JMAA

by Sri Suryaningsum

Does investor protection affect the choice of earnings management methods through real activity manipulation and accrual manipulation? Asian comparison

Ratna Candra Sari[1], *Sony Warsono*[2], *Sri Suryaningsum*[3]

(1. Faculty of Sosial and Economics, Yogyakarta State University, Yogyakarta 55281, Indonesia;

2. Economics and Business Faculty, Gadjah Mada University, Yogyakarta 55281, Indonesia;

3. Universitas Pembangunan Veteran Yogyakarta, Yogyakarta 55281, Indonesia)

Abstract: This paper examines systematic differences in earnings management through real activity manipulation and accrual manipulation across 7 Asia countries. The study proposes arguments that in economies with high investor protection, managers prefer to manage earnings through real activity manipulation rather than through accrual manipulation because accrual manipulation is more likely to draw auditors or regulators scrutiny than real decisions about pricing and production. The study findings are consistent with prediction. Despite being in economies with high investor protection, managers still have bigger discretion in managing earnings through real activities rather than accrual manipulation.

Key words: earnings management; real activity manipulation; investor protection

1. Introduction

The protection of investor rights, particularly outside investors, is important in creating economic incentives for the development of financial markets (Hart, 1995). More developed financial markets create greater external financing opportunities for firms because legal systems protect investors by conferring on them rights to discipline insiders (e.g., to replace managers), as well as by enforcing contracts designed to limit insiders' private control benefits (e.g., La Porta, et al., 1998; Nenova, 2000; Claessens, et al., 2002; Dyck & Zingales, 2002). Thus, legal systems protecting outside investors reduce insiders' need to conceal their activities.

This paper focuses on investor protection as a significant determinant of earnings management activity. Leuz, et al. (2003) argues that strong and well-enforced outsider rights limit insiders' acquisition of private control benefits, and consequently, mitigate insiders' incentives to manage accounting earnings because they have little to conceal from outsiders. This insight suggests that the pervasiveness of earnings management is increasing in private control benefits and decreasing in outside investor protection.

Prior research documents greater financial transparency in countries with stronger investor protection

regimes (Bhattacharya, et al., 2003; Bushman, et al., 2004), and there is evidence that earnings are less managed and in these countries (e.g., Ball, et al., 2000; Hung 2000; Leuz, et al., 2003). Leuz, et al. find that earnings management is more pervasive in countries where the legal protection of outside investors is weak, because in these countries insiders enjoy greater private control benefits and hence have stronger incentives to manipulate firm performance.

Roychowdhury (2006) finds evidence that managers in US firms manipulate earnings through real activity. Roychowdhury finds evidence suggesting price discounts to temporarily increase sales, overproduction to report lower cost of goods sold, and reduction of discretionary expenditures are used to improve reported margins. This is contrary to Leuz's finding that in countries with strong legal protection, managers are less aggressive to manage earnings. We argue that in strong legal enforcement economies, managers prefer to manage earnings through real activity manipulation rather than through accrual manipulation.

The manipulation of real activity potentially reduces firm value. Real activities manipulation can reduce firm value because actions taken in the current period to increase earnings can have a negative effect on cash flows in future periods. For example, aggressive price discounts to increase sales volumes and meet some short-term earnings target can lead customers to expect such discounts in future periods as well. This can imply lower margins on future sales. Overproduction generates excess inventories that have to be sold in subsequent periods and imposes greater inventory holding costs on the company. There is evidence that managers manipulate real activity in strong investor protection country (Roychowdhury, 2006). So the purpose of this study is to examine whether legal systems affect the choice of earnings management methods.

According to surveys conducted by Bruns & Merchant (1990) and Graham et al. (2005), financial executives indicate a greater willingness to manipulate earnings through real activities rather than accruals. There are at least two possible reasons for this. Firstly, accrual manipulation is more likely to draw auditor or regulator scrutiny than real decisions about pricing and production. Secondly, relying on accrual manipulation alone entails a risk. The realized year-end shortfall between un-manipulated earnings and the desired threshold can exceed the amount by which it is possible to manipulate accruals. If that happens, and reported income falls below the threshold, real activities cannot be manipulated at year-end. So, we argued that in countries with high investor protection, managers don't have discretionary to manage earnings through accrual manipulation because accrual manipulation is easily to detect. Managers will prefer to manage earnings through real activities.

This study focuses on Asia countries to make contributing to the future of the society and Asia by expanding its range of the responsibilities through legal enforcement and investor protection in order to enhance economic development, mutual understanding and cooperation in Asia. The East Asian countries of Hong Kong, Malaysia, Singapore, Indonesia, Japan, Korea and India provide a useful setting for testing the importance of investor protection. These countries have accounting standards that are generally viewed as high-quality, but (with the possible exception of Hong Kong). They have institutional structures that give preparers incentives to issue low-quality financial reports. Reporting quality of earnings ultimately is determined by the underlying economic and political factors influencing managers' and auditors' incentives, and not by accounting standards per se. Shareholder litigation is an important mechanism to enforce high quality financial.

Reporting-particularly timely lose recognition—in common-law countries. The Asian countries experience comparatively little litigation. Saudagaran & Diga (2000) report that there have been no cases of judicial actions against auditors in Malaysia and Thailand. While there have been lawsuits against auditors in Singapore and Hong Kong, they are less frequent than in common-law countries (Choi, et al., 1999).

2

While prior research has provided evidence on managers' incentives for earnings management and earnings management more aggressive in countries with low legal enforcement but there is relatively little evidence on what manager's methods to manage earnings in different legal environment. In addition, prior research used accrual manipulation to measure earnings management but actually managers have flexibility to manage earnings with accrual manipulation, real activities manipulation or classification shifting. This paper attempts to provide evidence that investor protection determines manager's choices between real activities manipulation versus accrual manipulation when they have the flexibility to engage both. To measure earnings management through real activity manipulation we use Roychowdhury's model.

Firstly, this study is useful to identify factors that affect method choice by managers to manage earnings. Secondly, this study gives understanding to evaluate effectiveness of legal enforcement in protect outsider (minority) investor when managers have flexibility to choose earnings management method.

2. Hypothesis

Legal systems protect investors by conferring on them rights to discipline insiders (e.g., to replace managers), as well as by enforcing contracts designed to limit insiders' private control benefits (e.g., La Porta et al., 1998; Nenova, 2000; Claessens et al., 2002; Dyck & Zingales, 2002). As a result, legal systems that effectively protect outside investors reduce insiders' need to conceal their activities. Earnings management can be defined as non-neutral financial reporting in which managers intervene intentionally in the financial reporting process to produce some private gain (Schipper, 1989). Managers can intervene by modifying how they interpret financial accounting standards and accounting data, or by timing or structuring transactions (Healy & Wahlen, 1999).

Prior accounting research has documented three main methods of earnings management. The most commonly studied method is accrual management (e.g., Healy, 1985; Jones, 1991; McNichols & Wilson, 1988; Rangan, 1998; Teoh, et al., 1998; Phillips, et al., 2003). A second type of earnings management can occur through the manipulation of real activities, such as providing price discounts to increase sales and cutting discretionary expenditures, to manage earnings (e.g., Baber, et al., 1991; Dechow & Sloan, 1991; Bushee, 1998). Third type of earnings management tools is the misclassification of items within the income statement.

We focus on accrual manipulation and real activities because in study comparison across countries, earnings management through classification shifting can be detected if these countries use the same standard. Real activities manipulation as departures from normal operational practices is motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations. These departures do not necessarily contribute to firm value but the departures enable managers to meet reporting goals. Certain real activities manipulation methods, such as price discounts and reduction of discretionary expenditures, are possibly optimal actions in certain economic circumstances. However, if managers engage in these activities more extensively with the objective of meeting/beating an earnings target, they are engaging in real activities manipulation (Roychowdhury, 2006).

Bruns & Merchant (1990) and Graham, et al. (2005) indicate that financial executives have greater willingness to manipulate earnings through real activities rather than accruals. There are at least two possible reasons for this. Firstly, accrual manipulation is more likely to draw auditor or regulator scrutiny than real decisions about pricing and production (Dechow & Sloan Dan Sweeney, 1996). Secondly, relying on accrual manipulation alone entails a risk. The realized year-end shortfall between un-manipulated earnings and the desired

threshold can exceed the amount by which it is possible to manipulate accruals. If that happens, and reported income falls below the threshold, real activities cannot be manipulated at year-end.

A number of studies discuss the possibility that managerial intervention in the reporting of financial statement process can occur not only via accounting estimates and methods, but also through operational decisions. Manipulation by management through real activities is less likely to draw auditor or regulator scrutiny. In contrast accrual manipulation is more easily to detect. We therefore propose that earnings management through accrual manipulation is less pervasive in countries where the legal protection of outside investors is strong, because in these countries legal system protect investor by conferring on them right to discipline insider.

H1: There is negative relationship between investor protection and abnormal accruals. Countries with high investor protection exhibit lower abnormal accruals than in countries with weak investor protection.

There is evidence that manager in US firms manipulate earnings through real activity (Roychowdhury, 2006). US firms are characterized by large stock markets, low ownership concentration, extensive outsider rights, high disclosure, and strong legal enforcement. Leuz, et al. (2003) finds that in countries with strong legal protection, managers are less aggressive to manage earnings through accrual manipulation. So we argue that in strong legal enforcement economies, managers prefer to manage earnings through real activity manipulation rather than accrual manipulation. Accrual manipulation is more easily to detect, in other hand, real activities manipulation can be subjective, and auditors might be limited in their ability to verify the appropriate classification. In countries with low legal enforcement, managers have great discretionary to manage earnings with both accrual manipulation and real activity manipulation. In hypothesis 2 we argue that when legal enforcement strong, managers prefer to manage earnings through real activity manipulation, such as sales manipulation, reduce discretionary expenses reduction and production increases rather than accrual manipulation.

H2: There is positive relationship between investor protection and real activity manipulation.

3. Research method

3.1 Measurement of earnings management through real activity manipulation

Real activities manipulation is departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations (Roychowdhury, 2006).

To detect real activities manipulation we investigate patterns in CFO (Cash Flow from Operations) and production costs following Roychowdhury (2006). Sales manipulation is defined as managers' attempts to temporarily increase sales during the year by offering price discounts or more lenient credit terms. The cash inflow per sale, net of discounts, from these additional sales is lower as margins decline. The lower margin due to the price discounts causes production costs relative to sales to be abnormally high. These are essentially price discounts and lead to lower cash inflow over the life of the sales, as long as suppliers to the firm do not offer matching discounts on firm inputs. In general, sales management activities to lead to lower current-period CFO and higher production costs than what is normal given the sales level.

Following Roychowdhury (2006), normal cash flow from operations is a linear function of sales and change in sales in the current period. To estimate the model, we run the following cross-sectional equation:

$$CFO_t/A_{t-1} = \alpha_0 + \alpha_1(1/A_{t-1}) + \alpha_2(S_t/A_{t-1}) + \alpha_3(S_t/A_{t-1}) + \varepsilon_t \tag{1}$$

Where, A_t is the total assets at the end of period t, S_t is the sales during period t and $S_t = S_t - S_{t-1}$. For every

4

firm-year, abnormal cash flow from operations is the actual CFO minus the ''normal'' CFO calculated using estimated coefficients from the corresponding industry year model and the firm-year's sales and lagged assets.

$$Abnormal\ level = Actual\ level\text{-}Normal\ Level. \tag{2}$$

To manage earnings upward, managers of manufacturing firms can produce more goods than necessary to meet expected demand. With higher production levels, fixed overhead costs are spread over a larger number of units, lowering fixed costs per unit. As long as the reduction in fixed costs per unit is not offset by any increase in marginal cost per unit, total cost per unit declines. This implies that reported COGS (Cost of Goods Sold)is lower, and the firm reports better operating margins. Nevertheless, the firm incurs production and holding costs on the over-produced items that are not recovered in the same period through sales. As a result, cash flows from operations are lower than normal given sales levels. Ceteris paribus, the incremental marginal costs incurred in producing the additional inventories result in higher annual production costs relative to sales.

The model for normal COGS is estimated as:

$$COGS_t \ /A_{t-1} = \alpha_0 + \alpha_1 \ (1/A_{t-1}) + \alpha_2 \ (S_t/A_{t-1}) + \varepsilon_t \tag{3}$$

The model for "normal" inventory growth using the following equation:

$$INV_t/A_{t-1} = \alpha_0 + \alpha_1 \ (1/A_{t-1}) + \alpha_2 \ (\ S_t/A_{t-1}) + \alpha_3 \ (S_{t-1}/A_{t-1}) + \varepsilon_t \tag{4}$$

Where, INV_t is the change in inventory in period t.
Production costs as:

$$PROD_t = COGS_t + \ INV_t \tag{5}$$

Using (3) and (4), normal production costs from the following industry-year equation:

$$PROD_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \alpha_2 (S_t/A_{t-1}) + \alpha_3 (S_t/A_{t-1}) + \alpha_4 (S_{t-1}/A_{t-1}) + \varepsilon_t \tag{6}$$

"Discretionary expenses" is expressed as a linear function of contemporaneous sales, similar to COGS. The relevant equation would then be:

$$DISEXP_t/A_{t-1} = \alpha_0 + \alpha_1 \ (1/A_{t-1}) \ + \alpha_2 \ (S_{t-1}/A_{t-1}) + \varepsilon_t \tag{7}$$

Where, $DISEXP_t$ is discretionary expenses in period t. Discretionary expenses as DisExp = R&D + Advertising + SG&A expenses.

3.2 Measurement accrual manipulation

Signed abnormal accruals are used rather than absolute (unsigned) abnormal accruals (Hribar & Nichols, 2006). A cross-sectional Jones (1991) model is not practical for the calculation of abnormal accruals with international data because the number of industry observations per country can be quite small, and this may explain, at least in part, why Jones-type abnormal accruals perform unreliably in international settings (Wysocki, 2004; Meuwissen, et al., 2005). We avoid this problem by using a linear expectation model adapted from DeFond and Park (2001) which uses a firm's own prior year accruals in calculating the expectation benchmark. Specifically, expected accruals are based on a firm's prior year ratio of current accruals to sales, and the prior year's ratio of deprecation expense to gross property plant and equipment (hereafter PPE). Another benefit of this approach is that we also implicitly control for cross-country differences in accounting standards by using a firm as its own control to compute abnormal accruals. Therefore abnormal accruals are contextualized relative to the specific accounting standards of a particular country.

Using data from OSIRIS Database, predicted accruals are calculated as:

$$Predicted\ accruals = \{[Sales_t\ (Current\ accruals_{t-1}/sales_{t-1}]$$
$$+ Gross\ PPE_t\ (Depreciation_{t-1}/Gross\ PPE_{t-1}/Total\ assets_{t-1}] \tag{8}$$

$$Abnormal\ accruals = Firm's\ actual\ total\ accruals_t - Predicted\ total\ accruals_t. \tag{9}$$

5

Total accruals in year t are calculated as follows:

$$Total\ accruals = \{Earnings\ before\ extraordinary\ items - Operating\ cash\ flows\}/Total \tag{10}$$

$assets_{t-1}$ Current accruals = Change in non-Cash working capital

$$= [Total\ current\ assets - Cash\ and\ short\ term\ Investments$$

$$- Treasury\ stock\ shown\ as\ current\ assets]- [Total\ current\ liabilities$$

$$- Total\ amount\ of\ debt\ in\ current\ liabilities - Proposed\ dividends] \tag{11}$$

3.3 Measurement of investor protection

We begin with a descriptive country cluster analysis, which groups countries with similar legal and institutional characteristics. We use multiple investor protection measures as follows:

(1) Outside Investor Right: This is an aggregate measure of minority shareholder rights and ranges from zero to five;

(2) Disclosure requirements.

(3) Important of equity market: This is measured by the mean rank across three variables used in La Porta et al. (1997). Each variable is ranked such that higher scores indicate a greater importance of the stock market.

(4) Legal enforcement: This is measured as the mean score across three legal variables used in La Porta et al. (1998). Three variables range from 0 to 10.

Cluster analysis is based on four measurement of investor protection. Then we compare score earnings management between clusters. We use accrual manipulation and real activities to measure earnings management activities.

To test H1 we compare abnormal accrual between clusters. To examine more explicitly which institutional factors are the determinant of earnings management, we undertake equation analysis based on Model 1 to test H1:

Model 1:

$$AB\_ACCR_{it} = \beta_0 + \beta_1\ LAW + \beta_2\ OUTSIDE\_RIGHT$$
$$+ \beta_3\ DIS\_REQ + \beta_4 LEG\_ENF + \beta_5\ IM + E_{it} \tag{12}$$

To test H2a- H2b, we use Model 2a and Model 2b:

Model 2a:

$$AB\_CFO = \beta_0 + \beta_1 LAW + \beta_2 OUTSIDE\_RIGHT + \beta_3 DIS\_REQ + \beta_4 LEG\_ENF + \beta_5 IM + e_{it} \tag{13}$$

Model 2b:

$$AB\_Prod = \beta_0 + \beta_1 LAW + \beta_2 OUTSIDE\_RIGHT + \beta_3 DIS\_REQ + \beta_4 LEG\_ENF + \beta_5 IM + e_{it} \tag{14}$$

Where, AB_ACCR_{it} = Abnormal accruals scaled by lagged total assets for firm i in year t; AB_CFO = Abnormal cash flow; $AB\_DiscExp$ = Abnormal discretionary expenses; AB_Prod = Abnormal production cost. $INVPRO$ = Proxies of investor protection, measured six ways; $Outside\_Right$ = Outside investor right; DIS_REQ = Index of disclosure requirement; LEG_ENF = Legal enforcement; IM = Important of equity market.

Because abnormal cash flow, discretionary expenses and production cost are more aggressive in suspect firm (firm close to zero earnings), we conduct sensitivity analysis to regress Model 1, Model 2a and Model 2b in full sample (suspect & non suspect firm).

4. Results

4.1 Descriptive statistics

Our data obtained from OSIRIS database, which contains financial data from annual reports of publicly

traded around the world. Only industrial companies are included in empirical analysis. Each firm must have income statement and balance sheet information for estimation period. The final sample consists of 5,931 firm-year observations, across 7 countries for fiscal years 2003-2007.

Table 1 panel A presents the number of firm-year observation per country as well as descriptive statistic for three individual earnings management measure. Panel B presents institutional characteristics of each country.

Table 1   Descriptive statistics for earnings management and institutional characteristics

Panel A   Country score for earnings management measures

Countries	Firm-years	Cluster	Abnormal CFO	Abnormal prod cost	Abnormal accrual
Korea	1141	3	0.0012	-0.1281	0.0834
Japan	2785	2	0.0005	-0.0003	0.0631
Malaysia	792	1	0.0315	-0.0002	0.0561
India	566	3	-0.0269	0.0000	0.1201
Indonesia	129	3	0.0000	0.0000	0.0788
Hongkong	101	1	0.0002	0.0000	0.1440
Singapore	398	1	0.0001	0.0055	0.0995

Panel B   Institutional characteristics of the sample countries

Countries	Outside investor right	Legal enforcement	Important equity market	Disclosure index	Cluster (1: high, 3: low)
Korea	2	5.6	11.7	62	3
Japan	4	9.2	16.8	65	2
Malaysia	4	7.7	25.3	76	1
India	5	5.6	14	57	3
Indonesia	2	2.9	4.7	na	3
Hongkong	5	8.9	28.8	69	1
Singapore	4	8.9	28.8	78	1

Panel A of Table 1 provides descriptive statistics for three individual earnings management measures. The three individual earnings management measures exhibit striking differences across countries. The statistics of the mean abnormal *CFO* and abnormal production cost show that earnings management with real activity manipulation aggressive in economies with high investor protection such as Singapore, Hongkong compared to in economies with low investor protection such as Korea and India. The mean abnormal accrual is high in Singapore compared to Japan.

4.2 Result earnings management with real activities manipulation

Table 2 presents descriptive statistics comparing suspect firm-year to the full sample. Firms that just meet the zero earnings (suspect firm) are probably trying to meet the zero target earnings through real activities manipulation. Suspect firm-years have a lower mean of abnormal low CFO than non suspect firm (-0.0031 versus 0.0023). Mean of abnormal production cost is higher for suspect firm compared to non suspect firms (0.1388 versus -0.0074).

4.3 Estimation model

Table 3 reports the regression coefficients for some of the key regression used to estimate 'normal level'. We estimate using the entire sample of 5,931 firm-years. The coefficient generally as predicted by Roychowdhury (2006). The coefficient of CFO on sales change actually positive, for all country, and marginally significant,

indicating that conditional on contemporaneous sales, a higher change in sales implies higher CFO.

Table 2　Descriptive statistics comparing suspect firm-year to rest of the sample

	Suspect firm year	Non suspect firm	Rest of the sample
Full sample 5,931 firm-years with 273 suspect firm-year			
	means	means	means
Net Income/ TA	0.0029	0.0378	0.3620
Abnormal Accruals	-0.0884	-0.0675	-0.0685
Abnormal CFO	-0.0031	0.0023	0.0021
Abnormal Prod	0.1388	-0.0074	-0.0006

Table 3　Model Parameters

	Indonesia		Malaysia		Japan		Hongkong		Korea		India		Singapore	
	CFOt/At-1	Prodt/At-1	CFOt/At-1	Prodt/At-1	CFOt/At-1	Prodt/At-1	CFOt/At-1	Prodt/At-1	CFOt/At-1	Prodt/At-1	CFOt/At-1	Prodt/At-1	CFOt/At-1	Prodt/At-1
Intercept	0.020	-0.119	0.046	-0.072	0.062	-0.140	0.037	-0.095	0.049	1.108	-0.039	-0.027	0.020	-0.101
1/At-1	-2.35	-1.54	-3.36	-8.14	-8.86	-3.827	-1.137	-2.015	-5.83	-8.01	35.127	-2.089	-2.35	-4.83
St/At-1	0.030	0.870	-0.003	0.874	-0.007	0.946	0.37	0.847	0.027	0.130	0.114	1.049	0.030	0.878
ΔSt/At-1	0.000	0.001	0.088	0.161	0.029	0.005	-0.19	0.107	-0.055	-0.089	0.009	0.179	0.00	-0.12
ΔSt-1/At-1		-0.023		-0.079		-0.105		0.246		0.056		-0.123		-0.11
Adj. R2	0.035	0.896	0.058	0.923	0.015	0.933	0.012	0.925	0.057	0.07	0.041	0.993	0.035	0.85

Notes: *significant at level 10%; This table reports the estimated parameters in following equation: $CFO_t /A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \alpha_2 (S_t/A_{t-1}) + \alpha_3 (S_t/A_{t-1}) + \varepsilon_t$; $PROD_t /A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \alpha_2 (S_t/A_{t-1}) + \alpha_3 (S_t/A_{t-1}) + \alpha_4 (S_{t-1}/A_{t-1}) + \varepsilon_t$.

4.4 Comparison of suspect firm years with non suspect firm-years and the rest of sample

If firm-year that report profit just above zero undertake activities that adversely affect their CFO, then abnormal CFO for these firm-years, should be negative compared to the rest of sample. To test this, we estimate the following equation:

$$Y = \alpha + \beta_1 (Net\ Income) + \beta_2 (Suspect\_NI) + \varepsilon \qquad (15)$$

The dependent variable, Y is abnormal CFO and abnormal production cost in period t. $Suspect\_NI$ is an indicator variable that is set equal to 1 if firm-years belong to the earnings category just right of zero, and zero otherwise.

Table 4　Comparison suspect firm years with non suspect sample

	Abnormal CFO	Abnormal production costs
Intercept	0.022	-0.002
	(2.614)	(-0.200)
Net Income	0.008*	-0.269*
	(1.061)	(-5.518)
Suspect_NI	-0.217*	0.142*
	(-5.552)	(3.246)

Notes: *significant at level 10%.

The first column in Table 4 provides evidence that abnormal CFO is unusually low for suspect firm years, consistent with Roychowdhury's model. When dependent variable is CFO in equation (15), the coefficient on SUSPECT_NI is negative (-0.217) and significant at level 10%. Suspect firm-years have abnormal CFO is lower than non suspect firm.

8

When Y is abnormal production cost, the coefficient on $SUSPECT\_NI$ is positive 0.142. The coefficient indicates that the mean abnormal production cost of suspects firm-years is larger 14.2% of assets than the mean across the rest of sample.

4.5 Descriptive cluster analysis

To provide descriptive evidence on systematic pattern in earnings management method across group of countries with similar institutional characteristics (Leuz, et al., 2003). The first cluster is characterized by large stock markets, low ownership concentration, extensive outsider right, high disclosure, and strong legal enforcement. The second and third cluster show markedly smaller stock markets, higher ownership concentration, weaker investor protection, lower disclosure level, and weaker enforcement, with the distinction that countries in the second cluster have significantly better legal enforcement than countries in the third cluster. Based on institutional characteristics, we refer countries in the first cluster as 'high investor protection economies'. The countries in the second and third cluster

To provide descriptive evidence on the systematic patters of earnings management method across cluster, we use ANOVA analysis to compare aggressiveness of real activity manipulation and accrual manipulation across group of countries.

Table 5 shows the difference of aggressiveness earnings management method across cluster.

Table 5 Pervasiveness of earnings management by cluster

	Cluster 1 (high investor protection)	Cluster 2	Cluster 3 (low investor protection)
Abnormal CFO	-0.0075	0.0005	0.0193
Different between cluster	F: 8.753	Sign: 0.000	
Abnormal Production Cost	0.0015	-0.0003	-0.0757
Different between cluster	F: 69.443	Sign: 0.000	
Abnormal Accrual	0.1013	-0.0631	-0.0533
Different between cluster	F: 2.795	Sign: 0.061	

Table 5 shows that the differences between cluster's average earnings management are statistically significant. High investor countries (Cluster1) exhibit lower level of earnings management with accrual manipulation than low investor protection countries. This finding consistent with leuz et al. (2003) that earnings management is expected to decrease in investor protection because strong protection limits insider's ability to acquire private control benefit, which reduces incentives to mask firm performance. But earnings management with real activity management is higher in economies with strong investor protection. Real activity manipulation can be detected by investigate the pattern of CFO and production cost. Deviation from normal level of CFO and Production cost are termed abnormal CFO and abnormal production cost. The abnormal CFO is lower in economies with high investor protection rather than in low investor protection. Abnormal production cost is higher in economies with high investor protection than in low investor protection.

Suspect firm year more aggressive in real activity manipulation, we conduct sensitivity analysis to compare differences in earnings management activity between clusters for suspect firm year. Thus, these results are sensitive to sample selection.

Table 6 shows that suspect firm-years in cluster high investor protection exhibit abnormal low CFO and abnormal high production cost comparing to cluster low investor protection. This result is consistent with previous

Does investor protection affect the choice of earnings management methods through real activity manipulation and accrual manipulation? Asian comparison

analysis.

Table 6   Pervasiveness of real activity manipulation suspect year firm by cluster

Cluster	Abnormal CFO	Abnormal production cost
(1) (high investor protection)	0.0130	0.0189
(2)	-0.0255	0.0556
(3) (low investor protection)	0.0342	-0.2067
Differences between clusters	2.369	47.419
	(0.096)	(0.000)

Notes: *significant at level 10%.

In summary, the evidence earnings management with real activity manipulation is higher in economies with high investor protection rather than in economies with low investor protection. Earnings management with accrual manipulation is more aggressive in economies with low investor protection than in economies with high investor protection.

4.6 The role of investor protection: Multiple regression analysis

The previous analysis shows that pervasiveness of earnings management with real activities manipulation or accrual manipulation is systematically related to a country's institutional characteristics. A key question is which institutional factors are primary determinant of earnings management's method choice. We posit that better investor protection result in less earnings management with accrual manipulation because accrual manipulation is easy to detect and hence lower incentives to conceal firm performance with accrual manipulation. Our multiple regression examines the relation between earnings management's method choice and investor protection.

Table 7   Earnings management's method choice and investor protection

	Abnormal accrual	Abnormal CFO	Abnormal production cost
Constant	1.974	0.392	-0.725
	(4.023)	(1.511)	(-2.259)
Outside investor right	-0.082*	-0.006	0.059*
	(-3.627)	(-0.874)	(6.709)
Legal enforcement	-0.013	-0.009*	0.009*
	(-1.318)	(-2.517)	(2.191)
Important equity market	0.013*	-0.006*	-0.006*
	(1.806)	(-2.309)	(-1.879)
Disclosure index	-0.036*	-0.001*	0.007*
	(-4.350)	(-0.238)	(0.044)
R^2			

Notes: *significant at level 10%.

Our multiple regression results presented at Column 1 of Table 7 report regression analysis using abnormal accrual as the dependent variable. Results show that outside investor right, legal enforcement and disclosure index exhibit a significant negative association with abnormal accrual. The higher level of investor protection will reduce aggressiveness earnings management with accrual manipulation. All variables consistent with prediction, with the exception important of equity market variables.

We attempt to provide evidence on hypothesis that investor protection is positively related to earnings management with real activity manipulation. We use abnormal low cash flow from operation and abnormal high production cost as a measure earnings management with real activity manipulation. The results presented in column 2 of Table 6 show that investor protection and abnormal low CFO exhibit negative association as predicted by our hypothesis. Results show that legal enforcement, important equity market and disclosure index

10

exhibit a significant negative association with abnormal low CFO. The higher outside investor right, legal enforcement and disclosure index, the lower level abnormal CFO. The result also support that investor protection and abnormal high production cost are positively related. Column 3 of Table 6 show that outside investor right, legal enforcement, and disclosure index exhibit a significant positive association with abnormal production cost.

In summary, the multiple regression results are consistent with the hypothesis that investor protection affects earnings management method choice. In economies with high investor protection, it is too costly to manage earnings with accrual manipulation. The cost of detection of accrual manipulation is high because essentially, a manager can borrow earnings from future periods, through the acceleration of revenues or deceleration of expenses, in order to improve current earnings. The cost of detection bears a one-to-one cost of earnings reduction in the future; Future-period earnings will be mechanically lower by the net income that was accelerated to current earnings. The other type of earnings management can occur through the manipulation of real activities, such as providing price discounts to increase sales and cutting discretionary expenditures, such as R&D, to manage earnings. Such actions can increase revenues or net income, but they are also costly. For example, cutting R&D spending to manage earnings may result in the loss of future income related to the forgone R&D opportunities. On the other hand, because the manipulation of real activities is not a GAAP violation, this earnings management tool is expected to have a lower cost of detection than accrual management. So we argue that in economies with high investor protection, manager prefer to use real activity manipulation to mask firm performance. The results of our analysis are consistent with our prediction.

5. Limitation and conclusion

This paper documents systematic differences in the earnings management method across countries with different level of investor protection. The authors perform ANOVA and multiple regression analysis to test differences earnings management's method across cluster countries based on institutional characteristics. The analysis suggest that in economies with high investor protection earnings management with accrual manipulation is lower than in economies with low investor protection.

Prior research has provided evidence on managers' incentives for earnings management and earnings management more aggressive in countries with low legal enforcement but there is relatively little evidence on what manager's method to manage earnings in different legal environment. In addition, prior research used accrual manipulation to measure earnings management but actually management has flexibility to manage earnings with accrual manipulation, real activities manipulation or classification shifting. Earnings management through accrual manipulation is more likely to draw auditor or regulator scrutiny than real decisions about pricing and production. So this paper attempts to provide evidence that investor protection determine manager choice between real activities manipulation and accrual manipulation when they have the flexibility to engage both. We expect that earnings management through accrual manipulation decreases in legal protection because when investor protection is strong, accrual manipulation will decrease because it is easy to detect. But in strong investor protection countries, earnings management through real activities manipulation more aggressive because real activities manipulation can be subjective, auditor might be limited in their ability to verify the appropriate classification. In countries with weak investor protection, manager have great discretionary to manage earnings with both accrual manipulation and real activity manipulation.

Consistent with the hypothesis, the regression result show that accrual manipulation is negatively associated

with quality of outside investor right, legal enforcement, and quality of disclosure. Real activities manipulation is positively association with outside investor right, legal enforcement and quality of disclosure. This finding highlight that level of investor protection determine management's choices on earnings management's method.

The limitation of this study: The study does not include abnormal discretionary expenses to measure real activity manipulation because of unavailable data. We only measure the pattern of abnormal CFO and abnormal production cost. We argue that pattern abnormal discretionary expenses have been captured at the pattern of abnormal CFO. Reducing discretionary expenses has a positive effect on abnormal CFO in the current period, possibly at risk of lower cash flow in the future.

References:

Baber, W., Fairfield, P. & Haggard, J.. (1991). The effect of concern about reported income on discretionary spending decisions: The case of research and development. *The Accounting Review, 66*(4), 818-829.

Ball, R., Robin, A. & Wu, J.. (2003). Incentives versus standards: properties of accounting income in four East Asian countries. *Journal of Accounting and Economics, 36*, 235-270.

Bhattacharya, U., Daouk, H. & Welker, M.. (2002). The world price of earnings opacity. *The Accounting Review, 78*, 641-678.

Bruns, W. & Merchant, K.. (1990). The dangerous morality of managing earnings. *Management Accounting, 72*, 22-25.

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

Bushman, R., Piotroski, J. & Smith, A.. (2004, May). What determines corporate transparency? *Journal of Accounting Research, 42*, 207-252.

Choi, J. H. & Wong, T. J.. (2002). Auditor choice and legal environments: an international investigation. Working paper, Hong Kong University of Science and Technology.

Claessens, S., Djankov, S., Fan, J., Lang, L.. (2001). *Disentangling the incentive and earnings management*. Working Paper. Cornell University, 2006.

Dechow, P. M., Huson, M. & Sloan, R.. (1994). The effect of restructuring charges on executives' cash compensation. *The Accounting Review, 69*(1), 138-156.

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

Dechow, P. M. & Skinner, D. J.. (2000). Earnings management: Reconciling the views of accounting academics, practitioners and regulators. *Accounting Horizons, 14*, 235-250.

Dechow, P. M., Sloan, R. & Sweeney, A.. (1996). Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research, 13*, 1-36.

DeFond, M. L. & Park, C.. (2001, July). The reversal of abnormal accruals and the market valuation of earnings surprises. *The Accounting Review, 76*, 375-404.

Dyck, A. & Zingales, L.. (2002). *Private benefits of control: An international comparison*. Unpublished NBER working paper (8711).

Graham, J. R., Harvey, C. R. & Rajgopal, S.. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics, 40*, 3-73.

Hart, O.. (1995). *Firms, contracts, and financial structure*. London: Oxford University Press.

Healy, P.. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics, 7* (1-3), 85-107.

Healy, P. M. & Wahlen, J. M.. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons, 13*, 365-383.

Hribar, P. & Collins, D.. (2002). Errors in estimating accruals: Implications for empirical research. *Journal of Accounting Review, 40* (1), 105-134.

Hribar, P. & Nichols, D. C.. (2006). *The use of unsigned earnings quality measures in tests of earnings management*. Working paper. Cornell University.

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

Does investor protection affect the choice of earnings management methods through real activity manipulation and accrual manipulation? Asian comparison

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R.. (1998, December). Law and finance. *Journal of Political Economy, 106*(6), 1113-1155.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R.. (2000, January). Investor protection and corporate governance. *Journal of Financial Economics, 58*, 3-27.

Leuz, C., Nanda, D. & Wysocki., D. P.. (2003). Earnings management and investor protection: An international comparison. *Journal of Financial Economics, 69*(3), 505-527.

McNichols, M. & Wilson, G.. (1988). Evidence of earnings management from the provision for bad debts. *Journal of Accounting Research, 26* (Supplement), 1-31.

Meuwissen, R., Moers, F., Peek, E. & Vanstraelen, A.. (2005). *An evaluation of abnormal accruals measurement models in an international context*. Working paper, University of Maastricht and University of Antwerp. Retrieved from http://papers.ssm.com/sol3/papers.cfm?abstract_id=442681.

Nenova, T.. (2000). *The value of corporate votes and control benefits: A cross-country analysis*. Unpublished working paper. Havard University.

Phillips, J., Pincus, M. & Rego, S.. (2003). Earnings management: New evidence based on deferred tax expense. *The Accounting Review, 78*(2), 491-521.

Rangan, S.. (1998). Earnings management and the performance of seasoned equity offerings. *Journal of Financial Economics, 50*(1), 101-122.

Roychowdhury, S.. (2006). Earning management through real activities manipulation. *Journal of Accounting & Economic, 42*, 335-370.

Saudagaran, S. M. & Diga, J. G.. (2000). The institutional environment of financial reporting regulation in ASEAN. *The International Journal of Accounting, 35*, 1-26.

Shleifer, A. & Vishny, R.. (1997). A survey of corporate governance. *Journal of Finance, 52*, 737-783.

Teoh, S. H., Welch, I. & Wong T.. (1998a). Earnings management and the long-run underperformance of seasoned equity offerings. *Journal of Financial Economics, 50*(1), 63-99.

Teoh, S., Welch, I. & Wong, T.. (1998b). Earnings management and the long-run underperformance of initial public offerings. *Journal of Finance, 53*, 1935-1974.

Wysocki, P.. (2004, May). Discussion of ultimate ownership, income management, and legal and extra-legal institutions. *Journal of Accounting Research, 42*, 463-474.

Zingales, L.. (1994). The value of the voting right: A study of the Milan Stocks exchange experience. *Review of Financial Studies, 7*(1), 1250-148.

(Edited by Linda and Mary)

JMAA