is the net property, plant and equipment; and ROA_{it} is the return on assets after taxes.

Following Adut et al. (2013), we examine two research questions. First, we examine the relationship between compensation and PEM or OEM firms. We thus ask whether compensation committees provide higher (lower) compensation for firms with predictive (opportunistic) earnings management. We regress the compensation variable on the dummy variables of earnings management, PEM and OEM, as follows:

$$\begin{aligned} Compensation_t = {} & \alpha_0 + \alpha_1 PEM_t + \alpha_2 OEM_t + \alpha_3 CH_t + \alpha_4 LEV_t + \alpha_5 FOREIGN_t \\ & + \alpha_6 INDIR_t + \alpha_7 SIZE_t + \sum Year + \sum Industry + \varepsilon \end{aligned} \qquad (4)$$

where *i* is the *i* company and *t* indexes *t* year; $Compensation_t$ is compensation of managers, including *TOTAL*, *CASH*, *STOCK*, and *OPTI*ON; PEM_t is a dummy variable and equals 1 if a firm is designated as a PEM firm; OEM_t is a dummy variable and equals 1 if a firm is designated as an OEM firm. All variables are defined in Table 1.

Variable	Definition
Proxies for Compensations	
TOTAL	The natural logarithm of total compensation.
CASH	The natural logarithm of cash compensation.
STOCK	The natural logarithm of stock compensation.
OPTION	The natural logarithm of option compensation.
Proxies for Firm Performance	
ROE	Net incomes divide by total share equity. (Returns on equity).
PRICE	The firm's stock price at the end of the year.
Proxies for Earnings Management	
PEM	A dummy variable and equals to 1 if a firm is designated as a PEM firm.
OEM	A dummy variable and equals to 1 if a firm is designated as a OEM firm.
Proxies for Firm Characteristics	
CH	The logarithm of cash and cash equivalents.
LEV	Total liabilities divide by net sales.
FOREIGN	Foreign ownership percentage.
INDIR	The number of independent directors and supervisors divided by total directors and supervisors
SIZE	The natural logarithm of net sales.

TABLE 1 Variable Definitions

Furthermore, we take the possible causality between compensation and firms' type into consideration. In other words, the practice of earnings management may cause a lagged effect in the next period compensation. Therefore, we use lagged compensation in equation (5). The model is then presented as:

$$Compensation_{t+1} = \alpha_0 + \alpha_1 PEM_t + \alpha_2 OEM_t + \alpha_3 CH_t + \alpha_4 LEV_t + \alpha_5 FOREIGN_t + \alpha_6 INDIR_t + \alpha_7 SIZE_t + \sum Year + \sum Industry + \varepsilon \quad (5)$$

The second research issue is to explore whether there is an association between firm performance and predictive (or opportunistic) earnings management. Accordingly, the models are:

$$Performance_t = \alpha_0 + \alpha_1 PEM_t + \alpha_2 OEM_t + \alpha_3 CH_t + \alpha_4 LEV_t + \alpha_5 FOREIGN_t + \alpha_6 INDIR_t + \alpha_7 SIZE_t + \sum Year + \sum Industry + \varepsilon \quad (6)$$

$$Performance_{t+1} = \alpha_0 + \alpha_1 PEM_t + \alpha_2 OEM_t + \alpha_3 CH_t + \alpha_4 LEV_t + \alpha_5 FOREIGN_t + \alpha_6 INDIR_t + \alpha_7 SIZE_t + \sum Year + \sum Industry + \varepsilon \quad (7)$$

where *i* is the *i* company and *t* indexes *t* year; $Performance_t$ includes two proxies for firm performance, *ROE* and *PRICE*; PEM_t is a dummy variable and equals 1 if a firm is designated as a PEM firm; OEM_t is a dummy variable and equals 1 if a firm is designated as an OEM firm.

4. Data and results

Sample and data

Taiwan Listed Companies and the Gre-Tai (Over-the-counter) companies are the subjects of our main research. The research sample consists of all firm years between 2013 and 2022. The necessary data are collected from the Taiwan Economic Journal (TEJ) and the Market Observation Post System (MOPS). This paper excludes financial institutions and restricts the samples to firms that have seven consecutive years of data on all necessary variables. The final sample comprises a total of 8,351 firm-year observations.

Univariate analysis

Table 2 provides information about the descriptive statistics of each variable. The mean of the total compensation is 16.211, which is about the same as the mean of cash compensation, which equals 16.132. Thus, cash compensation comprises most of the total compensation in Taiwan, with the remainder consisting of stocks and options. In addition, the mean of PEM is 0.250, showing that about a quarter of the sample are defined as PEM firms. The mean of OEM is 0.270, which defines roughly 27% of the sample as OEM firms.

Variable	Mean	Std.	Max.	Median	Min.
TOTAL	16.211	1.112	22.327	16.133	10.669
CASH	16.132	1.037	20.964	16.083	10.669
STOCK	0.830	3.548	22.000	0.000	0.000
OPTION	0.630	3.226	21.000	0.000	0.000
ROE	4.405	22.285	244.400	6.590	-736.000
PRICE	32.666	48.855	1,215.000	20.200	0.480
PEM	0.250	0.435	1.000	0.000	0.000
OEM	0.270	0.445	1.000	0.000	0.000
CH	0.184	0.141	0.919	0.148	0.000
LEV	0.408	0.178	0.986	0.407	0.011
FOREIGN	6.659	10.470	78.290	2.580	0.000
INDIR	0.140	0.135	1.000	0.170	0.000
SIZE	15.022	1.593	22.098	14.875	5.878

TABLE 2 Descriptive Statistics Summary

Notes:
1.See Table 1 for detailed variable definitions.
2.The sample consists of all firm years between 2013 and 2022 for which the necessary data are available on the Taiwan Economic Journal (TEJ) and Market Observation Post System (MOPS). This paper excludes financial institutions and restricts the samples to firms that have seven consecutive years of data on all necessary variables. Observations where variables are more than three standard deviations away from their respective means are deleted. The final sample comprises 8,351 firm-year observations in total.

Table 3 provides a comparison of the key test and control variables for the OEM and PEM samples. We find that most incentive values and firm performance are significantly higher for PEM firms than OEM firms. In addition, Table 4 presents the Pearson and Spearman correlation matrix. PEM is significantly and positively correlated with *TOTAL*, *CASH*, *STOCK*, and *OPTION*. Conversely, OEM is significantly and negatively correlated with each variable of compensation. With respect to firm performance, PEM is significantly and positively correlated with *ROE* and *PRICE*, whereas OEM is only significantly and negatively correlated with *PRICE*. The compensation variables *TOTAL*, *CASH*, *STOCK*, and *OPTION* are generally positively related to the control variables, including *CH*, *LEV*, *FOREIGN*, *INDIR*, and *SIZE*.

	OEM Firms			**PEM Firms**			Tests of differences (PEM v.s. OEM)
	Mean	Std.	Median	Mean	Std.	Median	
TOTAL	16.071	1.067	16.028	16.472	1.109	16.345	0.401***
CASH	16.023	1.028	15.991	16.346	1.000	16.262	0.323***
STOCK	0.660	3.099	0.000	1.171	4.203	0. 000	0.514***
OPTION	0.362	2.488	0.000	1.243	4.425	0.000	0.881***
ROE	3.730	19.953	6.050	5.860	20.669	8.310	2.130***
PRICE	26.438	36.217	17.600	45.821	74.054	26.500	19.383***

TABLE 3 Comparison between OEM Firms and PEM Firms

Notes:
1. Tests of differences are based on univariate t-tests that compare the means of the PEM and OEM firms.
2. *, **, *** Represent significance of the coefficient at 10 percent, 5 percent, and 1 percent levels, respectively.
See Table 1 for detailed variable definitions.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.*TOTAL*	1.000	0.948***	0.214***	0.282***	0.227***	0.267***	0.137***	-0.077***	0.097***	0.074***	0.490***	0.069***	0.623***
2.*CASH*	0.964***	1.000	0.060***	0.082***	0.222***	0.248***	0.120***	-0.064***	0.079***	0.082***	0.486***	0.048***	0.631***
3.*STOCK*	0.160***	0.037**	1.000	0.035**	0.118***	0.079***	0.056***	-0.029**	0.032**	0.031**	0.094***	0.099***	0.102***
4.*OPTION*	0.218***	0.070***	0.029**	1.000	-0.004	0.042***	0.111***	-0.051***	0.070***	-0.039**	0.047***	0.070***	0.027**
5.*ROE*	0.320***	0.303***	0.177***	-0.002	1.000	0.301***	0.038**	-0.018	0.149***	-0.197***	0.131***	0.028**	0.219***
6.*PRICE*	0.321***	0.299***	0.098***	0.042***	0.657***	1.000	0.157***	-0.078***	0.254***	-0.117***	0.323***	0.137***	0.162***
7.*PEM*	0.134***	0.118***	0.055***	0.113***	0.068***	0.169***	1.000	-0.356***	0.357***	-0.240***	0.006	0.243***	-0.167***
8.*OEM*	-0.070***	-0.058***	-0.025**	-0.052***	-0.044***	-0.095***	-0.356***	1.000	-0.162***	0.053***	-0.018	-0.124***	0.079***
9.*CH*	0.134***	0.117***	0.033**	0.076***	0.203***	0.281***	0.352***	-0.163***	1.000	-0.443***	0.052***	0.248***	-0.194***
10.*LEV*	0.081***	0.089***	0.034**	-0.039**	-0.089***	-0.180***	-0.243***	0.061***	-0.428***	1.000	0.072***	-0.106***	0.382***
11.*FOREIGN*	0.485***	0.484***	0.055***	0.042***	0.195***	0.290***	-0.011	-0.014	0.048***	0.068***	1.000	0.009	0.520***
12.*INDIR*	0.043***	0.022*	0.102***	0.072***	0.058***	0.204***	0.234***	-0.122***	0.247***	-0.092***	-0.043***	1.000	-0.098***
13.*SIZE*	0.587***	0.598***	0.063***	0.010	0.247***	0.195***	-0.181***	0.088***	-0.152***	0.391***	0.548***	-0.137***	1.000

TABLE 4 Correlation Matrix

Notes:

1. Pearson (upper right) and Spearman (lower left) correlation coefficients are shown in the table.
2. *, **, *** Represent significance of the coefficient at 10 percent, 5 percent, and 1 percent levels, respectively.

See Table 1 for detailed variable definitions.

Multivariate analysis

Table 5 provides the main test of our first research question, whether compensation is closely related to the different types of firms (OEM or PEM). In all four models (*TOTAL*, *CASH*, *STOCK*, and *OPTION* as the dependent variable), the coefficient of PEM is significantly positive, and the coefficient of OEM is negatively correlated with *TOTAL*, *CASH*, and *STOCK*, at the 5% level at least. For example, in the *TOTAL* regression, the coefficients of PEM and OEM are 0.406 and -0.100 at the 1% level, respectively. In the *CASH* regression, the coefficients of PEM and OEM are 0.362 and -0.080, respectively, and both are significant at the 1% level, i.e., the coefficients have the same sign in each regression (i.e. negative for OEM and positive for PEM). Overall, these results show that with PEM firms, compensation provides an informative incentive to CEOs, while it shows the opposite situation for OEM firms. It is worth mentioning that with PEM firms, all the regression models present significant results between compensation and firm types, while OEM firms exhibit significant results only in the *TOTAL* and *CASH* models.

	TOTAL	***CASH***	***STOCK***	***OPTION***
(Constant)	9.502***	9.836***	-3.048***	-1.175**
	(89.202)	(98.420)	(-6.409)	(-2.705)
PEM	0.406***	0.362***	0.371**	0.671***
	(16.780)	(15.982)	(3.445)	(6.813)
OEM	-0.100***	-0.080***	-0.052*	-0.084
	(-4.517)	(-3.885)	(-0.532)	(-0.938)
CH	0.737***	0.612***	0.428	0.555*
	(9.584)	(8.494)	(1.250)	(1.773)
LEV	-0.558***	-0.538***	0.410	-0.403
	(-9.095)	(-9.363)	(1.501)	(-1.614)
FOREIGN	0.017***	0.016***	0.014**	0.006
	(16.729)	(15.912)	(3.069)	(1.443)
INDIR	0.436***	0.288***	2.460***	1.038***
	(6.133)	(4.331)	(7.766)	(3.589)
SIZE	0.436***	0.412***	0.208***	0.102**
	(58.763)	(59.312)	(6.284)	(3.391)
Year	Y	Y	Y	Y
Industry	Y	Y	Y	Y
Adjusted-R^2	0.500	0.497	0.026	0.018
F-value	1,060.954***	1,045.413***	28.995***	20.005***
N	8,351	8,351	8,351	8,351

TABLE 5 The Relationship between Compensation and Types of Earnings Management

Notes:

1. *, **, *** Represent significance of the coefficient at 10 percent, 5 percent, and 1 percent levels, respectively.
2. See Table 1 for detailed variable definitions.
3. The empirical model is shown as follows:

$$Compensation_t = \alpha_0 + \alpha_1 PEM_t + \alpha_2 OEM_t + \alpha_3 CH_t + \alpha_4 LEV_t + \alpha_5 FOREIGN_t + \alpha_6 INDIR_t + \alpha_7 SIZE_t + \sum Year + \sum Industry + \varepsilon$$

Additionally, the regressions themselves are all significant, as is shown by the highly significant F-values. Most of the proxies of firm characteristics perform as expected. In general, *CH*, *FOREIGN*, *INDIR*, and *SIZE* are positively correlated with compensation, while *LEV* is negatively correlated with compensation. It is worth mentioning that all these control variables show a significant relationship in the *TOTAL* and *CASH* regressions, but not all variables exhibit significant results in the *STOCK* and *OPTION* regressions.

Table 6 shows the results of our second research issue, the relationship between firm performance and types of earnings management. Two models, the *ROE* regression and the *PRICE* regression (which use *ROE* and *PRICE* as dependent variables, respectively), are presented. The coefficient of PEM is significantly and positively correlated with *PRICE*, but not with *ROE*. This shows that managers can convey informative signals to investors by conducting predictive earnings management. Conversely, the coefficient of OEM is negatively correlated with *ROE* at the 10% level but is not significantly correlated with PRICE. The two regression models performed well with significant F-values and reasonably with R-squared values. The control variables behaved generally as expected. *CH*, *INDIR*, and *SIZE* are positively correlated to *ROE* and *PRICE*, whereas *LEV* is negatively correlated.

	ROE	***PRICE***
(Constant)	-61.150***	-34.428***
	(-21.885)	(-5.725)
PEM	-0.648	7.598***
	(-1.023)	(5.573)
OEM	-1.083*	-1.595
	(-1.874)	(-1.282)
CH	14.285***	64.073***
	(7.096)	(14.786)
LEV	-37.236***	-19.226***
	(-23.190)	(-5.563)
FOREIGN	-0.102***	1.218***
	(-3.727)	(20.687)
INDIR	1.893	26.860***
	(1.017)	(6.706)
SIZE	5.259***	3.322***
	(27.078)	(7.947)
Year	Y	Y
Industry	Y	Y
Adjusted-R^2	0.148	0.178
F-value	184.216***	230.694***
N	8,351	8,351

TABLE 6 The Relationship between Firm Performance and Types of Earnings Management

Notes:

1. *, **, *** Represent significance of the coefficient at 10 percent, 5 percent, and 1 percent levels, respectively.
2. See Table 1 for detailed variable definitions.
3. The empirical model is shown as follows:

$$Performance_t = \alpha_0 + \alpha_1 PEM_t + \alpha_2 OEM_t + \alpha_3 CH_t + \alpha_4 LEV_t + \alpha_5 FOREIGN_t + \alpha_6 INDIR_t + \alpha_7 SIZE_t + \sum Year + \sum Industry + \varepsilon$$

Table 7 details an empirical test that factors time into consideration. We examine the possible casualty relationship between compensation and types of earnings management by adding the next period of compensation into each regression. As shown in Table 7, the relationship between lagged compensation and types of earnings management is similar to the relationship which uses the same time period variables to examine compensation and types of earnings management. For example, the coefficient of PEM is significantly and positively correlated with lagged compensation, whereas the coefficient of OEM shows the opposite relationship. Further, the control variables perform as expected. *CH*, *FOREIGN*, *INDIR*, and *SIZE* are positively correlated with lagged compensation, whereas *LEV* presents a negative relationship with lagged compensation.

	TOTAL	***CASH***	***STOCK***	***OPTION***
(Constant)	9.524***	9.720***	-1.036**	-0.665
	(79.058)	(85.553)	(-2.540)	(-1.365)
PEM	0.379***	0.358***	0.045	0.574***
	(14.054)	(14.089)	(0.492)	(5.273)
OEM	-0.110***	-0.092***	-0.036	-0.112
	(-4.472)	(-3.953)	(-0.437)	(-1.127)
CH	0.743***	0.669***	-0.189	0.382
	(8.653)	(8.258)	(-0.650)	(1.102)
LEV	-0.604***	-0.587***	0.448*	-0.462*
	(-8.718)	(-8.983)	(1.908)	(-1.649)
FOREIGN	0.018***	0.016***	0.018***	0.008*
	(15.125)	(14.247)	(4.566)	(1.667)
INDIR	0.395***	0.257**	1.393***	1.224***
	(4.968)	(3.425)	(5.167)	(3.804)
SIZE	0.437***	0.423***	0.070**	0.071**
	(52.155)	(53.452)	(2.455)	(2.092)

Year	Y	Y	Y	Y
Industry	Y	Y	Y	Y
Adjusted-R^2	0.495	0.499	0.015	0.015
F-value	840.735***	852.274***	13.639***	14.473***

TABLE 7 The Relationship between Compensation and Types of Earnings Management (Lag)

Notes:

1. *, **, *** Represent significance of the coefficient at 10 percent, 5 percent, and 1 percent levels, respectively.
2. See Table 1 for detailed variable definitions.
3. The empirical model is shown as follows:

$$Compensation_{t+1} = \alpha_0 + \alpha_1 PEM_t + \alpha_2 OEM_t + \alpha_3 CH_t + \alpha_4 LEV_t + \alpha_5 FOREIGN_t + \alpha_6 INDIR_t + \alpha_7 SIZE_t + \sum Year + \sum Industry + \varepsilon$$

Table 8 shows the relationship between lagged firm performance and types of earnings management. The test results are similar to those of the test which used the same period variables presented in Table 6. The coefficient of PEM is significantly and positively correlated to *PRICE*, whereas the coefficient of OEM has a significantly negative correlation with *PRICE*. Further, the control variables generally behave as expected. *CH*, *FOREIGN*, *INDIR*, and *SIZE* are positively correlated with lagged firm performance, while *LEV* is negatively correlated with lagged firm performance.

	ROE	***PRICE***
(Constant)	-37.797***	-30.150***
	(-11.649)	(-4.172)
PEM	-0.780	7.867***
	(-1.074)	(4.867)
OEM	-0.909	-2.777*
	(-1.374)	(-1.885)
CH	14.444***	56.354***
	(6.248)	(10.945)
LEV	-17.502***	-18.806***
	(-9.383)	(-4.527)
FOREIGN	0.025	1.192***
	(0.780)	(16.909)
INDIR	-1.466	31.045***
	(-0.684)	(6.503)
SIZE	3.152***	3.267***
	(13.959)	(6.497)
Year	Y	Y
Industry	Y	Y
Adjusted-R^2	0.061	0.151
F-value	56.263***	153.438***
N	5,993	5,993

TABLE 8 The Relationship between Firm Performance and Types of Earnings Management (Lag)

Notes:

1. *, **, *** Represent significance of the coefficient at 10 percent, 5 percent, and 1 percent levels, respectively.
2. See Table 1 for detailed variable definitions.
3. The empirical model is shown as follows:

$$Performance_{t+1} = \alpha_0 + \alpha_1 PEM_t + \alpha_2 OEM_t + \alpha_3 CH_t + \alpha_4 LEV_t + \alpha_5 FOREIGN_t + \alpha_6 INDIR_t + \alpha_7 SIZE_t + \sum Year + \sum Industry + \varepsilon$$

Robustness tests

Electronic versus Non-electronic industries

To eliminate the effect of different industries, we sorted the sample into two groups: electronics and non-electronics industries. Table 9 shows that PEM firms are positively correlated with compensation, while OEM firms are negatively correlated with compensation. These results are similar to those of the test using unclassified samples. It is worth mentioning that in the electronics group, PEM performs well with all regression models and OEM is significant in the *TOTAL* and *CASH* models. However, in the non-electronic group, PEM is significant in the *TOTAL* and *CASH* models, and OEM is significant only in the *STOCK* model. Overall, the impact of firm types on compensation is more evident with electronics firms than non-electronic firms. In Table 10, PEM is positively correlated with *PRICE* at the 1% level for both industry groups, while OEM is not significantly correlated with *PRICE*. This shows that managers can convey beneficial information to investors, which will be reflected in the market regardless of industry. Furthermore, when we take the lagged effect into consideration, the results are similar to our expectations.

	Electronic industries				**Non-electronic industries**			
	TOTAL	***CASH***	***STOCK***	***OPTION***	***TOTAL***	***CASH***	***STOCK***	***OPTION***
(Constant)	8.968***	9.593***	-6.160***	-2.317***	10.409***	10.409***	0.817	-0.205
	(63.447)	(72.963)	(-9.084)	(-3.512)	(62.366)	(64.853)	(1.551)	(-0.475)
PEM	0.341***	0.305***	0.381***	0.682***	0.420***	0.407***	-0.132	-0.019
	(12.247)	(11.800)	(2.858)	(5.251)	(7.506)	(7.553)	(-0.746)	(-0.133)
OEM	-0.142***	-0.130***	0.196	-0.081	-0.040	-0.019	-0.306***	-0.027
	(-4.818)	(-4.738)	(1.385)	(-0.587)	(-1.243)	(-0.621)	(-3.056)	(-0.321)
CH	0.597***	0.453***	1.286***	-0.166	0.549***	0.511***	-0.937**	1.216***
	(6.331)	(5.169)	(2.844)	(-0.377)	(4.049)	(3.924)	(-2.191)	(3.471)
LEV	-0.841***	-0.775***	0.383	-1.111***	-0.197**	-0.254***	0.732**	0.557**
	(-10.307)	(-10.215)	(0.979)	(-2.918)	(-2.202)	(-2.950)	(2.586)	(2.402)
FOREIGN	0.015***	0.013***	0.020***	0.006	0.020***	0.019***	0.006	0.008*
	(11.876)	(10.785)	(3.185)	(0.953)	(11.118)	(11.076)	(1.115)	(1.829)
INDIR	-0.050	-0.119	1.787***	0.636	0.878***	0.689***	2.374***	1.348***
	(-0.565)	(-1.440)	(4.198)	(1.535)	(6.711)	(5.474)	(5.748)	(3.985)
SIZE	0.490***	0.451***	0.352***	0.162***	0.357***	0.361***	-0.069	-0.026
	(50.297)	(49.751)	(7.524)	(3.569)	(31.607)	(33.160)	(-1.938)	(-0.872)
Year	Y	Y	Y	Y	Y	Y	Y	Y
Adjusted-R^2	0.534	0.522	0.117	0.025	0.433	0.451	0.023	0.019
F-value	454.735***	433.171***	53.205	11.092	170.039***	182.879***	6.262***	5.243***
N	4,748	4,748	4,748	4,748	2,661	2,661	2,661	2,661

TABLE 9 The Relationship between Compensation and Types of Earnings Management

Notes:

1. *, **, *** Represent significance of the coefficient at 10 percent, 5 percent, and 1 percent levels, respectively.
2. See Table 1 for detailed variable definitions.

	Electronic industries		Non-electronic industries	
	ROE	***PRICE***	***ROE***	***PRICE***
(Constant)	-76.429***	-53.667***	-37.729***	-10.309
	(-19.292)	(-6.560)	(-10.387)	(-1.193)
PEM	1.016	10.078***	-3.273***	7.634***
	(1.303)	(6.259)	(-2.685)	(2.633)
OEM	0.003	-1.711	-1.649**	-1.220
	(0.003)	(-1.000)	(-2.363)	(-0.735)
CH	18.021***	64.234***	8.047***	69.072***
	(6.821)	(11.774)	(2.728)	(9.843)
LEV	-45.617***	-22.369***	-24.451***	-11.911**
	(-19.955)	(-4.739)	(-12.534)	(-2.566)
FOREIGN	-0.192***	1.069***	0.065*	1.414***
	(-5.331)	(14.376)	(1.688)	(15.343)
INDIR	6.672***	26.995***	10.204***	58.807***
	(2.683)	(5.258)	(3.584)	(8.680)
SIZE	6.334***	4.760***	3.539***	2.082***
	(23.178)	(8.436)	(14.377)	(3.556)
Year	Y	Y	Y	Y
Adjusted-R^2	0.182	0.207	0.142	0.228
F-value	88.851***	104.572***	37.756***	66.382***
N	4,748	4,748	2,661	2,661

TABLE 10 The Relationship between Firm Performance and Types of Earnings Management

Notes:

1. *, **, *** Represent significance of the coefficient at 10 percent, 5 percent, and 1 percent levels, respectively.
2. See Table 1 for detailed variable definitions.

R&D expenses

R&D expenses play a critical role in the electronics industry. To examine the electronics group more thoroughly, we classified the sample into four groups based on R&D expense. To eliminate the effect of size, we deflated R&D expense by total assets. Furthermore, we checked whether there was a difference between the electronics firms with the lowest and the highest levels of R&D expense. Table 11 shows the relationship between compensation and types of earnings management in firms with the lowest level of R&D expense (shown as *RD1*) and those with the highest level of R&D expense (shown as *RD4*). Overall, the result is consistent with our understanding that if electronic firms put more emphasis on R&D expense, they would tend to offer higher compensation levels to CEOs as incentives. The results in Table 12 show that PEM firms are significantly and positively correlated with *PRICE* in the *RD4* regression, while PEM firms have no significant correlation with *PRICE* in *RD1*. That is to say, the higher the level of R&D expense, the closer the relationship between firm performance and PEM. Furthermore, when we take the lagged effect into consideration, the results are similar to our expectations.

	RD1(lowest)				RD4(highest)			
	TOTAL	***CASH***	***STOCK***	***OPTION***	***TOTAL***	***CASH***	***STOCK***	***OPTION***
(Constant)	9.201***	9.283***	-0.940	0.128	8.836***	10.385***	-12.362***	-3.794
	(32.655)	(33.609)	(-0.939)	(0.173)	(3.972)	(27.939)	(-5.049)	(-1.500)
PEM	0.153	0.143	-0.280	0.965**	0.232***	0.226***	0.089	0.521
	(0.843)	(0.803)	(-0.433)	(2.026)	(3.972)	(4.283)	(0.256)	(1.450)
OEM	-0.014	-0.022	0.636***	-0.115	-0.262***	-0.247***	-0.303	0.507
	(-0.268)	(-0.434)	(3.526)	(-0.864)	(-2.732)	(-2.850)	(-0.531)	(0.860)
Control variables	Y	Y	Y	Y	Y	Y	Y	Y
Adjusted-R^2	0.395	0.393	0.045	0.009	0.521	0.490	0.220	0.021
F-value	61.502***	61.020***	5.358***	1.849**	101.922***	90.233***	27.221***	2.989***
N	935	935	935	935	935	935	935	935

TABLE 11 The Relationship between Compensation and Types of Earnings Management

Notes:

1. *, **, *** Represent significance of the coefficient at 10 percent, 5 percent, and 1 percent levels, respectively.
2. See Table 1 for detailed variable definitions.

	RD1(lowest)		RD4(highest)	
	ROE	***PRICE***	***ROE***	***PRICE***
(Constant)	-122.963***	-48.491***	-20.255**	2.388
	(-11.755)	(-7.540)	(-2.255)	(0.061)
PEM	6.895	-0.318	2.633**	19.840***
	(1.021)	(-0.077)	(2.066)	(3.570)
OEM	2.760	-0.671	-5.814***	-8.958
	(1.465)	(-0.579)	(-2.7787)	(-0.982)
Control variables	Y	Y	Y	Y
Adjusted-R^2	0.216	0.231	0.129	0.195
F-value	26.571***	28.750***	14.766***	23.492***
N	935	935	935	935

TABLE 12 The Relationship between Firm Performance and Types of Earnings Management

Notes:

1. *, **, *** Represent significance of the coefficient at 10 percent, 5 percent, and 1 percent levels, respectively.
See Table 1 for detailed variable definitions.

Life Cycle

Firms in different stages of their life cycle have different growth energies. Mindful of the work of Hribar and Yehuda (2015), Chin, Lin and Chin (2004) and Anthony and Ramesh (1992), we further examine our research issues using the life cycle hypothesis. This paper sorts all sample firms into three groups: growth firms, mature firms, and stagnant firms, yielding 1,482 growth firm observations, 4,025 mature observations, and 1,490 stagnant observations. In Table 13, it is significant that the PEM is positively correlated with compensation model throughout the growth and mature stage, while PEM is only correlated to stock compensation at the stagnant stage. For OEM firms we find a negative relationship between compensation at the growth stage and at the mature stage. We conclude that when firms are at the growth and mature stages, they will offer higher compensation to managers as incentives. Table 14 shows that PEM firms are positively correlated with *PRICE,* at 5% or better level, at the growth and mature stages, but are without significant correlation with *PRICE* in the stagnant stage. Further, these results are similar to our expectations after taking the lagged effect into consideration.

	Growth				Mature				Stagnant			
	TOTAL	***CASH***	***STOCK***	***OPTION***	***TOTAL***	***CASH***	***STOCK***	***OPTION***	***TOTAL***	***CASH***	***STOCK***	***OPTION***
(Constant)	8.913***	9.733***	-4.598***	-3.475**	9.380***	9.834***	-5.165***	-1.299**	9.114***	9.333***	-4.128***	-1.286*
	(30.697)	(38.855)	(-3.205)	(-2.138)	(59.353)	(66.068)	(-7.500)	(-2.016)	(37.019)	(37.651)	(-4.035)	(-1.906)
PEM	0.236***	0.234***	0.556**	0.113	0.358***	0.344***	0.056	0.533***	0.044	0.118	-0.885*	-0.463
	(5.037)	(5.791)	(2.402)	(0.433)	(10.998)	(11.218)	(0.392)	(4.008)	(0.360)	(0.954)	(-1.730)	(-1.373)
OEM	-0.126*	-0.103*	0.026	-0.386	-0.054*	-0.031	0.075	-0.134	-0.034	-0.026	-0.158	0.122
	(-1.895)	(-1.786)	(0.080)	(-1.035)	(-1.800)	(-1.107)	(0.568)	(-1.088)	(-0.844)	(-0.623)	(-0.933)	(1.090)
CH	0.695***	0.440***	1.106	0.701	0.477***	0.392***	0.504	-0.212	0.855***	0.797***	0.257	0.961*
	(4.469)	(3.278)	(1.440)	(0.805)	(4.435)	(3.874)	(1.077)	(-0.485)	(4.485)	(4.150)	(0.324)	(1.839)
LEV	-0.622***	-0.777***	1.272*	-0.209	-0.663***	-0.589***	0.150	-0.818**	-0.497***	-0.472***	-0.094	0.494
	(-4.300)	(-6.228)	(1.781)	(-0.258)	(-7.690)	(-7.250)	(0.399)	(-2.325)	(-3.995)	(-3.773)	(-0.181)	(1.450)
FOREIGN	0.018***	0.018***	0.011	0.001	0.016***	0.014***	0.011*	0.000	0.013***	0.010***	0.028***	0.021***
	(7.953)	(8.938)	(0.973)	(0.049)	(11.112)	(10.639)	(1.773)	(-0.044)	(5.892)	(4.565)	(3.035)	(3.437)
INDIR	0.154	0.099	1.261	0.075	-0.041	-0.152*	2.117***	0.951**	0.032	0.157	0.396	-0.752
	(0.905)	(0.670)	(1.495)	(0.078)	(-0.419)	(-1.658)	(4.992)	(2.396)	(0.182)	(0.882)	(0.538)	(-1.550)
SIZE	0.485***	0.435***	0.252***	0.242**	0.459***	0.428***	0.283***	0.106**	0.452***	0.439***	0.226***	0.063
	(26.571)	(27.616)	(2.797)	(2.370)	(44.292)	(43.830)	(6.257)	(2.498)	(28.279)	(27.302)	(3.402)	(1.447)
Year	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Adjusted-R^2	0.556	0.582	0.152	0.015	0.530	0.520	0.078	0.029	0.522	0.492	0.094	0.023
F-value	85.247***	94.867***	13.096***	2.054***	147.237***	141.579***	12.012***	4.825***	53.379***	47.471***	5.974***	2.151***
N	1,482	1,482	1,482	1,482	4,025	4,025	4,025	4,025	1,490	1,490	1,490	1,490

TABLE 13 The Relationship between Compensation and Types of Earnings Management

Notes:

1. *, **, *** Represent significance of the coefficient at 10 percent, 5 percent, and 1 percent levels, respectively.
2. See Table 1 for detailed variable definitions.

	Growth		Mature		Stagnant	
	ROE	***PRICE***	***ROE***	***PRICE***	***ROE***	***PRICE***
(Constant)	-68.613***	-60.919**	-66.821***	-56.080***	-51.909***	-22.906**
	(-8.641)	(-2.288)	(-16.182)	(-8.805)	(-7.864)	(-2.595)
PEM	4.796***	21.980***	0.150	3.375**	-0.478	0.746
	(3.746)	(5.120)	(0.176)	(2.569)	(-0.145)	(0.169)
OEM	1.470	4.383	0.313	1.541	-1.522	-1.226
	(0.807)	(0.718)	(0.397)	(1.269)	(-1.392)	(-0.839)
CH	19.940***	118.631***	20.877***	58.617***	10.223**	20.104***
	(4.687)	(8.318)	(7.431)	(13.529)	(2.000)	(2.941)
LEV	-39.576***	-17.897	-39.197***	-13.891***	-47.093***	-15.623***
	(-10.005)	(-1.349)	(-17.394)	(-3.997)	(-14.130)	(-3.506)
FOREIGN	-0.179***	2.333***	0.710	0.709***	-0.071	0.933***
	(-2.845)	(11.046)	(0.279)	(12.503)	(-1.189)	(11.605)
INDIR	18.022***	28.577*	0.710	30.480***	15.121***	20.144***
	(3.860)	(1.826)	(0.279)	(7.773)	(12.629)	(3.174)
SIZE	6.614***	6.311***	5.887***	5.401***	5.411***	3.405***
	(13.242)	(3.769)	(21.735)	(12.930)	(12.629)	(5.944)
Year	Y	Y	Y	Y	Y	Y
Industry	Y	Y	Y	Y	Y	Y
Adjusted-R^2	0.205	0.234	0.187	0.277	0.210	0.330
F-value	18.313***	21.609***	30.833***	50.698***	13.788***	24.609***
N	1,482	1,482	4,025	4,025	1,490	1,490

TABLE 14 The Relationship between Firm Performance and Types of Earnings Management

Notes:

1. *, **, *** Represent significance of the coefficient at 10 percent, 5 percent, and 1 percent levels, respectively.
2. See Table 1 for detailed variable definitions.

5. Conclusion

This study has explored the relationship between types of earnings management—predictive earnings management (PEM) and opportunistic earnings management (OEM)—and CEO compensation, as well as the impact of these management types on firm performance. We incorporated R&D expenses into our empirical model and categorized the firms into two distinct groups corresponding to the two types of earnings management.

Our findings indicate a significant association between the type of earnings management and CEO compensation. Specifically, CEO compensation, including total salary, cash, stock options, and other compensatory forms, negatively correlates with OEM. This suggests that CEOs engaged in opportunistic practices may face punitive or less generous compensation structures. Conversely, PEM is positively correlated with CEO compensation, indicating that firms are likely to reward executives who engage in earnings management that potentially benefits long-term firm value and predictability.

The analysis also extends to the correlation between earnings management types and overall firm performance. Our results reveal that firms identified with OEM typically exhibit poorer performance, reflecting the potentially damaging impact of such practices on the company's financial health and market perception. On the other hand, PEM firms show a positive correlation with firm performance, suggesting that predictive management activities are viewed favorably by markets and can lead to enhanced operational outcomes.

Further, we have considered the causality implications, particularly how earnings management might influence CEO compensation and firm performance in subsequent periods. The consistent results underscore the importance of earnings management behaviors in shaping future compensation strategies and firm performance metrics.

Lastly, our findings underscore the critical role of corporate governance mechanisms, specifically compensation policies, in influencing executive behavior and enhancing firm performance in Taiwan's emerging market. These insights suggest that more generous compensation packages may motivate executives towards earnings management practices that align more closely with shareholder interests and long-term value creation. This could potentially encourage predictive earnings management, which is associated with positive firm outcomes.

Overall, this study contributes to the nuanced understanding of how different types of earnings management influence executive compensation and firm performance. It highlights the complex interplay between corporate governance, executive behavior, and financial strategies within emerging markets.

References

Adut, D., Holder, A.D. and Robin, A. 2013, 'Predicative versus opportunistic earnings management, executive compensation, and firm performance', *Journal of Accounting and Public Policy,* 32: 126-146.

Agha, M., 2013, Leverage, executive incentives and corporate governance, Accounting and Finance 53, 1–30.

Agha, M. 2013, 'Leverage, executives incentives and corporate governance', *Accounting and Finance,* 53: 1-30.

Anthony, J.H. and Ramesh, K. 1992, 'Association between accounting performance measures and stock prices: A test of the life cycle hypothesis', *Journal of Accounting and Economics,* 15, 2: 203-227.

Balsam, S. 1998, 'Discretionary accounting choices and CEO compensation', *Contemporary Accounting Research,* 15, 3: 229-252.

Bugeja, M., Fohn, S. and Matolcsy, Z. 2016, 'Determinants of the levels and changes in non-executive director compensation', *Accounting and Finance,* 56, 3: 627-667.

Bushee, B. 1998, 'The influence of institutional investors on myopic R&D investment behavior', *The Accounting Review,* 73, 3: 305-333.

Chin, C.L., Lin, H.W. and Chi, H.Y. 2004, 'The value-relevance of patent: A test of the life cycle hypothesis', *Journal of Management,* 21, 2: 175-197.

Cohen, D.A., Dey, A. and Lys, T.Z. 2013, 'Corporate governance reform and executive incentives: Implications for investments and risk-taking', *Contemporary Accounting Research,* 30, 4: 1296-1332.

Davidson, R., Goodwin-Stewart, J. and Kent, P. 2005, 'Internal governance structures and earnings management', *Accounting and Finance,* 45: 241-267.

Dechow P.M., and Dichev, I.D. 2002, 'The quality of accruals and earnings: The role of accrual estimation errors', *The Accounting Review,* 69: 35-59.

Dechow, P., Hutton, A., Meulbroek, L. and Sloan, R. 2001, 'Short-sellers, fundamental analysis, and stock returns', *Journal of Financial Economics,* 61: 77-106.

Dechow, P. and Sloan, R. 1991, 'Executive incentives and the horizon problem: An empirical investigation', *Journal of Accounting and Economics,* 14, 1: 51-89.

Degeorge, F., Patel, J. and Zeckhauser, R. 1999, 'Earnings management to exceed thresholds', *Journal of Business,* 72, 1: 1-33.

Graham, J., Harvey, C. and Rajgopal, S. 2005, 'The economic implications of corporate financial reporting', *Journal of Accounting and Economic,* 4, 1-3: 3-73.

Gul, F.A., Chen, C.J. and Tsui, J.S. 2003, 'Discretionary accounting accruals, managers' incentives, and audit fees', *Contemporary Accounting Research,* 20, 3: 441-464.

Healy, P. 1985, 'The effect of bonus schemes on accounting decisions', *Journal of Accounting and Economics,* 7: 85-107.

Hossain, S. and Monroe, G.S. 2015, 'Chief financial officers short- and long-term incentive-based compensation and earnings management', *Australian Accounting Review,* 25, 3: 279-291.

Hribar, P. and Yehuda, N. 2015, 'The mispricing of cash flows and accruals at different life-cycle stages', *Contemporary Accounting Research,* 32, 3: 1053-1072.

Jones, J.J. 1991, 'Earnings management during import relief investigations', *Journal of Accounting Research,* 29, 2: 193-228.

Kothari, S.P., Leone, A.J. and Wasley, C.E. 2005, 'Performance matched discretionary accrual measures', *Journal of Accounting and Economics,* 39: 163-197.

Larcker, D., Richardson, S. and Tuna, I. 2007, 'Corporate governance, accounting outcomes, and organizational performance', *The Accounting Review,* 82: 963-1008.

Lev, B. and Sougiannis, T. 1996, 'The capitalization, amortization, and value-relevance of R&D', *Journal of Accounting and Economics,* 21: 107-138.

McVay, S.E. 2006, 'Earning management using classification shifting: An examination of core earnings and special items', *The Accounting Review,* 81, 3: 501-531.

Mohanram, P. 2005, 'Separating winners from losers among low book-to-market stocks using financial statement analysis', *Review of Accounting Studies,* 10: 133-170.

Peng, E. 2011, 'Accruals quality and incentive contracting role of earnings', *Journal of Accounting and Public Policy,* 30: 460-480.

Perry, S. and Grinaker, R. 1994, 'Earnings expectations and discretionary research and development spending', *Accounting Horizons,* 8, 4: 43-51.

Piotroski, J. 2000, 'Value investing: The use of historical financial statement information to separate winners from losers', *Journal of Accounting Research,* 38: 1-41.

Roychowdhury, S. 2006, 'Earnings management through real activities manipulation', *Journal of Accounting and Economics,* 42, 3: 335-370.

Safari, M., Cooper, B.J. and Dellaportas, S. 2016, 'The influence of remuneration structures on financial reporting quality: Evidence from Australia', *Australian Accounting Review*, 26, 1: 66-75.

Schipper, K. 1989, 'Commentary on earnings management', *Accounting Horizons*, 3, 4: 91-102.

Hsu, Y.S., Chen, H.C. and Chen, W.C. 2013, 'The impact of board characteristics on the choice of earnings management', *Journal of Accounting Review*, 57: 39-72.

Wilson, M. 2011, 'Earnings management in Australian corporations', *Australian Accounting Review*, 21, 3: 205-221.

Wilson, M, and Wang, L.W. 2010, 'Earnings management following chief executive officer changes: the effect of contemporaneous chairperson and chief financial officer appointments', *Accounting and Finance*, 50, 2: 447-480.