

# Heterogeneous Institutional Investors and Earnings Smoothing

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*This paper examines the relationship between institutional ownership and earnings smoothing by taking into account the heterogeneity of institutional investors. The paper finds that ownership by transient institutional investors, who have short investment horizons and trade actively, is negatively related to the incidence of earnings smoothing when pre-managed earnings are above earnings trend. In contrast, ownership by dedicated institutional investors, who have longer horizon and concentrated holdings, is positively related to the incidence of earnings smoothing when pre-managed earnings are below earnings trend. The findings suggest that institutional investors affect earnings smoothing through their preference for certain pattern of earnings, instead of through their monitoring activities. The results are robust after potential endogeneity is controlled for.*

## INTRODUCTION

This paper examines the relationship between institutional ownership and earnings smoothing by taking into account the heterogeneity of institutional investors due to their different investment patterns. The association between institutional ownership and earnings smoothing among US. firms is rarely investigated. Carlson and Bathala (1997) and Koh (2005) are the only two known studies that examined this association. Both papers reported a positive effect of institutional ownership on the likelihood of earnings smoothing by firms. However, due to the limitation of data availability back then, Carlson and Bathala (1997) only studied 265 firms listed by *Forbes*. Koh (2005) had a much larger sample size but it focused on the firms in Australia. In addition, both papers did not examine different possible effects of various institutional investor groups on earnings smoothing. Furthermore, if institutional investors can affect the managerial decisions in smoothing earnings, is it due to their monitoring activities to constraint the managerial opportunistic behavior or because of their preferences for certain pattern of earnings? This is the research question that the paper addresses. Specifically, by distinguishing different types of institutional investors, the paper investigates how institutional investors affect the incidence of earnings smoothing.

Earnings smoothing is an attempt on the part of managers to reduce variations in reported earnings related to economic earnings. As a result, earnings will look less variable over time (Beidleman, 1973; Carlson and Bathala, 1997; Goel and Thakor, 2003). The evidence of earnings smoothing is extensively documented (e.g. Beidleman, 1973; Ronen and Sadan, 1981; Subramanyam, 1996; Bannister and Newman, 1996; Godfrey and Jones, 1999). According to Carlson and Bathala (1997), managers engage in income smoothing for more than one reason. A reduction in the variation of the earnings stream may increase the attractiveness of the firms to investors by reducing investors' perceived risk of the firm, increase earnings predictability, and improve managers' personal wealth and job security. Therefore, the

management of a firm may be motivated to smooth income as a method to increase either shareholder value or personal wealth (Ronen and Sadan, 1981; Carlson and Bathala, 1997; Koh, 2005). In other words, earnings smoothing is not necessarily managerial opportunistic behavior that is in conflict with shareholders' interest.

Compared to individual investors, institutional investors are more likely to exert pressure on managers to manage reported earnings, including smoothing reported earnings (Bushee, 2001; Hand, 1990). Institutional investors may prefer a smoothed reported earnings stream as firms with smoothed earnings are likely to maintain more predictable and desirable performance (Carlson and Bathala, 1997), as well as provide more sustainable capital gains and more predictable dividend payout over time (Ronen and Sadan, 1981). In addition, in selecting stocks, "institutions may place importance on whether the security is sufficiently seasoned because courts may link this to prudence." (Badrinath, Gay and Kale, 1989). Investing in firms with smooth reported earnings can thus satisfy the prudence standard applied by the courts (Carlson and Bathala, 1997; Koh, 2005). Due to the preference by institutional investors, firms may want to smooth earnings in order to maintain institutional investors' interest in their stocks (Carlson and Bathala, 1997; Koh, 2005).

Since institutional investors are not homogeneous, it is possible that different institutional investors have different effects on earnings smoothing. According to Bushess (1998), institutions can be classified as transient, quasi-indexers and dedicated investors by taking into account their different investment patterns. Institutions with a goal of short term profit maximization and short investment horizons are characterized as transient investors. In contrast, institutions with a longer horizon and concentrated holdings are characterized as dedicated investors. In addition, institutions that hold diversified portfolios and follow a passive buy and hold strategy are characterized as quasi-indexers.

According to the classification, dedicated institutional investors are those institutional investors that are most likely to serve a monitoring role in mitigating the agency problem between shareholders and managers, since their large shareholdings and long-term investment horizon provide them an incentive and private information (Bushee and Noe (2000)) to monitor and discipline managers. Therefore, if earnings smoothing is an opportunistic managerial behavior that is in conflict with shareholders' interest, it is possible that higher dedicated institutional ownership will reduce the incidence of earnings smoothing. However, according to Goel and Thakor (2003), what causes earnings smoothing is the manager's concern about long-term stock price performance rather than just the current stock price. As dedicated institutions are those who care most about long-term returns, it is also possible that firms with higher dedicated institutional ownership are more likely to smooth earnings. This may be particularly true when earnings are temporarily low so long-term share prices will not be punished by a deviation from earnings trend and interest of dedicated institutional investors can be maintained.

Different from dedicated institutional investors, transient institutional investors are those that have fragmented ownership and trade frequently. They are investors who are poised to exit a firm at the first sign of trouble rather than attempt to instigate changes in a firm. Monitoring is not a central focus of their strategies. Therefore, the presence of transient investors will not reduce the likelihood of earnings smoothing if it is an opportunistic manipulation of earnings that deviates from the interest of shareholders. However, transient institutions' intensive trading on earnings news may also impose pressure on corporate managers to manipulate earnings towards market expectations and their own interest. Especially, transient institutional investors are those who trade frequently to make profit from short-term price changes. When earnings are unusually high, they may prevent managers from smoothing earnings downward so short-term stock price can reflect high earnings. Therefore, by distinguishing heterogeneous institutional investors, the author can examine whether institutional investors affect earnings smoothing through their monitoring activities or through their preference for certain pattern of earnings.

With the classification of institutional investors, the author runs a Logit model on a sample of 1,639 firms between 1992 and 2006 (totally 7,853 firm-year observations). The results show that the likelihood of earnings smoothing is positively related to ownership by dedicated institutional investors but negatively related to ownership by transient institutional investors. The result is interesting given the fact

that dedicated institutional investors, who have longer investment horizons and more concentrated holdings, are more likely to constraint managerial opportunistic behavior than transient institutional investors, who have short investment horizons and high portfolio turnovers. The finding suggests that on average the influence of institutional investor on earnings smoothing is not directly through their monitoring activities.

In order to further explore the possible channels through which heterogeneous institutional investors affect earnings smoothing, the author divides the sample based on different benchmarks. First, the paper examines whether the relationship between institutional investor ownership and earnings smoothing is different between loss-making and profit-making firms. The results show that after unobserved firm characteristics are accounted for, institutional investors, either as a whole group or being classified as different groups based on their investment style, do not have different effects on the incidence of earnings smoothing between profit firms and loss firms. Therefore, it suggests that the different effects of institutional investors on earnings smoothing between profit firms and loss firms as documented in Koh (2005) may be caused by some unobserved sources of firm heterogeneity.

Second, the paper also separately runs the regression on two subsamples based on their earnings level relative to earnings trend, i.e., firms with pre-managed earnings (non-discretionary earnings, *NDE*) above their earnings trend versus firms with pre-managed earnings below their earnings trend. The findings shows that the positive relationship between dedicated institutional ownership and the likelihood of earnings smoothing only exists among the firms with pre-managed earnings below their earnings trend, whereas the negative relationship between transient institutional ownership and the likelihood of earnings smoothing only exists among the firms with pre-managed earnings above their earnings trend.

The results suggest that those firms with higher dedicated institutional ownership are more likely to smooth earnings towards earnings trend when earnings are temporarily low. Dedicated institutions are long-term investors and care most about long-term returns. They may not want their portfolio firms to deviate from earnings trend by taking an earnings bath since long-term share prices will suffer from that. In addition, when earnings are higher than earnings trend, the presence of transient institutional investors may prevent managers from smoothing earnings downward to create accounting slack for future periods as these investors care about short-term stock returns. Being as only "traders" instead of "owners," they can benefit from unusually high earnings in the short-run.

The author uses the following two methods to control for endogeneity of institutional ownership which can be in the form of reverse causality or omitted variable bias. First, to alleviate the potential reverse causality, all the institutional ownership variables are lagged by one year (Zheng, 2010), instead of using their contemporaneous forms. Second, to alleviate the potential omitted variable bias, the author controls for year effects in the Logit model. More importantly, a firm fixed effect Logit model is used as the second regression specification. Some unobserved sources of firm heterogeneity can affect institutional ownership and the likelihood of earnings smoothing at the same time, which can bias an estimation of coefficients. Fixed effects are immune to such omission of unobserved firm characteristics and therefore can mitigate the concerns for endogeneity (Himmelberg et al., 1999; Kale et al., 2009; Kini and Williams, 2012). In both Logit and fixed effect Logit model specifications, standard errors are adjusted for heteroskedasticity and clustered at the firm level. The empirical results are robust after endogeneity is controlled for.

The paper makes several contributions to the literature. First, this is the first study that directly examines the association between institutional ownership and earnings smoothing among US. firms by using a large panel data. Carlson and Bathala (1997) studied how earnings smoothing behavior in US. firms was affected by different factors, including institutional ownership, inside ownership, stock ownership, debt financing, and executive's incentive structure. However, Carlson and Bathala (1997) only studied 265 firms listed by *Forbes*.

Second, the author controls for the possibility that endogeneity can potentially cause a spurious association between institutional ownership and the likelihood of earnings smoothing. Both Carlson and Bathala (1997) and Koh (2005) examined the effect of institutional ownership on earnings smoothing with assuming that institutional ownership is exogenous. However, reverse causality and some

unobserved sources of firm heterogeneity can distort the effect of institutional ownership on the likelihood of earnings smoothing. For example, some innate features of business operating environment and managerial discretion can influence managerial decision to manage earnings (Francis et al., 2005). Therefore, it is essential to address the endogeneity issue before drawing the conclusion regarding the relationship between institutional ownership and earnings management.

Third, the only two studies (Carlson and Bathala, 1997; Koh, 2005) that examined the association between institutional ownership and earnings smoothing (among either US. firms or Australian firms) treated all institutional investors as a homogenous group. However, the results in this paper suggest that institutional investors, depending on their investment patterns, have different effects on the likelihood of earnings smoothing. In addition, with the classification of institutional investors, the empirical evidence shows that higher institutional ownership are not necessarily always positively related to the likelihood of earnings smoothing, as what Carlson and Bathala (1997) and Koh (2005) suggested. Instead, the effect of dedicated institutional investors on the likelihood of earnings smoothing can be in a direction that is opposite to the effect of transient institutional investors.

Fourth, this is the first paper that documents a negative effect of transient institutional ownership and a positive effect of dedicated institutional ownership on the likelihood of earnings management. By distinguishing heterogeneous institutional investors, the paper shows that institutional investors affect earnings smoothing through their preference for certain pattern of earnings, instead of through their monitoring activities. In addition, the literature hypothesized that institutional investors prefer a smoothed reported earnings stream (Carlson and Bathala, 1997; Koh 2005). But this argument ignores the fact that heterogeneous institutional investors may have preferences for different earnings patterns. Their preferences may also vary under different circumstances. Due to their different investment styles, dedicated institutional investors concern most about long-term stock price performance whereas transient institutional investors attempt to make profit from short-term price changes. Therefore, not all institutional investors prefer a smoothed earnings under all the circumstances, which is consistent with the findings in the paper.

The rest of the paper is organized as follows: Section II describes the data and major variables, and reports the summary statistics. Section III conducts the empirical analysis. The conclusion is provided in Section IV.

## **SAMPLE, VARIABLES, AND SUMMARY STATISTICS**

### **Data and Sample**

The author merges several databases together to form the sample. The data for CEO tenure, age, and compensation are obtained from EXECUCOMP. Financial data are from COMPUSTAT. The author also collects quarterly institutional ownership data from 13(f) filings obtained from CDA Spectrum Database. By following Bushee (2001) to classify institutional investors based on their investment patterns, the ownership data on transient, quasi-indexers and dedicated investors are obtained from Professor Brian Bushee's website. Some governance data are obtained from RiskMetrics (formerly IRRIC) and Thomson Reuters. After merging the databases, the primary sample to examine the relationship between institutional ownership and earnings smoothing includes 7,853 firm-year observations and 1,639 unique firms. The sample mainly covers S&P 1,500 firms from 1992 to 2006<sup>1</sup>, including the 500 firms in the S&P 500 Index, the 400 firms in the S&P MidCap Index, and the 600 firms in the S&P SmallCap Index. The primary sample includes financial (one-digit SIC code equals 6) and utility firms (two-digit SIC code equals 49). In an unreported robustness check the author excludes these firms and obtains similar results.

### **Variables**

The author describes the major variables used in the empirical analysis in this subsection. The detailed definitions are in the Appendix. To consider the influence of outliers, the author either winsorizes a variable at the 1<sup>st</sup> and 99<sup>th</sup> percentiles, or takes the log of that variable, in order to mitigate the inordinate influence of extreme values.

### *Institutional Ownership Variables*

The measures of institutional ownership include variables for all institutions and variables for different groups of institutions. Following Carlson and Bathala (1997), the author constructs two ownership variables to capture the impact of all institutions: the percentage of total shares held by institutional investors and the number of institutional investors holding the firm's common stocks.

In addition to the above ownership variables, the primary ownership variables are the shareholdings by different types of institutions as a percentage of total shares outstanding. The paper follows Bushee (2001) to group institutions as transient, quasi-indexers and dedicated investors by taking into account their different investment styles. Institutions with a goal of short term profit maximization and short investment horizons are characterized as transient investors. In contrast, institutions with a longer horizon and concentrated holdings are characterized as dedicated investors. In addition, institutions that hold diversified portfolios and follow a passive buy and hold strategy are characterized as quasi-indexers<sup>2</sup>.

Since dedicated institutional investors have monitoring incentives and preference for earnings patterns that may be different from transient institutional investors, the paper uses the classification to distinguish different possible effects of these institutional investors on the likelihood of earnings smoothing.

### *Earnings Smoothing Variable*

In order to identify those firms that smooth the earnings, the paper follows Koh (2005) to start with constructing measures of total accruals and discretionary accruals. The construction of total accruals and discretionary accruals uses the modified Jones model by following the literature (Dechow, et al., 1995; Bartov, et al., 2000; Bergstresser and Philippon, 2006; Cornett, et al., 2008).

In order to construct the variable of total accruals, the author first calculates earnings before extraordinary items and discontinued operations minus operating cash flows from continuing operations (Cornett, et al., 2008). The author then divides the number by the previous year's assets to obtain the measure of total accruals (*Ratio\_ta*).

After the calculation of total accruals, the author uses the modified Jones (1991) model to construct the variable of discretionary accruals. Discretionary accruals equal the difference between total accruals and "normal" accruals. The modified Jones model estimates "normal" accruals as a fraction of lagged assets from the following model:

$$\frac{TA_{jt}}{Assets_{jt-1}} = \alpha_0 \frac{1}{Assets_{jt-1}} + \beta_1 \frac{\Delta Sales_{jt}}{Assets_{jt-1}} + \beta_2 \frac{PPE_{jt}}{Assets_{jt-1}} \quad (1)$$

where  $TA_{jt}$  denotes total accruals for firm  $j$  in year  $t$ ,  $Assets_{jt-1}$  denotes total assets for firm  $j$  in year  $t-1$ ,  $\Delta Sales_{jt}$  denotes a change in sales for firm  $j$  in year  $t$ , and  $PPE_{jt}$  denotes property, plant, equipment for firm  $j$  in year  $t$ . The author estimates model (1) by using the firms in COMPUSTAT with the same two-digit SIC code as the sample firms in each year of the sample period.

Discretionary accruals then are defined as a fraction of assets as

$$Ratio\_da_{jt} = Ratio\_ta_{jt} - \left( \hat{\alpha}_0 \frac{1}{Assets_{jt-1}} + \hat{\beta}_1 \frac{\Delta Sales_{jt} - \Delta Receivables_{jt}}{Assets_{jt-1}} + \hat{\beta}_2 \frac{PPE_{jt}}{Assets_{jt-1}} \right) \quad (2)$$

where hats denote estimated values from model (1). The inclusion of  $\Delta Receivables_{jt}$  in equation (2) is the "modification" of the Jones (1991) model. This variable attempts to capture the extent to which a change in sales is due to aggressive recognition of questionable sales.

Based on the calculation of discretionary accruals, a firm will be classified as an income smoother if its reported earnings (i.e. earnings before interest and tax and before extraordinary items,  $EBIT_{jt}$ ) are

closer to their earnings trend ( $Trend_{jt}$ ) than are non-discretionary earnings ( $NDE_{jt}$ ), where prior year's earnings level ( $EBIT_{j,t-1}$ ) is used as the proxy for  $Trend_{jt}$  and  $NDE_{jt}$  is the difference between reported earnings ( $EBIT_{jt}$ ) and discretionary accruals ( $Ratio\_da_{jt}$ ). Please note that reported earnings ( $EBIT_{jt}$ ), earnings trend ( $Trend_{jt}$ ), and non-discretionary accruals ( $NDE_{jt}$ ) are all scaled by prior year's total assets, as the discretionary accruals ( $Ratio\_da_{jt}$ ) is scaled by prior year's total assets.

### Control Variables

In order to examine the effects of heterogeneous institutional investors on the incidence of earnings smoothing, the author also controls for various firm characteristics, CEO characteristics, and other governance characteristics such as board characteristics, CEO compensation, and CEO ownership, by following the earnings management literature (Carlson and Bathala; Koh, 2005; Zheng, 2010). The Appendix defines the above variables in details.

### Summary Statistics

Table 1 presents summary statistics and correlations of the variables in the primary analyses. Panel A shows that on average around 80% of the 7,853 firm-year observations smooth their earnings. The average (median) firm in our sample has 218 (159) institutional investors who hold 66% (67%) of shares outstanding, indicating that the sample has substantial institutional interest in general. In addition, the sample firms have heterogeneous institutional investors. On average, dedicated investors, quasi-indexers, and transient investors hold 9%, 41%, and 14% of shares outstanding respectively.

**TABLE 1**  
**SUMMARY STATISTICS**

This table reports the summary statistics and correlations of major variables used in the empirical analysis. Panel A lists the summary statistics. Panel B reports the correlation matrix for the variables. *Ninst*, *Ppso*, *Bdsize*, *Ceotenure* are in their raw format in Panel A, but they are transformed into the logged format in Panel B and onward. All the other variables have been winsorized at the 1<sup>st</sup> and 99<sup>th</sup> percentiles. See the Appendix for the definitions of all variables.

Panel A: Summary Statistics						
Variable	Observations	P25	Mean	Median	P75	Std
<i>Smooth</i>	7853	1.00	0.80	1.00	1.00	0.40
<i>Ninst</i>	7853	100.00	218.42	159.00	263.00	194.06
<i>Instown</i>	7853	0.53	0.66	0.67	0.80	0.19
<i>Dedown</i>	7853	0.03	0.09	0.08	0.14	0.08
<i>Qixown</i>	7853	0.32	0.41	0.41	0.50	0.13
<i>Traown</i>	7853	0.07	0.14	0.12	0.20	0.10
<i>Ppso</i> ( $\$10^3$ )	7853	13.29	279.41	81.53	256.44	835.42
<i>Ceoown</i> ( $10^{-5}$ )	7853	0.09	2.41	0.33	1.45	5.61
<i>Bdsize</i>	7853	7.00	9.32	9.00	11.00	2.62
<i>Pctbdind</i>	7853	0.55	0.65	0.67	0.78	0.17
<i>Duality</i>	7853	0.00	0.66	1.00	1.00	0.47
<i>Mve</i>	7853	543.51	6312.86	1438.30	4685.52	15666.58
<i>Lev</i>	7853	0.07	0.23	0.22	0.34	0.18
<i>Nisd</i>	7853	11.15	134.65	30.72	98.61	318.18
<i>Q</i>	7853	1.22	2.06	1.59	2.35	1.44
<i>Age</i>	7853	51.00	55.79	56.00	61.00	7.24
<i>Ceotenure</i>	7853	2.67	7.96	5.43	10.75	7.62

Panel B: Correlations									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<i>Smooth (1)</i>	1								
<i>Ninst (2)</i>	0.05	1							
<i>Instown (3)</i>	0.02	0.29	1						
<i>Dedown (4)</i>	0.04	0.11	0.43	1					
<i>Qixown (5)</i>	0.03	0.28	0.74	0.01	1				
<i>Traown (6)</i>	-0.01	0.12	0.61	0.01	0.14	1			
<i>Ppso (7)</i>	0.04	0.41	0.19	0.08	0.1	0.16	1		
<i>Ceoown (8)</i>	-0.01	-0.26	-0.25	-0.09	-0.23	-0.1	-0.23	1	
<i>Bdsize (9)</i>	0.01	0.41	-0.07	0.01	0.06	-0.24	0.12	-0.2	
<i>Pctbind (10)</i>	0.06	0.2	0.21	0.09	0.23	0.05	0.1	-0.29	
<i>Duality (11)</i>	0	0.16	0.02	0.03	0.03	-0.03	0.07	0.11	
<i>Mve (12)</i>	0.02	0.61	-0.06	-0.01	-0.01	-0.11	0.28	-0.11	
<i>Lev (13)</i>	0.01	0.07	-0.02	0.07	0.01	-0.1	0	-0.11	
<i>Nisd (14)</i>	0	0.49	-0.05	0.02	-0.02	-0.09	0.17	-0.12	
<i>Q (15)</i>	-0.05	0.23	0.03	0.01	-0.09	0.17	0.22	0.04	
<i>Age (16)</i>	-0.01	0.05	-0.02	0.02	0.04	-0.1	-0.07	0.15	
<i>Ceotenure (17)</i>	-0.01	-0.07	-0.01	0	-0.04	0.03	0.01	0.33	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)									
(2)									
(3)									
(4)									
(5)									
(6)									
(7)									
(8)									
(9)	1								
(10)	0.1	1							
(11)	0.11	0.11	1						
(12)	0.3	0.06	0.09	1					
(13)	0.24	0.08	0.08	0.01	1				
(14)	0.24	0.1	0.07	0.58	0.11	1			
(15)	-0.13	-0.06	-0.02	0.3	-0.25	0.02	1		
(16)	0.13	-0.03	0.27	0.04	0.05	0.01	-0.06	1	
(17)	-0.1	-0.14	0.27	-0.05	-0.07	-0.11	0.07	0.36	1

Panel B shows that the incidence of earnings smoothing is positively related to the number of institutional investors and institutional ownership. In terms of the effect of heterogeneous institutional investors, the incidence of earnings smoothing is positively related to dedicated institutional ownership and quasi-indexer ownership, and negatively related to transient institutional ownership.

## EMPIRICAL ANALYSIS

In this section the author first examines the effect of institutional investors on the incidence of earnings smoothing. The author then examines whether the different effects of heterogeneous institutional investors persist under different circumstances.

### Institutional Investors and Earnings Smoothing

The author uses two model specifications to examine the effect of institutional investors on the incidence of earnings smoothing. The author first follows Koh (2005) to employ Logit regressions and examine the influence of institutions as a whole, and then classify institutions into groups of dedicated institutional investors, transient institutional investors, and quasi-indexers to distinguish their influence. To alleviate the potential reverse causality, all the institutional ownership variables are lagged by one year (Zheng, 2010), instead of using their contemporaneous forms. In addition, to alleviate the potential omitted variable bias, the author controls for year effects in the Logit model.

The second model specification employs a firm fixed effect Logit model to further account for potential omitted variable bias. Some unobserved sources of firm heterogeneity can affect institutional ownership and the likelihood of earnings smoothing at the same time, which can bias an estimation of coefficients. Fixed effects are immune to such omission of unobserved firm characteristics and therefore can mitigate the concerns for endogeneity (Himmelberg et al., 1999; Kale et al., 2009; Kini and Williams, 2012). In both Logit and fixed effect Logit model specifications, standard errors are adjusted for heteroskedasticity and clustered at the firm level.

The results of the Logit regressions are provided in Table 2. Regression (1) shows that the number of institutional investors is positively related to the incidence of earnings smoothing. However, the coefficient on the ownership by all the institutional investors as a whole is not significant, as shown in regression (2).

**TABLE 2**  
**THE EFFECT OF INSTITUTIONAL INVESTORS ON EARNINGS SMOOTHING**  
**(LOGIT MODELS)**

These models use Logit regressions to examine the relation between institutional ownership and earnings smoothing. The sample consists of S&P 1,500 firms from 1992 to 2006. See the Appendix for the definitions of all variables. All models include year dummies and a constant term. These coefficients are not reported to save space. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. *t*-statistics are reported in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. Model chi-squared and its significance level are provided at the bottom of the table.

Independent variables	(1)	(2)	(3)
<i>Ninst</i>	0.138** (2.207)		
<i>Instown</i>		-0.076 (-0.409)	
<i>Dedown</i>			0.884** (2.153)
<i>Qixown</i>			0.092 (0.343)
<i>Traown</i>			-0.676** (-2.148)
<i>Ppso</i>	0.013 (0.780)	0.024 (1.491)	0.026 (1.576)
<i>Ceoown</i>	946.257	702.526	720.650



	(1.488)	(1.089)	(1.111)
<i>Bdsize</i>	0.008	0.092	0.054
	(0.065)	(0.738)	(0.428)
<i>Pctbdind</i>	0.442**	0.476**	0.441**
	(2.326)	(2.495)	(2.316)
<i>Duality</i>	-0.007	0.015	0.015
	(-0.098)	(0.212)	(0.210)
<i>Mve</i>	0.000**	0.000***	0.000***
	(2.193)	(2.908)	(2.791)
<i>Lev</i>	0.106	0.111	0.084
	(0.598)	(0.626)	(0.472)
<i>Nisd</i>	-0.000***	-0.000***	-0.000***
	(-3.909)	(-3.452)	(-3.458)
<i>Q</i>	-0.101***	-0.092***	-0.086***
	(-4.895)	(-4.431)	(-4.061)
<i>Age</i>	-0.005	-0.005	-0.006
	(-1.143)	(-1.031)	(-1.231)
<i>Ceotenure</i>	0.004	0.003	0.005
	(0.105)	(0.098)	(0.152)
Observations	7,853	7,853	7,853
Model chi-squared	188.2	177.6	185.8
p-value	0	0	0

Regression (3) distinguishes the different effects of institutional investor groups on earnings smoothing. It shows that the coefficient on dedicated institutional ownership is significantly positive whereas the coefficient on transient institutional ownership is significantly negative. In addition, quasi-indexers ownership are not significantly related to the incidence of earnings smoothing.

The result is interesting given the fact that dedicated institutional investors have longer investment horizons and more concentrated holdings. Among these different types of institutional investors, dedicated institutional investors would be most likely to serve a monitoring role in decreasing the incidence of earnings smoothing if it is managerial opportunistic behavior that is in conflict with shareholders' interest. In contrast, since transient institutional investors have short investment horizons and high portfolio turnovers, monitoring is not a central focus of their strategies. They are poised to exit a firm at the first sign of trouble rather than attempt to instigate changes in a firm. Therefore, it is the least likely that transient institutional investors would conducting monitoring activities to reduce opportunistic earnings smoothing.

The author employs the firm fixed effect Logit model and repeat all the regressions as in Table 3. Regression results about the effects of heterogeneous institutional investors on earnings smoothing are similar after the firm fixed effect is controlled for.

**TABLE 3**  
**THE EFFECT OF INSTITUTIONAL INVESTORS ON EARNINGS SMOOTHING**  
**(FIXED EFFECT LOGIT MODELS)**

These models use fixed effect Logit regressions to examine the relation between institutional ownership and earnings smoothing. The sample consists of S&P 1,500 firms from 1992 to 2006. See the Appendix for the definitions of all variables. All models include year dummies and a constant term. These coefficients are not reported to save space. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. *t*-statistics are reported in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. Model chi-squared and its significance level are provided at the bottom of the table.

Independent variables	(1)	(2)	(3)
<i>Ninst</i>	-0.014 (-0.110)		
<i>Instown</i>		-0.496 (-1.457)	
<i>Dedown</i>			1.179* (1.700)
<i>Qixown</i>			-0.400 (-0.877)
<i>Traown</i>			-0.929* (-1.857)
<i>Ppso</i>	0.019 (0.811)	0.019 (0.816)	0.020 (0.854)
<i>Ceoown</i>	1,687.288 (1.156)	1,471.911 (1.005)	1,605.310 (1.097)
<i>Bdsize</i>	-0.035 (-0.135)	-0.045 (-0.176)	-0.030 (-0.116)
<i>Pctbdind</i>	0.232 (0.671)	0.266 (0.767)	0.250 (0.719)
<i>Duality</i>	-0.153 (-1.331)	-0.151 (-1.316)	-0.143 (-1.241)
<i>Mve</i>	0.000 (1.532)	0.000 (1.496)	0.000 (1.400)
<i>Lev</i>	-0.144 (-0.348)	-0.135 (-0.326)	-0.191 (-0.461)
<i>Nisd</i>	-0.000** (-2.112)	-0.000** (-2.184)	-0.000** (-2.243)
<i>Q</i>	-0.177*** (-4.564)	-0.173*** (-4.472)	-0.171*** (-4.388)
<i>Age</i>	-0.006 (-0.734)	-0.006 (-0.719)	-0.007 (-0.770)
<i>Ceotenure</i>	0.098* (1.800)	0.102* (1.879)	0.098* (1.809)
Observations	5,295	5295	5,295
Model chi-squared	141.3	143.4	149.8
p-value	0	0	0

In order to further explain the documented relationship between heterogeneous institutional investors and earnings smoothing, the following two sub-sections examine the different circumstances under which these institutional investors may manifest different influences on earnings smoothing.

### Institutional Investors and Earnings Smoothing for Profit Firms Versus Loss Firms

In this section, the paper examines whether the relationship between institutional investor ownership and earnings smoothing is different between loss-making and profit-making firms. Prior research suggests that loss firms may have lower incentive to manage earnings than profit firms because valuation of stock price for loss firms are based more on book value rather than on earnings (Basu, 1997; Hayn, 1995; Ohlson, 1995; Koh, 2005). Therefore, in order to examine the potential differential effects of institutional investors on earnings smoothing, both Logit regressions and firm fixed effect Logit regressions are refitted to sub-samples of profit firms ( $NDE > 0$ ) and loss firms ( $NDE < 0$ ) separately, as shown in Table 4 and 5.

Regression (1)-(3) of Table 4 report the results of re-fitting the Logit regression to profit firms whereas regression (4)-(6) reports those for loss firms. The estimated coefficients for the number of institutional investors and institutional ownership are both positive for loss firm, with the significant level of 1%. In contrast, for profit firms, only the coefficient on the number of institutional investors are significantly positive, with the significant level of only 10%. Institutional ownership does not have a significant effect on earnings smoothing among profit firms.

**TABLE 4**  
**THE EFFECT OF INSTITUTIONAL INVESTORS ON EARNINGS SMOOTHING FOR**  
**PROFIT FIRMS VS. LOSS FIRMS (LOGIT MODELS)**

These models use Logit regressions to compare the relation between institutional ownership and earnings smoothing between profit firms and loss firms. The sample consists of S&P 1,500 firms from 1992 to 2006. See the Appendix for the definitions of all variables. All models include year dummies and a constant term. These coefficients are not reported to save space. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. *t*-statistics are reported in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. Model chi-squared and its significance level are provided at the bottom of the table.

Independent variables	Profit Firms			Loss Firms		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Ninst</i>	0.119* (1.728)			0.890*** (5.168)		
<i>Instown</i>		-0.258 (-1.281)			1.719*** (3.654)	
<i>Dedown</i>			0.688 (1.543)			1.479 (1.270)
<i>Qixown</i>			-0.077 (-0.269)			3.152*** (4.110)
<i>Traown</i>			-0.847** (-2.437)			0.061 (0.071)
<i>Ppso</i>	0.008 (0.442)	0.020 (1.190)	0.022 (1.257)	0.054 (1.074)	0.084* (1.774)	0.082* (1.788)
<i>Ceoown</i>	747.820 (1.165)	404.225 (0.619)	412.866 (0.632)	5,354.482* (1.834)	5,258.100* (1.786)	5,511.323* (1.883)
<i>Bdsize</i>	0.010 (0.078)	0.073 (0.562)	0.038 (0.285)	0.962*** (2.746)	1.254*** (3.502)	1.154*** (3.256)
<i>Pctbind</i>	0.450**	0.503**	0.476**	-0.184	-0.484	-0.600

<i>Duality</i>	(2.204) 0.013 (0.171)	(2.463) 0.035 (0.481)	(2.330) 0.035 (0.474)	(-0.305) -0.070 (-0.347)	(-0.800) 0.024 (0.118)	(-0.999) 0.013 (0.063)
<i>Mve</i>	0.000* (1.647)	0.000** (2.179)	0.000** (2.044)	0.000* (1.740)	0.000** (2.370)	0.000** (2.365)
<i>Lev</i>	0.346* (1.796)	0.345* (1.794)	0.314 (1.628)	-0.819 (-1.517)	-0.805 (-1.437)	-0.842 (-1.552)
<i>Nisd</i>	-0.000*** (-3.063)	-0.000*** (-2.757)	-0.000*** (-2.732)	-0.002*** (-5.824)	-0.002*** (-4.627)	-0.002*** (-4.620)
<i>Q</i>	-0.088*** (-3.721)	-0.078*** (-3.333)	-0.072*** (-3.072)	-0.140** (-2.059)	-0.120 (-1.639)	-0.084 (-1.140)
<i>Age</i>	-0.007 (-1.462)	-0.007 (-1.348)	-0.008 (-1.537)	-0.001 (-0.090)	-0.002 (-0.111)	-0.004 (-0.289)
<i>Ceotenure</i>	0.007 (0.189)	0.009 (0.236)	0.012 (0.314)	-0.044 (-0.426)	-0.069 (-0.682)	-0.063 (-0.614)
Observations	5,784	5,784	5,784	2,067	2,067	2,067
Model chi-squared	129.4	123.4	128.9	122.5	96.56	106.3
p-value	0	0	0	1.15e-10	0	0

When the overall institutional ownership is broken down into dedicated institutional ownership, quasi-indexer ownership, and transient institutional ownership, as in regression (3) and (6), it shows that transient institutional ownership is negatively related to earnings smoothing among profit firms, whereas quasi-indexer ownership is positively related to earnings smoothing among loss firms. The coefficients on other institutional ownership variables do not exhibit a significant effect.

However, all the above significant results disappear when firm fixed effect Logit regressions are employed as in Table 5. It shows that after unobserved firm characteristics are accounted for, institutional investors, either as a whole group or being classified as different groups based on their investment style, do not have different effects on the incidence of earnings smoothing between profit firms and loss firms. Therefore, it suggests that the different effects of institutional investors on earnings smoothing between profit firms and loss firms as documented in Koh (2005) may be caused by some unobserved sources of firm heterogeneity.

**TABLE 5**  
**THE EFFECT OF INSTITUTIONAL INVESTORS ON EARNINGS SMOOTHING FOR**  
**PROFIT FIRMS VS. LOSS FIRMS (FIXED EFFECT LOGIT MODELS)**

These models use fixed effect Logit regressions to compare the relation between institutional ownership and earnings smoothing between profit firms and loss firms. The sample consists of S&P 1,500 firms from 1992 to 2006. See the Appendix for the definitions of all variables. All models include year dummies and a constant term. These coefficients are not reported to save space. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. *t*-statistics are reported in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. Model chi-squared and its significance level are provided at the bottom of the table.

Independent variables	Profit Firms			Loss Firms		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Ninst</i>	-0.054 (-0.370)			0.841 (1.617)		
<i>Instown</i>		-0.538 (-1.368)			0.659 (0.528)	
<i>Dedown</i>			1.283 (1.639)			2.237 (0.789)
<i>Qixown</i>			-0.501 (-0.965)			-0.737 (-0.360)
<i>Traown</i>			-0.822 (-1.410)			2.133 (1.085)
<i>Ppso</i>	0.019 (0.746)	0.019 (0.720)	0.019 (0.723)	0.227** (1.981)	0.223** (1.961)	0.226* (1.940)
<i>Ceown</i>	1,176.584 (0.700)	987.586 (0.587)	1,102.943 (0.657)	7,778.127 (0.805)	8,458.261 (0.884)	8,348.351 (0.867)
<i>Bdsize</i>	-0.106 (-0.353)	-0.119 (-0.397)	-0.116 (-0.386)	0.878 (0.807)	0.775 (0.719)	0.779 (0.717)
<i>Pctbind</i>	0.276 (0.715)	0.307 (0.794)	0.295 (0.762)	2.025 (1.288)	2.198 (1.424)	2.094 (1.346)
<i>Duality</i>	-0.064 (-0.485)	-0.066 (-0.499)	-0.059 (-0.447)	-0.866* (-1.865)	-0.909** (-1.970)	-0.952** (-2.034)
<i>Mve</i>	0.000 (1.532)	0.000 (1.425)	0.000 (1.377)	-0.000 (-1.073)	-0.000 (-0.878)	-0.000 (-0.924)
<i>Lev</i>	-0.528 (-1.095)	-0.515 (-1.073)	-0.578 (-1.200)	-0.538 (-0.336)	-0.664 (-0.414)	-0.726 (-0.452)
<i>Nisd</i>	-0.000* (-1.750)	-0.000* (-1.817)	-0.000* (-1.860)	-0.003** (-2.355)	-0.003** (-2.289)	-0.003** (-2.302)
<i>Q</i>	-0.206*** (-4.486)	-0.200*** (-4.339)	-0.200*** (-4.316)	-0.027 (-0.178)	-0.057 (-0.385)	-0.072 (-0.489)
<i>Age</i>	-0.007 (-0.706)	-0.007 (-0.702)	-0.008 (-0.772)	-0.016 (-0.347)	-0.018 (-0.395)	-0.020 (-0.447)
<i>Ceotenure</i>	0.100 (1.600)	0.104* (1.659)	0.103 (1.641)	0.264 (1.120)	0.264 (1.141)	0.269 (1.149)
Observations	3,940	3,940	3,940	317	317	317
Model chi-squared	85.47	87.21	92.29	35.03	32.65	34.24
p-value	1.55e-08	8.13e-09	4.57e-09	0.0680	0.112	0.129

## **Institutional Investors and Earnings Smoothing for Firms with Non-Discretionary Earnings above Versus below Earnings Trend**

Managers in firms with pre-managed earnings above their earnings trend are expected to have more choices in managing earnings than those in firms with pre-managed earnings below their earnings trend. In particular, when earnings are already above their earnings trend prior to accruals management, smoothing earnings towards earnings trend can allow managers to continue the smoothed earnings trend in the current period, as well as create accounting slack for future periods (Koh, 2005). In contrast, when earnings are below their earnings trend prior to accruals management, managers may have less freedom to smooth earnings because their choices are restricted to the availability of discretionary accruals (Koh, 2005). In particular, when there are insufficient discretionary accruals, managers can choose to manage earnings towards their earnings trend with potentially reducing the firm's ability to smooth earnings in the future periods. Alternatively, they can choose to deviate from their earnings trend by taking an earnings bath to create accounting slack for future periods with having to take the capital market punishment on their share prices (Healy, 1985; Barth et al., 1999; Myers et al., 2007). Due to different flexibility in smoothing earnings for managers under different circumstances, the sub-section compares the different influences of institutional investors on the incidence of earnings smoothing between the subsample of firms with pre-managed earnings above versus below their earnings trend.

Table 6 reports the results of re-fitting the Logit regression to firms with non-discretionary earnings (*NDE*) above versus below earnings trend. As shown in regression (1) & (2), the number of institutional investors is positively related to the incidence of earnings smoothing but the coefficient on institutional ownership is not significant for firms with *NDE*>earnings trend. In addition, regression (3) further shows that transient institutional ownership is negatively related to earnings smoothing, whereas the coefficients on the other two types of institutional ownership are not statistically significant for these firms.

Regression (4)-(6) show the results for firms with *NDE*<earnings trend. Interestingly, only the coefficient on dedicated institutional ownership is significantly positive. All the other variables on institutional ownership do not show a significant effect on the incidence of earnings smoothing.

The different effects of heterogeneous institutional investors on earnings smoothing persist when firm fixed effect Logit regressions are used as in Table 7. In particular, transient institutional ownership has a negative effect on earning smoothing among firms with *NDE*>earnings trend, whereas dedicated institutional ownership has a positive influence on earnings smoothing among firms with *NDE*<earnings trend.

The results in Table 6 and 7 show that the positive relationship between dedicated institutional ownership and the likelihood of earnings smoothing as documented in Table 2 and 3 actually only exists among the firms with pre-managed earnings below their earnings trend. Similarly, the documented negative relationship between transient institutional ownership and the likelihood of earnings smoothing only exists among the firms with pre-managed earnings above their earnings trend. The findings suggest that those firms with higher dedicated institutional ownership are more likely to smooth earnings towards earnings trend when earnings are temporarily low. Dedicated institutions are long-term investors and care most about long-term returns. They may not want their portfolio firms to deviate from earnings trend as long-term share prices will be punished by that. On the other hand, when earnings are higher than earnings trend, the presence of transient institutional investors may prevent managers from smoothing earnings downward to create accounting slack for future periods as these investors care about short-term stock returns. Being as only "traders" instead of "owners," they can benefit from unusually high earnings in the short-run.

**TABLE 6**  
**THE EFFECT OF INSTITUTIONAL INVESTORS ON EARNINGS SMOOTHING FOR FIRMS**  
**WITH PRE-MANAGED EARNINGS ABOVE VS. BELOW EARNINGS TREND**  
**(LOGIT MODELS)**

These models use Logit regressions to compare the relation between institutional ownership and earnings smoothing between firms with non-discretionary earnings above earning trend and firms with non-discretionary earnings below earnings trend. The sample consists of S&P 1,500 firms from 1992 to 2006. See the Appendix for the definitions of all variables. All models include year dummies and a constant term. These coefficients are not reported to save space. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. *t*-statistics are reported in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. Model chi-squared and its significance level are provided at the bottom of the table.

Independent variables	NDE>Trend			NDE<Trend		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Ninst</i>	0.211*** (2.604)			0.063 (0.709)		
<i>Instown</i>		-0.341 (-1.370)			0.246 (0.942)	
<i>Dedown</i>			0.684 (1.226)			1.079* (1.772)
<i>Qixown</i>			-0.031 (-0.086)			0.240 (0.634)
<i>Traown</i>			-1.199*** (-2.705)			0.004 (0.009)
<i>Ppso</i>	0.028 (1.329)	0.048** (2.339)	0.052** (2.505)	-0.007 (-0.281)	-0.007 (-0.271)	-0.007 (-0.289)
<i>Ceown</i>	1,059.969 (1.263)	504.380 (0.580)	494.893 (0.574)	811.375 (0.796)	907.099 (0.878)	912.529 (0.877)
<i>Bdsize</i>	-0.094 (-0.578)	0.027 (0.173)	-0.029 (-0.182)	0.139 (0.730)	0.185 (0.972)	0.173 (0.890)
<i>Pctbind</i>	0.551** (2.103)	0.636** (2.418)	0.589** (2.255)	0.208 (0.761)	0.185 (0.672)	0.168 (0.605)
<i>Duality</i>	-0.078 (-0.827)	-0.041 (-0.430)	-0.037 (-0.392)	0.078 (0.770)	0.083 (0.828)	0.079 (0.791)
<i>Mve</i>	0.000 (0.801)	0.000* (1.665)	0.000 (1.457)	0.000** (2.096)	0.000** (2.463)	0.000** (2.462)
<i>Lev</i>	0.203 (0.831)	0.199 (0.807)	0.158 (0.641)	0.020 (0.076)	0.022 (0.083)	0.005 (0.020)
<i>Nisd</i>	-0.000** (-2.325)	-0.000* (-1.748)	-0.000* (-1.708)	-0.001*** (-3.295)	-0.001*** (-3.040)	-0.001*** (-3.078)
<i>Q</i>	-0.158*** (-5.953)	-0.139*** (-5.274)	-0.130*** (-4.832)	-0.036 (-1.068)	-0.033 (-0.964)	-0.031 (-0.888)
<i>Age</i>	-0.006 (-1.029)	-0.006 (-0.927)	-0.007 (-1.087)	-0.005 (-0.695)	-0.005 (-0.694)	-0.005 (-0.777)
<i>Ceotenure</i>	0.003 (0.062)	0.006 (0.137)	0.010 (0.211)	0.012 (0.230)	0.010 (0.199)	0.011 (0.207)
Observations	3,995	3,995	3,995	3,858	3,857	3,858
Model chi-squared	147.1	135.0	138.1	79.83	81.16	86.01
p-value	0	0	0	1.21e-07	7.51e-08	4.50e-08

**TABLE 7**  
**THE EFFECT OF INSTITUTIONAL INVESTORS ON EARNINGS SMOOTHING FOR FIRMS**  
**WITH PRE-MANAGED EARNINGS ABOVE VS. BELOW EARNINGS TREND**  
**(FIXED EFFECT LOGIT MODELS)**

These models use fixed effect Logit regressions to compare the relation between institutional ownership and earnings smoothing between firms with non-discretionary earnings above earnings trend and firms with non-discretionary earnings below earnings trend. The sample consists of S&P 1,500 firms from 1992 to 2006. See the Appendix for the definitions of all variables. All models include year dummies and a constant term. These coefficients are not reported to save space. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. *t*-statistics are reported in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. Model chi-squared and its significance level are provided at the bottom of the table.

Independent variables	NDE>Trend			NDE<Trend		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Ninst</i>	0.117 (0.647)			0.136 (0.564)		
<i>Instown</i>		-1.062** (-2.034)			0.799 (1.322)	
<i>Dedown</i>			0.054 (0.049)			2.197* (1.906)
<i>Qixown</i>			-0.287 (-0.396)			0.267 (0.336)
<i>Traown</i>			-2.445*** (-3.105)			1.261 (1.446)
<i>Ppso</i>	0.032 (0.872)	0.032 (0.871)	0.035 (0.966)	0.033 (0.797)	0.032 (0.760)	0.034 (0.825)
<i>Ceown</i>	1,470.260 (0.662)	682.052 (0.306)	863.835 (0.386)	3,528.488 (1.349)	3,846.432 (1.466)	3,840.253 (1.461)
<i>Bdsize</i>	-0.331 (-0.798)	-0.273 (-0.661)	-0.300 (-0.726)	0.649 (1.367)	0.679 (1.427)	0.692 (1.448)
<i>Pctbind</i>	0.115 (0.216)	0.178 (0.333)	0.145 (0.270)	1.537** (2.365)	1.450** (2.221)	1.435** (2.197)
<i>Duality</i>	-0.180 (-1.010)	-0.175 (-0.980)	-0.166 (-0.930)	-0.150 (-0.772)	-0.163 (-0.836)	-0.185 (-0.944)
<i>Mve</i>	0.000** (2.169)	0.000** (2.125)	0.000** (1.969)	0.000 (1.071)	0.000 (1.140)	0.000 (1.130)
<i>Lev</i>	-0.063 (-0.103)	-0.103 (-0.169)	-0.186 (-0.303)	0.635 (0.876)	0.600 (0.829)	0.580 (0.800)
<i>Nisd</i>	-0.001 (-1.592)	-0.001 (-1.581)	-0.001* (-1.710)	-0.000 (-1.435)	-0.000 (-1.404)	-0.000 (-1.398)
<i>Q</i>	-0.312*** (-4.868)	-0.295*** (-4.542)	-0.279*** (-4.279)	-0.036 (-0.470)	-0.039 (-0.523)	-0.047 (-0.618)
<i>Age</i>	-0.005 (-0.386)	-0.005 (-0.397)	-0.006 (-0.458)	-0.023 (-1.460)	-0.023 (-1.470)	-0.023 (-1.429)
<i>Ceotenure</i>	0.049 (0.585)	0.068 (0.796)	0.071 (0.835)	0.220** (2.290)	0.224** (2.339)	0.226** (2.358)
Observations	2,025	2,025	2,025	1,764	1,763	1,764
Model chi-squared	79.92	83.71	89.57	95.41	96.75	100.0
p-value	1.17e-07	2.96e-08	1.24e-08	3.67e-10	2.20e-10	2.54e-10



## CONCLUSIONS

The paper finds that ownership by institutional investors with short-term investment horizon and fragmented ownership (i.e. transient institutional investors) is negatively related to the incidence of earnings smoothing, in particular when pre-managed earnings are above the earnings trend. In addition, ownership by institutional investors with large shareholdings and long-term investment horizon (i.e. dedicated institutional investors) is positively related to the incidence of earnings smoothing, in particular when pre-managed earnings are below the earnings trend. The results are robust when potential reverse causality and omitted variable bias are accounted for.

This is the first study that directly examines the association between institutional ownership and earnings smoothing among US. firms by using a large panel data. In addition, different from prior research, the paper also shows that it is essential to address the endogeneity issue before drawing the conclusion regarding the relationship between institutional ownership and earnings smoothing. Furthermore, the results in the paper suggest that it is important to account for the heterogeneity of institutional investors in examining their effects on the incidence of earnings smoothing. The effects of different institutional investor groups can be in conflicting directions. Higher institutional ownership are not necessarily always positively related to the likelihood of earnings smoothing, as what prior research (Carlson and Bathala, 1997; Koh, 2005) suggests. Finally, the paper is the first to document that the presence of transient institutional investors can reduce the likelihood of earnings management whereas the presence of dedicated institutional investors can increase the incidence of earnings management under some circumstances. The findings suggest that institutional investors affect earnings smoothing through their preference for certain pattern of earnings, instead of through their monitoring activities. Also, heterogeneous institutional investors have preferences for different earnings patterns. Their preferences may also vary under different circumstances.

## ENDNOTES

1. The sample period precedes the great recession starting at 2007 due to two reasons. First, some recent data that are needed in the study are lacking. Second and more importantly, because the author is interested in examining the clean effects of heterogeneous institutional investors on earnings smoothing, including the sample period with extraordinary events such as the financial crisis may introduce some unnecessary complications.
2. The author uses permanent/transient/quasi-indexer/dedicated classification, which does not allow the classification to frequently shift across years.

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## APPENDIX

### VARIABLE DEFINITIONS

Variable	Definition
Panel A: Institutional ownership	
<i>Ninst</i>	Log (number of institutional investors that hold common stocks)
<i>Instown</i>	Total shares held by institutional investors/total shares outstanding
<i>Dedown</i>	Total shares held by dedicated institutional investors/total shares outstanding
<i>Qixown</i>	Total shares held by quasi-indexers /total shares outstanding
<i>Traown</i>	Total shares held by transient institutional investors/total shares outstanding
Panel B: Other governance variables	
<i>Pps0</i>	The log of one plus the sensitivity of CEO option portfolio value to a 1% change in stock price, where the estimation of the average exercise price and remaining time-to-maturity for outstanding options follows Core and Guay (2002)'s "one-year approximation" (OA) method. Specifically, for the inputs for stock return volatility, dividend yield, and risk-free rate, the author uses the annualized standard deviation of monthly stock returns over the past 60 months, the average dividend yield over the past three years, and the yield-to-maturity of Treasury bonds matched by the maturities closest to options', respectively.
<i>Ceoown</i>	CEOs' holdings of common shares/total shares outstanding
<i>Bdsize</i>	Log(the number of directors on the board)
<i>Pctbdind</i>	The proportion of outsiders on the board
<i>Duality</i>	Dummy equal to unity if the CEO is also the chairman of the board
Panel C: Firm characteristics	
<i>Mve</i>	Market value of equity
<i>Lev</i>	Book value of debt/(book value of debt + market value of equity)
<i>Nisd</i>	The standard deviation of net income during the three-year period from two years before to the current year
<i>Q</i>	Market value of assets/book value of assets
Panel D: CEO characteristic	
<i>Age</i>	CEO's age
<i>Ceotenure</i>	The log of CEO tenure in years. CEO tenure in a given year is determined as the length of time between the date when the person became the CEO ("becameceo" in EXECUCOMP) and the current fiscal year end. In two situations where this variable is not conveniently available, we further make the following assumptions: (1) For those observations with missing values, if the CEO is hired from outside the firm and the date when the person joined the company ("joined_co" in EXECUCOMP) is available, CEO tenure in a given year is calculated as the time between "joined_co" and the current fiscal year end. A CEO is determined as an outside hire if he has been with the firm for less than two years at the time of succession and if he is not a founder; (2) For those CEOs who held the position multiple times, EXECUCOMP only has the data for "becameceo" for either the first time or the most recent time the person became the CEO. Therefore, the author manually checks these cases and uses the information that the previous CEO left the company to determine the starting date for the incumbent CEO.
Panel E: Earnings-related variables	
<i>NDE</i>	The difference between reported earnings (earnings before interest and tax and before extraordinary items) and discretionary accruals, scaled by prior year's total assets
<i>Trend</i>	Earnings before interest and tax and before extraordinary items in prior year, scaled by prior year's total assets
<i>Smooth</i>	Dummy equal to unity if the firm is an earnings smoother (i.e. if $Abs(EBIT_{jt} - Trend_{jt}) < Abs(NDE_{jt} - Trend_{jt})$ in that year