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THE EFFECT OF CLASSIFICATION SHIFTING ON ANALYST FORECAST ACCURACY: EVIDENCE FROM JAPAN

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Abstract

Accounting research has focused extensively on both discretionary accrual-based earnings management (DA) and real earnings management (REM). The third route of earnings management, classification shifting (CS), is a relatively new research area. First, this paper provides evidence that managers in Japan overstate operating income through classification shifting. Second, we find that analysts' forecast accuracy for operating income is reduced for firms that use frequent classification shifting to manipulate operating income upward. This paper can be helpful for regulatory agencies responsible for financial reporting quality when supervising or auditing the quality of firm's financial reporting. This paper also highlights investors' need to perform detailed reviews of firms' financial statements in their decision making.

Keywords: classification shifting, earnings management, analyst forecast
JEL Classification: M41

I. *Introduction*

This paper examines the discretionary classification shifting of core-expense to non-core expense to increase operating income ("classification shifting" hereafter) in Japan. First, the study examines whether classification shifting is observed (or exists) in Japanese companies. Second, given the existence of classification shifting, it examines whether analysts are able to recognize earnings management through classification shifting activities.

Accounting research has examined two earnings management methods—discretionary accrual-based earnings management (DA) and real earnings management (REM). Most studies have focused on accrual-based earnings management (Jones 1991; Teoh et al. 1998; Klein 2002). However, since this tool intentionally increases (decreases) the current period's income, it also decreases (increases) future reported income. Using real earnings management may temporarily increase earnings by providing temporary price discounts to increase sales, cutting discretionary expenditures such as research and development and advertising, and overproducing inventory to reduce the cost of goods sold (Roychowdhury 2006; Cohen and Zarowin 2008). However, real earnings management increases opportunity costs by damaging corporate

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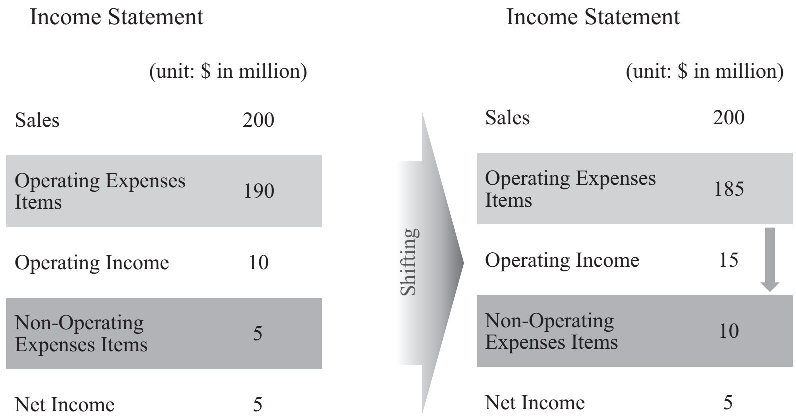
value in the long term, while the company enjoys short-term profits by saving expenses. Therefore, managements may wish to employ another earnings management method, one with lower opportunity costs than accrual-based and real earnings management.

This paper uses a novel approach to measuring earnings management: classification shifting. McVay (2006) investigates this new form of earnings management, showing that management maximizes core earnings by expense misclassification, while reported net income is not affected, by using an unexpected operating income rate model. Because classification shifting manipulates operating earnings, leaving net earnings unchanged, it is an efficient way for management to avoid strict external auditing. Figure 1 illustrates how reclassifying operating expenses items to non-operating ones intentionally increases operating income. Managements thus have an incentive to use classification shifting for earnings adjustment in a way that does not damage firm value.

Figure 1. Mechanism of Classification Shifting



According to the Jenkins Report (1994) issued by the American Institute of Certified Public Accountants (AICPA), current earnings need to be specifically reported as core earnings and non-core earnings to prevent management from releasing misleading information. Capital market participants are interested in various levels of profitability. Because operating (i.e., core) earnings derive mostly from firms' recurring operating activities, the earnings also play key roles in investor decision making regarding sustainable profitability. It is logical that core earnings would provide a basis for valuation. Analysts thus use operating income in their valuations as well as predictions of future performance. Hayn (1995) finds that operating income excluding non-recurring items provide more explanatory power for stock returns. Lipe (1986) also reports that operating income data are relatively more informative than those on net income. Therefore, management with earnings management incentives may overstate operating income through classification shifting, thus distorting market assessments. Moreover, classification shifting attracts less attention from auditors and regulatory agencies than DA does because operating income can be overstated while net income remains unchanged. Furthermore, unlike REM, classification shifting does not damage long-term corporate value, thus incurs lower opportunity costs. These facts make classification shifting a worthy research object, but it has not yet been as extensively studied as DA and REM have been.

Though McVay (2006) provides evidence on classification shifting among U.S firms, no research has shown that classification shifting occurs in Japan. Using the measurement approach developed by McVay (2006), this study provides evidence on classification shifting in Japan. In addition, given the existence of classification shifting, this study examines whether analysts incorporate the effect of classification shifting in their forecasts. This is a unique contribution of our paper.[1]

This study has both policy and practical implications. Regulatory agencies and audit practitioners, concerned about the quality of financial reporting, must understand that classification shifting has a heavy impact on the quality of financial and accounting information. Furthermore, investors and analysts who use operating income figures in firm valuation models need to be aware that firms may practice classification shifting and thus carefully assess each individual item when calculating operating incomes.

II. *Previous Research and Hypotheses*

1. Earnings Management Using Classification Shifting

Classification shifting is a better earnings management or adjustment method than the earnings management tools suggested by Schipper (1989), such as accrual-based earnings management and real earnings management. Classification shifting lacks the negative effects produced by real earnings management and thus does not reduce firm value. In addition, operating earnings affect stock prices more than net earnings do. Thus, managements tend to perform earnings management using classification shifting. We predict that Japanese managements also have incentives to use classification shifting, which exacts relatively low opportunity costs but has an impact on stock price.

Since the introduction of the Japanese GAAP (Generally Accepted Accounting Principles) in 1949, business conventions in Japan have been strongly influenced by the “current operating performance concepts.” The business convention in Japan considers “ordinary income” and “operating income” more important as earnings indexes than net income. Thus, Japanese firms may manage earnings through classification shifting, as classifying operating expenses as non-operating expenses increases operating income only while leaving net income unchanged. This leads to our first hypothesis:

H1: Managers classify operating expenses as non-operating expenses to inflate operating income

2. Classification Shifting and Analysts’ Forecasting Ability

Research on the effect of accounting earnings quality on analysts’ earnings estimates show that, when the quality of accounting earnings increases, the accuracy of analysts’ earnings

[1] Nagata and Shirato (2013; in Japanese) analyzed classification shifting in Japan focusing on special items. However, they do not analyze the relation between classification shifting and analyst forecast accuracy, as our study does.

estimates also increases (Jung and Lim 2005; Das et al. 1998). However, there is no research on the relationship between low accounting earnings quality due to expense misclassification and the accuracy of analysts' earnings forecasts. Analysts are more sophisticated market observers than normal investors and are thus expected to detect classification shifting. Therefore, if analysts detect any abnormal overstatement of operating income through classification shifting, the accuracy of their earnings forecast for the firm will increase. However, McVay (2006) reported that earnings management through classification shifting is hard to detect by outside auditors since it does not affect net income. Thus, analysts may not be able to recognize classification shifting as well as auditors. Though McVay (2006) did not examine whether analysts understand shifting activity, she did report that normal investors failed to detect the overstatement of operating income. Therefore, whether analysts, who are more sophisticated than normal investors, are able to detect the abnormal overstatement of operating income must be further investigated. These opposing perspectives lead to hypothesis 2, stated as a null hypothesis:

H2: The accuracy of analysts' earnings forecasts is not affected by earnings management through classification shifting

III. *Research Model*

1. Unexpected Operating Income Rate (McVay 2006)

This paper uses unexpected operating income rate (*UEOI*) to prove the hypothesis. The *UEOI* is computed as the difference between the real operating income rate and expected operating income rate and is measured using the estimation model in McVay (2006). The detailed model is as follows:

<Estimation Model>

$$OI_t = \alpha_0 + \alpha_1 OI_{t-1} + \alpha_2 ATO_t + \alpha_3 ACC_{t-1} + \alpha_4 ACC_t + \alpha_5 \Delta SALES_t + \alpha_6 NEG\_\Delta SALES_t + \varepsilon_t$$

OI_t = Operating income before depreciation and amortization/sales$_t$.

ATO_t = Asset turnover ratio, calculated as sales$_t$ / [(net operating assets$_{t-1}$ + net operating assets$_t$) /2], where net operating asset is equal to the difference between operating assets and operating liabilities.

ACC_t = Operating accruals defined as = (operating income$_t$ − CFO$_t$)/sales$_t$

$\Delta SALES_t$ = Percent change in sales from year t-1 to t, calculated as (sales$_t$ − sales$_{t-1}$) /sales$_{t-1}$

$NEG\_\Delta SALES_t$ = Percent change in sales ($\Delta SALES$), if $\Delta SALES$ is negative, and 0 otherwise.

t = year

The estimation model calculates the expected operating income rate. In *OI* calculation, the numerator is the amount of operating income before depreciation and amortization. This exclusion occurs because the decrease in depreciation and amortization due to the non-operating loss through the disposal and impairment of tangible/non-tangible assets may affect the operating income rate.

The control variables consist of items affecting the operating income rate in the current period. Sloan (1996) shows that the continuity of operating income is higher than that of net income. Therefore, operating income for period t-1 is a useful control variable, with an expected sign of (+). Variable *ATO* is included to control for the phenomenon in which operating income divided by sales decreases when the asset turnover ratio is high. The expected sign is (-). Sloan (1996) and Richardson et al. (2004) showed that accruals reduce the continuity of earnings. Thus, the operating income rate in period t may decrease once the accruals in period t-1 increase. To control for this effect, the model includes discretionary accruals in period t-1 ACC_{t-1}, and ACC_{t-1} is expected to have a positive sign. On the other hand, DeAngelo et al. (1994) stated that changes in accruals are proportionate with extreme business performance. Thus, to diminish the estimation errors caused by firms with extreme business performance, changes in discretionary accruals should be considered in the model. Since ACC_{t-1} is already used, this paper uses ACC_t as a control variable. The expected sign of the coefficient of ACC_t is (+) since a company may show abnormally high or low performance proportional to the level of ACC_t. Change in sales ($\Delta SALES$) is a variable used to control for the effect by which fixed unit cost decreases as sales increase, thus the operating income rate increases. The expected sign of $\Delta SALES$ is (+). Anderson et al. (2003) show that, unlike the range of increase in selling and administrative expenses due to increase in sales, the range of increase in the operating income rate through increase in sales is asymmetrical. Therefore, the model includes $NEG\_\Delta REV$, reflecting the rate of decrease in sales, to control for the asymmetry, with an expected sign of (+).

2. Hypothesis Analysis Model

<Regression Model 1> $UEOI_t = \alpha_0 + \alpha_1 NOE_t + \varepsilon_t$

The dependent variable for basic regression model 1 is $UEOI_t$, as in McVay (2006). $UEOI_t$ reflects the unexpected operating income rate. NOE_t is the independent variable representing the ratio between non-operating expense and sales. By manipulating operating income upward by classifying operating expenses as non-operating expenses, basic regression model 1 will show a positive relationship between NOE_t and $UEOI_t$. Thus, if the empirical result of basic regression model shows a positive sign between NOE_t and $UEOI_t$, shifting behavior for earnings management can be assumed (McVay 2006).

<Regression Model 2>

$$AFA\_OI_t = \alpha_0 + \alpha_1 UEOI_t * NOE_t + \alpha_2 MV_t + \alpha_3 CFO_t + \alpha_4 LEV_t + \alpha_5 COVER_t + \varepsilon_t$$

AFA_OI_t = (−)Log (|median value of OPS forecast − actual value of OPS|)/The end of the fiscal year stock price
NOE_t = Non-operating expense/sales
MV_t = Log (market value of equity)
CFO_t = Cash flow from operation/total assets
LEV_t = Total liabilities/total assets
$COVER_t$ = Number of analysts following for a particular firm-year
t = year

To verify hypothesis 2, this paper uses *AFA_OI*, which measures the accuracy of analysts' operating income forecasts, as a dependent variable. The key variable for hypothesis 2 is *UEOI*NOE*, the interaction variable between *UEOI* and *NOE*, and its coefficient α_1.

Analysts' forecast accuracy can be measured as the difference between operating earnings per share (OPS) estimate and actual operating earnings per share, based on data available on IBES. Moreover, as Alford and Berger (1999) suggested, we use a natural logarithm on total error in the earnings estimate to minimize distortion in the distribution of earnings forecast error. To change errors in earnings forecast to accuracy of forecast, we use a negative sign, as shown in the equation below:

$$\text{Analysts Forecast Accuracy(AFA)} = (-)\ln\{|(\text{OPS Estimate Median} - \text{OPS Actual Value})|/\text{Year End Stock Price}\}$$

Various control variables affecting analysts' forecasts are also considered. Normally, control variables can be divided into variable on the characteristics of analysts' forecasts and those on other firm characteristics. First, we include firm size (*MV*), operating cash flow (*CFO*), and debt ratio (*LEV*) to control for firm characteristics on analysts' forecast accuracy. We also include number of earnings forecast (*COVER*) as variable for analysts' forecasts characteristics. *COVER* is measured by counting how many estimates are made by year-industry-based analysts.

3. Sample Selection

The sample for this research is drawn from firms listed on the Japanese stock exchange from March 2001 to March 2007. The following conditions are applied in the sample selection:

① Companies listed on Japanese stock exchange from 2001–2007
② Firms with March year-end, excluding financial industry
③ Firms with financial and analyst information that can be extracted from NIKKEI NEEDS–Financial Quest by Nikkei Media Marketing and IBES
④ Winsorization on sample of upper and lower 1% level, based on dependent and independent variables.

After eliminating companies that do not have adequate data, the final sample consists of 8, 590 firm-year observations for hypothesis 1 and 979 firm-year observations for hypothesis 2.

IV. *Empirical Results*

1. Main Result

Table 1 shows the descriptive statistics for the variables. Panel A of Table 1 shows the variables for hypothesis 1. The mean and median values of $UEOI_t$ are 0.0001 and −0.001 respectively. The mean and median values of $NOE1_t$, the ratio between non-operating expenses and sales, are 0.011 and 0.003 respectively. Panel B of Table 1 shows the descriptive statistics for hypothesis 2. The mean value of AFA_OI_t, which represents analysts' earnings forecast accuracy, is 5.007 while $UEOI_t$'s mean value is 0.0001, $NOE1_t$ has a mean value of 0.009.

Table 1. Descriptive Statistics

Panel A. Variables for Hypothesis 1

Variable	N	Mean	Standard deviation	25%	Median	75%
UEOI	8,590	0.0001	0.035	−0.013	−0.001	0.010
NOE1	8,590	0.011	0.012	0.003	0.007	0.014
NOE2	8,590	0.005	0.007	0.001	0.002	0.006
SIZE	8,590	10.460	1.341	9.678	10.434	11.233
ROA	8,590	0.016	0.053	0.004	0.018	0.038
CFO	8,590	0.068	0.066	0.027	0.053	0.086
ACC	8,590	−0.060	0.113	−0.072	−0.035	−0.010
BTM	8,590	1.107	0.880	0.569	0.913	1.417

Panel B. Variables for Hypothesis 2

Variable	N	Mean	Standard deviation	25%	Median	75%
AFA_OI	979	5.007	2.138	3.636	4.890	6.037
UEOI	979	0.000	0.030	−0.012	0.000	0.011
NOE1	979	0.009	0.009	0.003	0.006	0.013
NOE2	979	0.005	0.005	0.001	0.003	0.007
MV	979	10.065	1.601	8.872	9.911	11.170
CFO	979	0.078	0.086	0.036	0.066	0.097
LEV	979	0.516	0.200	0.368	0.523	0.664
COVER	979	1.977	1.706	1.000	1.000	2.000

Note: *UEOI*＝Unexpected operating income(*UEOI*) is the differences between actual and predicted operating income, where the predicted value is calculated using predictive model 1 developed by McVay (2006):

NOE＝*NOE1*, *NOE2*

NOE1 ＝Non-operating expenses/sales

NOE2 ＝Non-operating expenses, exclusive of interest expenses/sales

SIZE＝Log (total asset)

ROA＝Net income/total assets

CFO＝Cash flow from operation/total assets

ACC＝(Net income-cash flow from operation)/sales

BTM＝Book to market ratio

AFA_OI＝(−) Log (|median value of OPS forecast−actual value of OPS|)/The end of the fiscal year stock price

MV＝Log (Market value of equity)

CFO＝Cash flow from operation/total assets

LEV＝Total liabilities/total assets

COVER＝Number of analysts following for a particular firm-year

Table 2 shows the association among the variables used in the regression. Panel A of Table 2 shows the association of the variables for hypothesis 1. There is a positive association between unexpected operating income ratio and non-operating expense, implying that operating income increases abnormally through shifting. Panel B of Table 2 shows the association of variables for hypothesis 2. There is a negative association between unexpected operating income ratio and the accuracy of analysts' forecasts of operating income, implying that unexpected increases in operating income reduce the accuracy of analysts' earnings forecasts.

Table 3 shows the empirical results concerning whether shifting occurs in Japanese firms.

TABLE 2. CORRELATION

Panel A. Hypothesis 1 (n=8,590)

	NOE1	*NOE2*	*SIZE*	*ROA*	*CFO*	*ACC*	*BTM*
UEOI	0.05 (<.0001)	0.0464 (<.0001)	0.00432 (0.6891)	0.15432 (<.0001)	0.24933 (<.0001)	−0.1205 (<.0001)	0.00126 (0.9072)
NOE1		0.75125 (<.0001)	0.10395 (<.0001)	−0.30586 (<.0001)	0.00726 (0.5009)	−0.3813 (<.0001)	0.03284 (0.0023)
NOE2			0.02469 (0.0221)	−0.23515 (<.0001)	0.09743 (<.0001)	−0.32608 (<.0001)	0.02216 (0.04)
SIZE				−0.06489 (<.0001)	−0.21668 (<.0001)	0.04193 (0.0001)	−0.05172 (<.0001)
ROA					0.28886 (<.0001)	0.55884 (<.0001)	−0.07389 (<.0001)
CFO						−0.35612 (<.0001)	−0.02602 (0.0159)
ACC							−0.037 (0.0006)

Panel B. Hypothesis 2 (n=979)

	UEOI	*NOE1*	*NOE2*	*MV*	*CFO*	*LEV*	*COVER*
AFA_OI	−0.08192 (0.0103)	0.00047 (0.9883)	−0.0067 (0.8341)	−0.06809 (0.0331)	−0.05695 (0.0749)	−0.07408 (0.0204)	−0.17857 (<.0001)
UEOI		−0.03558 (0.2661)	−0.00966 (0.7627)	0.00853 (0.7897)	0.17156 (<.0001)	−0.0717 (0.0249)	−0.03572 (0.2641)
NOE1			0.828 (<.0001)	0.005 (0.8795)	0.077 (0.0163)	0.340 (<.0001)	−0.063 (0.0475)
NOE2				0.019 (0.5574)	0.119 (0.0002)	0.110 (0.0006)	−0.002 (0.9498)
MV					5.010 (0.7525)	0.013 (0.696)	0.008 (0.7953)
CFO						-0.152 (<.0001)	-0.007 (0.8236)
LEV							-0.059 (0.0629)

Note: Refer to Table 1 for the variable definitions.

The key variable is *NOE*; a positive sign for coefficient α_1 would support hypothesis 1. We also use *NOE2* after excluding interest expenses, which are difficult to manage discretionarily. The coefficient for *NOE1* is 0.161(t-value=4.95) and is positively significant at a 1% significance level. In addition, the coefficient for *NOE2* is 1.315(t-value=14.24) and is positively significant at a 1% significance level.

Barua et al. (2010) showed that managers also use discontinued operations to inflate operating income. They modified the McVay (2006) model after adding control variables that can affect *UEOI*. We therefore reexamine hypothesis1 after adding firm size (*SIZE*), return on asset (*ROA*), operating cash flows (*CFO*), accruals (*ACC*), and book-to-market (*BTM*) variables.

Table 3. Classification Shifting in Japan

(Hypothesis 1)

$UEOI_t = \alpha_0 + \alpha_1 NOE_t + \varepsilon_t$

Variables	*NOE=NOE1*		*NOE=NOE2*	
	Coeff.	t-value	Coeff.	t-value
Intercept	-0.002	-1.91*	-0.011	-7.16***
NOE	0.161	4.95***	1.315	14.24***
Year Dummies	Included			
Industry Dummies	Included			
Model Fit	Adj R^2	1.62%	Adj R^2	2.29%
Model Fit	F Value	22.52***	F Value	31.59***
Sample Size	8,590			

Note: 1) Refer to Table 1 for the variable definitions.
2) *, **, *** represent significances at the 10, 5, and 1% levels, respectively.

Table 4. Classification Shifting in Japan with Control Variables

(Hypothesis 1)

$UEOI_t = \alpha_0 + \alpha_1 NOE_t + \alpha_2 SIZE_t + \alpha_3 ROA_t + \alpha_4 CFO_t + \alpha_5 ACC_t + \alpha_6 BTM_t + \varepsilon_t$

Variables	*NOE=NOE1*		*NOE=NOE2*	
	Coeff.	t-value	Coeff.	t-value
Intercept	−0.023	−6.79***	−0.024	−7.02***
NOE	0.153	4.54***	0.191	3.26***
SIZE	0.000	1.08	0.000	1.46
ROA	0.250	28.42***	0.247	28.23***
CFO	0.000	−0.27	0.000	−0.41
ACC	−0.103	−24.22***	−0.104	−24.77***
BTM	0.001	1.46	0.001	1.5
Year Dummies	Included			
Industry Dummies	Included			
Model Fit	Adj R^2	10.17%	Adj R^2	10.06%
Model Fit	F Value	32.37***	F Value	32.01***
Sample Size	8,590			

Note: 1) Refer to Table 1 for the variable definitions.
2) *, **, *** represent significances at the 10, 5, and 1% levels, respectively.

Table 4 shows the empirical results for hypothesis 1 after the control variables are added. The coefficient for *NOE1* is 0.153 (t-value=4.54) and is positively significant at a 1% significance level. The coefficient for *NOE2* is 0.191 (t-value=3.26) and is positively significant at a 1% significance level. These results imply that firms manage earnings through classification shifting in order to increase their operating income. Thus, hypothesis 1 is supported.

Table 5 presents the empirical results concerning whether analysts accurately estimate the

TABLE 5. THE EFFECT OF CLASSIFICATION SHIFTING ON ANALYSTS' FORECAST ACCURACY FOR OPERATING INCOME

(Hypothesis 2)

$AFA\_OI_t = \alpha_0 + \alpha_1 UEOI_t * NOE_t + \alpha_2 MV_t + \alpha_3 CFO_t + \alpha_4 LEV_t + \alpha_5 COVER_t + \varepsilon_t$

Variables	*NOE=NOE1*		*NOE=NOE2*	
	Coeff.	t-value	Coeff.	t-value
Intercept	7.039	13.61***	7.033	13.6***
*UEOI*NOE*	−281.823	−1.95*	−451.653	−1.93*
MV	−0.085	−2.07**	−0.086	−2.09**
CFO	−1.411	−1.79*	−1.363	−1.72*
LEV	−1.002	−2.82***	−0.984	−2.77***
COVER	−0.238	−6.12***	−0.238	−6.12***
Year Dummies	Included			
Industry Dummies	Included			
Model Fit	Adj R^2	9.39%	Adj R^2	9.38%
Model Fit	F Value	4.38***	F Value	4.37***
Sample Size	979			

Note: 1) Refer to Table 1 for the variable definitions.
2) *, **, *** represent significances at the 10, 5, and 1% levels, respectively.

operating earnings of firms that exhibit frequent shifting activity. The key variable is the interaction variable of *UEOI*, unexpected operating income rate, and *NOE*. The coefficient α_1 is negatively significant at a 10% significance level, implying that analysts' earnings forecast accuracy for firms that exhibit frequent shifting activity is low. Analysts may be misguided by classification shifting behavior.

V. *Conclusion*

This study examines classification shifting, the overstatement of operating earnings, in Japan. Firm managers have the discretionary power to allocate expenses to specific accounts subjectively, and auditors cannot always accurately verify the appropriateness of their classifications. Moreover, as net income does not change when operating income increases due to shifting, auditors might pay less attention to the identification or compulsory adjustments of these accounts. In addition, operating income has more value relevance to stock prices than net income does, making classification shifting an attractive earnings management tool. Research on classification shifting must therefore be conducted for the benefit of investors and auditors.

Research on classification shifting is relatively new, and no study has yet determined the relationship between classification shifting and analysts' forecast accuracy. This paper provides several comprehensive insights into the overstatement of operating earnings via classification shifting in Japan. First, managers overstate earnings through classification shifting in Japan. Second, analysts' forecast accuracy for earnings is reduced for firms that frequently use classification shifting to manipulate their earnings upward.

This paper can help regulatory agencies responsible for financial reporting quality supervise or audit firms' financial reporting effectively. This paper also demonstrates that investors must perform detailed reviews of firms' financial statements in their decision making.

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