Investor Protection, Cross Listings and Opportunistic Earnings Management

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Abstract

This paper, based on the Brockman and Chung (2003) framework, tests the hypothesis that H-shares registered under Chinese law (with lower level of investor protection and legal enforcement) are associated with higher levels of opportunistic earnings management than local shares registered under Hong Kong law, which are traded on the same Hong Kong equity market. The results using a sample of 853 industrial firms in the Hong Kong equity market during the period 1994-1999 also support the hypothesis that the positive association between H-shares and opportunistic earnings management is significantly weaker for firms that list their shares in the US, a jurisdiction with a higher level of investor protection and more stringent reporting requirements.

Keywords: Hong Kong, investor protection, earnings management, accruals, cross listings

Classification code: G34, K40, M40

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I. INTRODUCTION

A unique feature of the Hong Kong equity market is that there are two types of shares traded on the Hong Kong Stock Exchange (HKSE)[1]. These are H-shares, which are firms incorporated under Chinese law and domiciled in China, and Hong Kong shares, which are firms incorporated under Hong Kong law and domiciled in Hong Kong. The investor protection environment in Hong Kong is often ranked among the best in the world, while that of the Chinese legal environment is usually regarded as unsatisfactory. Moreover, under the 'One Country, Two Systems' principle, legal judgments in Hong Kong courts are not enforceable in China, and any shareholder grievances related to H-shares have to be directed to the Chinese judicial system for adjudication and enforcement. This unique structure means that firms may be ranked with respect to the levels of legal investor protection within the same stock market, on the basis of whether the firm is a China based or a Hong Kong based firm (Brockman and Chung, 2003).

Based on the differences in legal protection between Hong Kong based shares and China based shares, Brockman and Chung (2003) predict that Hong Kong based shares are associated with lower adverse selection costs (in terms of narrower bid-ask spreads and thicker depths) to the capital providers than China based shares. The gist of their argument is that H-share companies incorporated in China with lower level of investor protection in terms of legal system, regulatory framework and enforcement mechanisms are associated with lower liquidity than companies incorporated in Hong Kong. We extend their argument and predict that corporate insiders (i.e. managers and/or controlling shareholders) of listed firms incorporated in Hong Kong, and under Hong Kong law, are less likely to 'manage' earnings opportunistically than corporate insiders of H-share companies, listed on the same stock

exchange, but under Chinese law. Opportunistic earnings management maybe defined as the use of management judgment to mislead stakeholders as well as to influence contractual outcomes (Healy and Wahlen, 1999). In addition, this paper also tests the hypothesis that the positive relationship between H-shares and opportunistic earnings management is weaker for shares cross listed in the US, an environment with stronger legal protection and more stringent reporting requirements. This evidence is important because theory and prior evidence predicts that insiders of firms in less developed countries that cross list in the US are less likely to manage earnings (Reese Jr. and Weisbach, 2002; Doidge et al., 2004).

The importance of focusing on opportunistic earnings management rather than other general measures of earnings management has been emphasized by Ashbaugh et al. (2003) who examine the association between audit and non-audit fees and earnings management. They argued that opportunistic earnings management is best measured by income-increasing discretionary accruals since they are more likely to be associated with "opportunistic application of generally accepted accounting principles (GAAP)" while income-decreasing accruals are more likely to be associated with "conservative application of GAAP"[2]. They argue that typically regulators and financial statement users are more (less) concerned with the opportunistic (conservative) application of GAAP.

The linkage between investor protection and earnings management was also examined by Leuz et al. (2003) in a cross-country study involving 31 countries. They used the ratio of operating earning variability to operating cash flows variability and the magnitude of negative correlation between changes in accounting accruals and changes in cash flows as proxies for earnings smoothing. They also used the accruals-cash flow ratio and the ratio of small reported profits to small reported losses as proxies for earnings management discretion.

They also concluded that weak legal protection is associated with higher earnings management. However, there are two limitations associated with their study which this study attempts to overcome. First, the cross-country analysis used by Leuz et al. (2003) is subject to the limitation that it is difficult to control for a variety of cultural, institutional and economic differences across countries, thus throwing into question the validity of the results (e.g., Holthausen, 2003). They attempt to control for various possible confounding institutional factors such as country wealth, economic heterogeneity across countries, cross-country differences in accounting rules and ownership concentration, but as they acknowledged "[s]ince institutional factors are often complementary, it is difficult to fully control for the potential impact of other factors and to disentangle them from the direct effect of investor protection" (pp. 508-509). The examination of differences in investor legal protection of listed companies in one jurisdiction and on the same stock exchange, as in this study, effectively controls for the confounding effects of these potential problems. Second, the earnings management proxies used by Leuz at al. (2003) may not capture opportunistic earnings management, which is best measured by income increasing discretionary accruals (Ashbaugh et al., 2003). For example, the first three proxies could be motivated by either earnings management for opportunistic reasons or for informational reasons (e.g., Watts and Zimmerman, 1986; Gul et al., 2003). In this paper we focus on income-increasing total and discretionary accruals, a proxy for opportunistic earnings management, which is more likely to adversely affect the quality of accounting information and the efficient allocation of scarce resources in the capital market.

Using 853 industrial firms listed on the HKSE with different levels of investor protection during the period 1994-1999, we document that China-based firms (as a measure of firms in an environment with lower level of investor protection), when compared with other Hong

Kong based firms, are associated with higher levels of opportunistic earnings management (proxied by income-increasing total current accruals and discretionary current accruals) as well as discretion in earnings management (absolute values of total and discretionary current accruals). Moreover, we provide evidence that H-shares that are cross listed on US exchanges exhibit a significantly lower level of both our proxies for opportunistic earnings management and earnings management in general when compared with other H-shares. Given that listing in the US automatically binds a H-share firm to US securities laws (which is not the case when the H-share firm lists on the HKSE due to 'One Country, Two Systems' principle, a unique constitutional arrangement only applicable to Hong Kong as a Special Administrative Region of China), this provides further evidence that firms subject to stronger legal protection of investors are less likely to engage in earnings management. As additional tests, we also perform formal statistical tests[3] for the four earnings management proxies used by Leuz et al. (2003) and compare them across H-shares and Hong Kong shares, and consistent results are documented. Finally, several other tests confirm the robustness of our results.

This study contributes to the literature in several important ways. First, unlike prior studies that have found linkages between earnings management, earnings informativeness and a country's legal and institutional environment (Ali and Hwang, 2000; Fan and Wong, 2001; Hung, 2001; Ball et al., 2003 and Leuz et al., 2003), this study, by using data from a single stock market, controls for the confounding effects of institutional and cultural differences that may exist in prior studies. Second, this study, unlike prior studies, focuses on proxies for opportunistic earnings management (rather than some general measures of earnings management) which have implications for the efficient allocation of scarce capital resources. Third, prior studies such as Reese Jr. and Weisbach (2002) and Doidge et al. (2004) argue that foreign firms listing in the US are less likely to expropriate minority shareholders'

interest for insiders' private benefits. Consistent with this argument, we provide evidence that H-shares that cross list in the US are less likely to be associated with opportunistic earnings management. Fourth, this study, unlike the Brockman and Chung (2003)'s one-year study, investigates data from 1994 to 1999 and in this way improves the generalizability of the evidence that stronger investor protection is associated with lower level of adverse selection costs, possibly through the disclosure of more 'true and fair' accounting numbers. Last, but not least, the findings of this study have important policy implications and could serve as a basis for regulators to consider stronger investor protection mechanisms or more stringent regulatory enforcement for listed companies affiliated with weaker legal protection regimes. In particular, the results of this study suggest that the Chinese authorities should take steps to improve the legal protection of investors and the quality of accounting information given China's dependence on the corporate sector as the main engine for its economic growth[4]. For example, improving the quality of accounting information is likely to raise investor confidence and decrease the cost of raising capital for these China-based firms.

The remaining parts of the paper are organized as follows. Section II reviews the relevant literature leading to the development of the hypotheses. Research design is outlined in Section III. Section IV discusses the data collection procedures, which is followed by the results of tests and robustness checks in Section V. Section VI concludes the paper.

II. BACKGROUND AND HYPOTHESES

In 1997 when Hong Kong became part of China, the principle of 'One Country, Two Systems' was adopted in Hong Kong as a Special Administrative Region. To reflect this principle, *Hong Kong and China have separate legal systems, and the legal judgments in one place are neither recognized nor enforceable in another*[5]. More importantly, reflecting the

difference in their legal origins (La Porta et al., 1998), Hong Kong and China receive distinctly different international ranking relating to their legal environments. For example, Hong Kong (a common law country) ranks first out of 161 (154) countries in the 2002 (1998) Index of Economic Freedom Report, and the Report describes Hong Kong as 'the world's freest economy'. However, in the same report, China (as a code law country) ranks 120th and 121st for the two years, and the Report states that "… China's legal and regulatory structure remains so riddled with contradictory internal unpublished guidelines and exceptions that foreign businesses say progress in the rule of law has actually slowed in recent years… business climate plagued by a high risk of losses brought on by sudden changes in China's law, policies, or bureaucratic personalities… China's regulatory regime is not transparent, and enforcement of existing laws is not consistent" (see http://www.heritage.org/index/)[6].

H shares are issued by PRC issuers under Chinese law and listed on the HKSE (denominated in Renminbi) which are subscribed for and traded in Hong Kong dollars. These are generally more profitable firms that the Chinese government has selected for overseas listings. However, though listed on the same stock exchange, the differences in legal protection of investors of these firms when compared with other Hong Kong shares have important implications for the incentives and ability of the corporate insiders to expropriate minority shareholders' interests as well as the ability of investors to obtain a return on their investments. Although both the Chinese and Hong Kong regulatory authorities impose additional requirements that are specially applicable to these China-based shares in an attempt to strengthen their investor protection, these additional requirements still fall short of the investor protection which existed in Hong Kong (Zhu, 2001)[7]. For example, in a recent speech at a forum on improving corporate governance, Paul Chow, the Chief Executive of the HKSE, explicitly addressed the issue as one problem yet to be resolved: "If [managers'

misbehaviour] happens in a company based in Hong Kong, there is the apparatus to deal with it. But if the misdemeanours are perpetrated by Mainland enterprises, there is a potential problem because of current legal arrangements. Directors who disappear back to the Mainland, money transferred to the Mainland, and any remaining assets which are in the Mainland may be beyond the reach of the Hong Kong authorities." (Chow, 2003)

A. Legal Protection of Investors

Investor protection is one of the main factors contributing to the development of capital markets, mainly through the enforcement of shareholders' rights. For example, consistent with this argument, Levine (1999) and La Porta et al. (1997) find a positive relation between investor protection and various measures of capital market development, and La Porta et al. (2000) find that secure investor rights encourage the growth and development of financial markets. At a firm-specific level, a number of studies also show that higher level of investor protection lead to better firm performance. For example, La Porta et al. (2002) find a positive relation between investor protection and Tobin's Q.

More relevant to this paper is a recent study by Brockman and Chung (2003) who investigate the relationship between investor protection (in terms of Hong Kong and China-based shares) and firm liquidity. They argue that firm liquidity is important for the development of capital markets because lower liquidity costs are found to reduce firms' cost of capital and thus increase their market values[8]. This makes it easier for firms to raise funds and implement value-creating projects, which further promote firm performance (La Porta et al., 2002). Using a sample of firms listed on the HKSE with different levels of investor protection, they find that firms under a regime with stronger investor protection exhibit narrower bid-ask

spreads and thicker depths, leading the authors to conclude that 'diminished firm liquidity is one of the economic costs of poor investor protection.' (p.924)

B. Legal Protection and Opportunistic Earnings Management

Differences in investor legal protection are likely to affect the financial reporting environment that, in turn, affects the quality and reliability of accounting information generated by the management of the firm. Higher quality and reliability of accounting information is likely to be achieved in stronger investor protection environments through the enforcement of accounting standards and/or the regulatory framework, including voting rights, anti-director rights, creditor rights and law enforcement (La Porta et al., 1998). When these mechanisms are in place, it is more costly for insiders to obtain private benefits of control and act in their own interests at the expense of shareholders' interests through the use of opportunistic earnings management. In the context of the differences in the level of investor protection between H-shares and Hong Kong shares, the above reasoning leads to the following hypothesis (in its alternative form):

> H1: China-based firms are likely to be associated with more opportunistic earnings management than Hong Kong based firms.

C. Cross Listing in the US and Opportunistic Earnings Management

The US is widely regarded as one of the markets with strongest legal protection of investors' rights, and foreign firms that seek listing in the US are invariably subject to (1) an increased enforcement by the Securities and Exchange Commission (SEC) and the more demanding US securities law and listing requirements, (2) a more litigious environment, and (3) enhanced disclosure requirement under the US generally accepted accounting principles (Coffee, 1999; 2002; Seetharaman et al., 2002; Lang et al., 2003a). Prior studies show that higher disclosure requirements as well as higher regulatory scrutiny in the US will improve cross listed foreign

firms' information environment (Lang et al., 2003a), make them more 'visible' and increase investors' awareness of the firm (Merton, 1987; Baker et al., 2002), thus increasing the market value of the firm's shares. Others (e.g., Fuerst, 1998) develop a signaling argument, suggesting that firms signal a higher quality by listing on a strictly regulated market. Reese Jr. and Weisbach (2002) and Doidge et al. (2004) find empirical evidence consistent with this argument that through listing on US stock exchanges, cross listed foreign firms bond themselves to the high disclosure and regulatory requirements in the US in order to alleviate the concerns regarding the possibility of minority shareholder expropriation by the managers or controlling shareholders. Lang et al. (2003b) also find that cross listed firms are less aggressive in terms of financial reporting, their accounting data take account of bad news in a more timely manner and are more associated with share price.

As discussed earlier, because of the 'One Country, Two Systems' principle, Hong Kong and the Mainland China have separate legal systems, and the legal judgments made in Hong Kong are not recognized nor enforceable in China. This may allow those China based firms to have more discretion in managing earnings opportunistically, as hypothesized earlier. However, if a firm lists on a US exchange, the US securities laws become applicable to it, and thus "[m]uch of the discretion and potential for opportunistic actions that [corporate insiders] can take under other legal regimes is sharply limited by these laws" (Coffee, 1999, p.690). This suggests that a China-based firm that cross lists on a US exchange is automatically subject to a higher level of investor protection comparable to other Hong Kong firms. Therefore, regardless of whether the cross listed China-based firm is constrained by stricter regulatory environment or whether the firm is signaling their quality, we expect that (in its alternative form):

H2: The positive association between China-based firms and opportunistic earnings management is likely to be significantly weaker for those firms that cross list in the US.

III. RESEARCH DESIGN

Insiders of a firm can manipulate accounting earnings in many ways, including various related party transactions, off-balance sheet financing, or through accounting accruals. Based on a survey of prior earnings management studies (for example, Warfield et al., 1995; Becker et al., 1998; Bartov et al., 2001), this paper mainly focus on accruals-based earnings management.

A. Opportunistic Earnings Management Tests

Since current accruals are considered easier to manipulate and are more correlated with firms' operations and profitability (Bradshaw et al., 2001; Ashbaugh et al., 2003), we conduct our tests using total current accruals (TCA), which are measured as follows (Myers et al., 2003):

$$TCA_t = (\Delta CA_t - \Delta Cash_t) - (\Delta CL_t - \Delta STD_t) \quad (1)$$

(subscripts i have all been suppressed for convenience) where ΔCA_t = change in total current assets, $\Delta Cash_t$ = change in cash/cash equivalents, ΔCL_t = change in total current liabilities, and ΔSTD_t = change in short-term loans[9]. Size effect is controlled by scaling each item with the beginning of year total assets.

Further, since the level of total current accruals (TCA) may vary significantly and systematically across firms with different business conditions (such as sales), a better measure of earnings management discretion may be to control for the effects of business

conditions and compare accruals across firms that arise from managerial discretion. Hence, we also decompose the level of total accruals into discretionary and non-discretionary components, with the discretionary accruals being used as a proxy for insiders' discretion in determining the reported earnings[10]. Following Ashbaugh et al. (2003), ROA-adjusted discretionary current accruals (REDCA) are computed to control for the mechanical relation between current period's discretionary accrual estimate and the performance metric (Kothari et al., 2002). This is achieved by including lagged ROA in the cross-sectional discretionary current accruals estimation as follows:

$$TCA_t = \alpha_1 (1 / TA_{t-1}) + \alpha_2 \Delta Rev_t + \alpha_3 ROA_{t-1} + \varepsilon_t \quad (2)$$

TA_{t-1} is total assets at the beginning of the fiscal year, ΔRev_t is the change in net sales scaled by the beginning of year total assets, and ROA_{t-1} is the firm's ROA in prior year. The parameter estimates from equation (2) ($\acute{\alpha}_j$) is then used to compute the expected ROA controlled current accruals (ETCA):

$$ETCA_t = \acute{\alpha}_1 (1 / TA_{t-1}) + \acute{\alpha}_2 (\Delta Rev_t - \Delta AR_t) + \acute{\alpha}_3 ROA_{t-1} \quad (3)$$

Where ΔAR_t is the change in accounts receivable in year t scaled by beginning of year total assets. $REDCA_t$ is equal to TCA_t minus $ETCA_t$.

The following regression model with appropriate controls is used to investigate whether there exist significant difference in income-increasing (positive) current accruals (IncTCA) and income-increasing discretionary current accruals (IncREDCA):

$$\text{IncTCA}_t \text{ or } \text{IncREDCA}_t = \alpha + \beta_1 \text{TYPE}_t + \beta_2 \text{CFO}_t + \beta_3 \text{B6}_t + \beta_4 \text{LOSS}_t + \beta_5 \text{DEBT}_t + \beta_6 \text{SIZE}_t + \varepsilon_t \quad (4)$$

where TYPE is the dummy variable which identifies whether the firm is a H-share (with a value of 1) or a Hong Kong based firm. The purpose of this regression is to test if there is an association between IncTCA or IncREDCA and different investor protection levels. We expect the coefficient β_1 to be significantly positive, indicating that China-based firms systematically report a higher level of income-increasing total current accruals or discretionary current accruals, suggesting that insiders of these firms engage in more opportunistic earnings management.

The remaining variables used in the model control for possible effects on the level of a firm's accruals unrelated to the levels of investor protection. Past studies reveal that accruals and operating cash flows are strongly negatively related (e.g. Becker et al., 1998), therefore we control for firm's operating cash flows (CFO) in our model. Becker et al. (1998) also document that firms audited by Big Six accounting firms have systematically lower level of accruals, thus we add a dummy variable (B6) to control for this effect. Moreover, firms with negative earnings have a higher bankruptcy risk and therefore are more likely to manage earnings. A dummy variable for firms with negative earnings in the prior year (LOSS) is used to proxy for financial distress. Another proxy for financial distress is debt ratio (DEBT), where a higher total debt to total equity ratio indicates a higher incentive for insiders to use accruals to increase earnings to avoid debt covenant violations (see DeFond and Jiamalvo, 1994). Finally, firm size measured by natural log of total assets (SIZE) is also included as a control variable since political cost theory and prior studies document that large firms have lower levels of accruals than small firms (Francis et al., 2002).

It may be argued that income-increasing discretionary accruals may not be the only means of managing earnings opportunistically for all years. It is possible, for example, that for some years firms may practice opportunistic earnings management through the use of income-decreasing accruals (e.g. in creating cookie jar reserves). As suggested by Warfield et al. (1995), in the absence of a specific directional prediction for earnings management behavior, the absolute value of accruals can capture the flexibility available to insiders in managing earnings. Therefore, apart from using income-increasing accruals as the main proxy for opportunistic earnings management, we also test whether insiders of firms with a lower level of investor protection have more discretion to manage earnings by estimating equation (4) with absolute values of total current accruals (|TCA|) and discretionary current accruals (|REDCA|) as dependent variables.

B. US Cross Listings

Shares of Hong Kong and China-based firms offered for sale in the US are usually in the form of American Depositary Receipts (ADRs), which is a negotiable certificate representing a firm's publicly traded shares (or debentures)[11]. We identify the year from which the ADRs are effective for the respective cross listed firms and examine whether earnings management behaviors are different for those H-shares with shares listed in the US. Equation (4) is re-estimated for IncTCA, IncREDCA, |TCA| as well as |REDCA| with the addition of cross listing (XLIST) variable (1 = firm with shares listed on US exchanges). The variable of interest is the interaction term between firm type and cross listing variable (TYPE*XLIST). The coefficients for TYPE*XLIST are expected to be significantly negative, suggesting the positive association between H-shares and earnings management proxies are significantly weaker for those H-shares that cross list in the US. We do not control for firms listing on

other international stock exchanges because all the cross listed H-shares in the sample have cross listed only in the US, except for two firms that have cross listed also in the UK.

IV. DATA SELECTION

The sample constitutes all the firms (with available data) listed on the HKSE, including those listed on the Hang Seng China-Enterprises Index (H-shares) during the period 1994-1999[12]. Financial data are extracted from PACAP database, and auditor and other data are hand-collected through examination of annual reports of our sample firms. Cross listing data are collected directly from the Bank of New York (ADR) website (http://www.adrbny.com). Though the first listings of H-share firms on the HKSE started in 1993 (the first one being Tsingtao Brewery Co Ltd.)[13], the 1994-1999 period is selected as the sample period because we need lagged year accounting numbers for computation of accruals which are unavailable for some newly incorporated/listed firms, and complete financial data are readily available in PACAP database up to the year 1999 at the time of study. We include only industrial firms (industry code = 05) in our analyses because closer examination of the H-share sample reveals that more than 85% (153 out of 179) of the firms in the sample belongs to the industrial sector[14]. In total, 853 firm-year observations are used for hypothesis testing. The sample selection procedures as well as the distribution of the sample firms across years are shown in Table 1.

(Insert Table 1 here)

V. RESULTS

A. Data Description and Preliminary Analyses

Table 2 reports the descriptive statistics of the sample, compares the differences in characteristics among the different groups of firms, and presents the correlation matrix for the

variables (All variables are winsorized to three standard deviations). Univariate tests of sample means in Panel A show that the mean of the absolute levels of both total current accruals (|TCA|), ROA-adjusted discretionary current accruals (|REDCA|) and income-increasing current accruals (IncTCA) are systematically higher for H-shares than that of other firms. These are all consistent with our conjecture. Moreover, H-share firms are also significantly larger in size (TA), have a higher level of operating cash flows (CFO) and have lower proportion of losses (LOSS) on average than other Hong Kong based firms. These working capital related differences will be controlled for in the regression tests.

(Insert Table 2 here)

B. Opportunistic Earnings Management

Panel A and B of Table 3 report the regression results for income-increasing total current accruals and discretionary current accruals. It is shown that after controlling for other factors, H-shares report systematically and significantly higher levels of BOTH IncTCA ($p < 0.01$) and IncREDCA ($p < 0.01$) than other firms, strongly supporting hypothesis one, and the R-squares are comparable to prior studies (e.g. Becker et al., 1998). These results suggest that insiders in firms with lower level of investor protection (H-shares) are associated with higher level of opportunistic earnings management through the use of income-increasing current accruals.

Panel C and D of Table 3 documents the regression results on whether managers of H-share firms are likely to employ more accruals management in general (unsigned). We find that the coefficients for the TYPE variable are significantly positive ($p < 0.01$) for both regressions, after controlling for other factors. This means that H-share firms are more strongly associated

with the absolute levels of both total and discretionary current accruals, suggesting that firms with a lower level of investor protection engage in more earnings management as a whole.

(Insert Table 3 here)

C. Effect of US Cross Listings

We re-estimate the regressions as reported in Table 3 with the addition of the cross listing variables. The results are reported in Table 4. Consistent with previous results, the coefficients for TYPE are all significantly positive ($p < 0.01$) for all regressions, showing that after controlling for cross listing, H-shares are in general associated with higher levels of income-increasing total accruals, discretionary accruals and their absolute values. More importantly, it is shown that the coefficients for the interaction term between firm type and cross listing (TYPE*XLIST) for all regressions are significantly negative, suggesting that the positive association between H-shares and various opportunistic earnings management proxies is generally significantly weaker when the firm is cross listed on a US exchange. In other words, the evidence suggests that a firm from a weak legal protection environment is associated with less opportunistic earnings management when it is subject to a legal environment with potentially higher litigation risk and stricter disclosure and regulatory requirements[15]. One point should be noted is that this constraining effect of cross listing on opportunistic earnings management does not exist when Chinese firms 'cross list' in Hong Kong i.e. H shares (as reflected in the significantly positive coefficients in TYPE) because of the 'One Country, Two Systems' principle, which renders legal judgments in Hong Kong *not* enforceable to China-based firms. However, when H shares cross list in the US, where they are subject to more stringent reporting environment and the potential liability under the catchall anti-fraud provisions of the Exchange Act, proxies for opportunistic earnings management of these firms are shown to be significantly reduced, consistent with hypothesis

two. Lastly, the insignificance of the XLIST variable may suggest that, the differences between Hong Kong and the US in terms of legal protection of investors are not significant enough to cause the insiders of Hong Kong cross-listed firms in general to exhibit significantly different earnings management behaviors. To further confirm this, we re-estimate the REDCA regression for all the Hong Kong firms (N = 384), comparing the cross listed Hong Kong firms with non cross listed Hong Kong firms. It is found (results not reported here) that there is no significant difference in REDCA between the two groups (t-value = -1.15), suggesting that Hong Kong based firms that cross list their shares in US do not engage in significantly different opportunistic earnings management when compared to non-cross listed Hong Kong firms. This result shows that the effect of cross listing on restraining opportunistic earnings management is stronger for firms under a lower level of investor protection (H shares), instead of being a general phenomenon for all firms.

(Insert Table 4 here)

D. Potential Endogeneity

It may be argued that better firms self-select to cross list their shares in US to signal their quality. For example, Siegel (2004 forthcoming) suggests that it is the reputational bonding that better explains the phenomenon of cross listing than legal bonding. Therefore, one concern of the model specification in this study is that it may be those firms with less opportunistic earnings management that are more likely to cross list to US stock exchanges. To mitigate this potential endogeneity bias, we follow Lang et al. (2003a) and apply a treatment effect model. We first estimate a probit model of the decision to cross list as follows:

$$\text{Prob (XLIST)} = \alpha + \beta_1 SIZE_t + \beta_2 TYPE_t + \beta_3 VOLUME_t + \beta_4 SGROWTH_t + \beta_5 IncREDCA_t + \varepsilon_t \quad (5)$$

A probit instead of a logit model is used because the simultaneous system requires normally distributed residuals. The probability of a firm's decision to cross-list (Prob (XLIST)) is a function of firm size (SIZE), legal origin (TYPE), liquidity proxied by the log of volume of shares traded (VOLUME), sales growth (SGROWTH) and the level of IncREDCA. In the second stage the predicted probabilities of cross-listing computed from equation (5) are then used to estimate all regressions in Table 4. The sample size drops to 698 due to missing trading volume data, but results (not reported here) are qualitatively the same as those reported in Table 4, with the TYPE being significantly positive while TYPE*XLIST significantly negative, after controlling for the potential self-selection bias.

E. Additional Earnings Management Tests

As additional tests, the earnings management proxies used in Leuz et al. (2003) are also examined. They are the ratio of operating earning variability to operating cash flows variability, the magnitude of negative correlation between changes in accounting accruals and changes in cash flows, the accruals-cash flow ratio and the ratio of small reported profits to small reported losses. Unlike Leuz et al. (2003), we perform various statistical tests to see if there are significant differences in the levels of earnings management between the two groups of firms.

Earnings Smoothing Measures

Leuz et al. (2003) develop two indicators for earnings smoothing, namely the ratio of operating earnings variability to operating cash flows variability as well as the extent of the negative correlation between changes in accruals and changes in operating cash flows. We first compare the *aggregate* ratio of operating earnings variability to operating cash flows

variability directly between H-shares and Hong Kong shares. The ratio for H-share sample is 0.523, which is much lower than that of the Hong Kong share sample (0.951). We also compute the *firm-level* ratio, measuring the operating earnings (operating cash flows) variability as the standard deviation of the variable for the past five years, such that these variables can then be statistically compared between the two groups of firms. Results of T-tests show that the mean ratio for H-share firms (0.436) is significantly lower ($p < 0.10$) than that for Hong Kong shares (0.596). We also find that operating cash flows variability is significantly larger ($p < 0.10$) for H-shares than for Hong Kong shares (0.705 vs. 0.153), but no statistical difference can be found in their means of operating earnings variability. These results suggest that H-share companies are more likely to reduce the variability of economic performance (operating cash flows) so to achieve a 'smoothed' earnings figure than Hong Kong companies[16].

We also compare the correlation between changes in accruals and changes in operating cash flows for the two groups of firms. We find that the correlation coefficient for H-share sample is –0.800, which is much higher than that for Hong Kong shares (-0.672), consistent with our conjecture that insiders of H-share firms are more likely to use accruals to smooth changes in the firm's economic performance, resulting a stronger negative correlation between changes in accruals and changes in operating cash flows. In addition, we estimate a simple logit model and see if there is a stronger association between negative (positive) changes in accruals and positive (negative) changes in operating cash flows for H-shares than for Hong Kong shares:

$$NegAcc_t = \alpha + \beta_1 TYPE_t + \beta_2 NegCfo_t + \beta_3 TYPE*NegCfo_t + \varepsilon_t \quad (6)$$

Where NegAcc is a dummy variable with 1 = negative change in accruals, while NegCfo is a dummy variable with 1 = negative change in operating cash flows. Both β_2 and β_3 are expected to be significantly negative, suggesting that the significant negative association between changes in accruals and changes in operating cash flows is stronger for H-share firms than for Hong Kong shares. Unreported results show that β_3 is significantly negative (coeff = -0.979, $p < 0.10$), suggesting that the negative association between negative changes in accruals and negative changes in operating cash flows (β_2 = -2.933, $p < 0.01$) is significantly stronger for H-share sample (N = 86) than for Hong Kong firms (N = 614).

For the cross listing sample, we also re-compute and compare the two earnings smoothing measures for firms that cross list in the US. We find that the ratio of operating earnings variability to operating cash flows variability for a sample of H-shares that cross list their shares to the US (1.015) is even marginally higher than those cross listed Hong Kong firms (0.857), suggesting that the earnings smoothing behaviors of the H-shares are weaker when their shares are cross listed in the US. More importantly, the difference in the sample means of the firm-level ratios between the two groups is no longer statistically significant for the cross listed sample (t = 0.36). We also re-estimate equation (6) with the addition of both the cross listing variable (XLIST) and a three way interaction between firm type, cross listing and dummy for negative change in operating cash flows (TYPE*NegCfo*XLIST), and we find that though the negative association between changes in accruals and changes in operating cash flows is significantly stronger for H-shares (β_3 = -1.344, $p < 0.05$), this relationship is significantly weaker (coeff = 1.260, $p < 0.05$) for the H-share cross listed in

the US. This result suggests that H-shares that cross list in the US are less likely to use accruals to smooth earnings.

Earnings Discretion Measures

We compute and compare on a firm-level basis the ratio of absolute value of total accruals to absolute value of operating cash flows (|TCA/CFO|) between the two groups of firms. Equation (4) is re-estimated with |TCA/CFO| as the dependent variables, and results (not reported here) show that H-share firms exhibit a significantly higher accruals-cash flow ratio (|TCA/CFO|) than other firms ($\beta_1 = 0.045$, $p < 0.01$), after controlling for size, cash flow level, leverage, loss and audit quality, suggesting that insiders of firms under a regime with a lower level of investor protection (H-shares) have more discretion in the manipulation of accruals.[17] Similarly, we find that the positive association between H shares and the accruals-cash flow ratio is significantly weaker (coeff = -0.062, $p < 0.05$) when they cross list in US, consistent with our main findings.

The second measure of earnings discretion, the ratio of small reported profits to small reported losses, is based on the notion that insiders are motivated to manipulate earnings to report at least small positive earnings when they experience losses so to avoid the associated adverse consequences such as fall in compensation or stock prices (Burgstahler and Dichev, 1997). We compute the ratio of small reported profits to small reported losses, for each group, with the definition of small profits and small losses (scaled by lagged total assets) being in the ranges [0.00, 0.03] and [-0.03, 0.00] respectively[18]. We find that the ratio for H-share group (6.43) is much higher than that of the other firms group (3.08), the difference being statistically significant using the Chi-square test ($p < 0.05$). This result supports our

conjecture that H-share firms are more likely to exercise earnings management discretion than local shares.

If it is earnings management that drives the difference in the ratios of small reported profits to small reported losses, it is expected that there should be statistically *no* significant difference for ratios of performance measure that are free of earnings management, such as the operating cash flows for the two types of firms. Results of this additional test (not reported here) show that the difference is no longer significant when the ratios of small positive operating cash flows to small negative operating cash flows (χ^2 = 0.683) are compared between H-shares and Hong Kong shares, suggesting that the difference in the ratios of small reported profits to small reported losses is driven primarily by earnings management, probably through the manipulation of accruals[19] (Chi-square tests using the cross listing sample is not possible because of the small number of observations with shares cross listed in the US).

F. Robustness Checks

Test for a Constant Sample

We replicate the tests with a constant sample for the five years 1995-1999 (so to maximize the number of observations) to see if the results is affected by newly listed firms each year. The sample reduces to 405, with 60 H-shares, and the results (not reported here) are qualitatively the same as our main sample.

Test for Newly Listed Firms

Since most of the H-shares are relatively newly listed firms (listed after 1993), we repeat the analyses by comparing our H-share sample (123) with only the newly listed Hong Kong

shares (i.e., firms with their shares listed in HKSE not more than five years during the study period), reducing the Hong Kong share sample to 146. Results (not reported here) are consistent as those reported above.

Test for a Matched-pair Sample

We conduct a matched-pair analysis by matching a H-share observation with a Hong Kong share of the same year and with comparable size (measured by total assets). Results (not reported here) are also consistent with our main findings.

Controls for Repeated Observations

In order to mitigate potential non-independence of observations due to pooling across years, we compute the average values of the variables for each firm across (up to) the six years (1994-1999) and estimate the models using the average values, resulting a sample of 211 in this *firm-level* regressions[20]. We include year dummies and also conduct by-year analyses and results (not reported here) are consistent with our main findings.

Control for Differences in Growth Rate

In view of the fact that the rate of growth for Hong Kong shares and H-shares may not be the same, we also include the market-to-book ratio as an additional control variable in the regressions. Similar results (not reported here) are found.

Control for the Effects of Asian Financial Crisis

In order to account for the possible effects of the Asian financial crisis on earnings management behaviors, we include a dummy variable for the years 1997 and beyond as well

as dummies for individual years of the sample period in the regressions and these yield similar results (not reported here).

Test for Heteroscedasticity

In order to control for heteroscedasticity concerns, we compute White adjusted statistics for all regressions (not reported here), and they are not qualitatively different from our main results.

Alternative Industry Classifications

Since the industry classification system in Hong Kong is rather broad, we re-estimate discretionary current accruals by using the two-digit SIC codes extracted from Global Vantage and OSIRIS databases, resulting in a sample of 615 observations (with 74 H-shares). Qualitatively similar results (not reported here) are obtained.

Alternative Measurements of Variables

To ensure that the results are not driven by a particular measurement of the variables, we conduct the tests with different alternative variable definitions. We re-compute performance-adjusted discretionary current accruals as the difference between the firms' estimated discretionary accruals and the median discretionary accruals of firms' in the same ROA decile (Ashbaugh et al., 2003), and the results (not reported here) are generally the same as our main results. Moreover, Consistent results are also found when we use alternative definitions of the control variables (such as using the market value of equity, nature log of

total assets or the natural log of sales to proxy firm size) or when we scale all the variables using average total assets instead of lagged total assets.

VI. CONCLUSIONS

This study using 853 industrial firms listed on the HKSE with different levels of investor protection during the period 1994-1999 shows that China-based firms (as a measure of firms in an environment with lower level of investor protection) are significantly associated with higher levels of opportunistic earnings management (proxied by income-increasing total current accruals and discretionary current accruals) as well as discretion in earnings management (absolute values of total and discretionary current accruals). The results also show that H-shares that are cross listed on US exchanges exhibit a significantly lower level of both our proxies for opportunistic earnings management and earnings management in general when compared with other H-shares.

These results add to the growing body of evidence in the literature that links investor protection with accounting/earnings quality. The findings of different levels of opportunistic earnings management that exist systematically between firms within the same equity market raise the question as to whether it is appropriate to generalize the degree of earnings management of a country by using a simple average measure of all the firms in the country, as in other cross-country studies such as Leuz et al. (2003)[21].

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Table 1
Sample Selection and Sample Distribution

Panel A	**Screening Procedures for H-share firms[a]**	**No. of firms**
Total number of H-share firm-year observations in 1994-1999		179
Less: Non-industrial firms		(26)
Less: Newly listed firms (missing lagged year data)		(30)
Final Sample		123

[a] For the Hong Kong shares sample, we include all industrial firms available in the PACAP database during the sample period, with a total of 730 firm-year observations.

Panel B **Distribution of the Sample by year**

	1994	1995	1996	1997	1998	1999	Total
H-shares	9	15	15	25	25	34	123
HK shares	123	126	143	98	85	155	730
Total	132	141	158	123	110	189	853

Table 2
Descriptive Statistics of the Sample

Panel A Sample Statistics

	H-shares				Hong Kong shares				T test	Z test
	N	Mean	Median	Std. Dev.	N	Mean	Median	Std. Dev.	*p-value*	*p-value*
|TCA|	123	0.183	0.083	0.308	730	0.106	0.072	0.125	< 0.01	0.24
|REDCA|	123	0.138	0.078	0.167	730	0.101	0.072	0.107	0.02	0.08
IncTCA	56	0.268	0.067	0.745	402	0.102	0.073	0.123	0.09	0.78
IncREDCA	56	0.116	0.062	0.157	384	0.092	0.069	0.094	0.10	0.97
CFO	123	0.236	0.060	0.633	730	0.050	0.027	0.266	< 0.01	< 0.01
B6#	123	0.951	1.000	0.216	730	0.936	1.000	0.246	0.51	
LOSS#	123	0.098	0.000	0.298	730	0.252	0.000	0.434	< 0.01	
DEBT	123	0.112	0.015	0.287	730	0.127	0.042	0.255	0.59	< 0.01
TA	123	14.824	15.000	1.274	730	13.935	13.799	1.349	< 0.01	< 0.01
XLIST#	123	0.195	0.000	0.398	730	0.149	0.000	0.357	0.19	

Chi-square results for firms with LOSS, B6 and XLIST variables.

The variables are defined as follows:
|TCA| = absolute value of total current accruals (scaled by lagged total assets); |REDCA| = absolute value of ROA-adjusted discretionary current accruals (scaled by lagged total assets); IncTCA = income-increasing total current accruals (scaled by lagged total assets); IncREDCA = income-increasing ROA-adjusted discretionary current accruals (scaled by lagged total assets); CFO = cash flow from operations (scaled by lagged total assets); B6 = dummy variable, 1 if the Big 6 auditor, otherwise 0; LOSS = dummy variable, 1 if negative earnings occurred in prior year, otherwise 0; DEBT = leverage (total debt / total equity); TA = natural log of total assets; and XLIST = dummy variable, 1 if the firm cross listed in the US, otherwise 0.

Table 2
Descriptive Statistics of the Sample (continued)

Panel B Correlation Matrix for full sample (N = 853)

	|REDCA|	TYPE	CFO	B6	LOSS	DEBT	TA	XLIST
|TCA|	0.910***	0.162***	-0.027	0.005	-0.008	-0.030	0.021	-0.075**
|REDCA|		0.110***	-0.011	0.009	0.018	-0.016	0.026	-0.056*
TYPE			0.187***	0.023	-0.129***	-0.020	0.228***	0.044
CFO				0.004	-0.059*	-0.050	-0.080**	0.103***
B6					0.025	-0.093***	-0.014	0.030
LOSS						-0.003	0.027	-0.066*
DEBT							0.010	0.056
TA								0.065*

*, **, *** designate two-tailed statistical significance at the 0.10, 0.05 and 0.01 level respectively.

The variables are defined as follows:

|TCA| = absolute value of total current accruals (scaled by lagged total assets); |REDCA| = absolute value of ROA-adjusted discretionary current accruals (scaled by lagged total assets); TYPE = dummy variable, 1 if the firm is a H-share, otherwise 0; CFO = cash flow from operations (scaled by lagged total assets); B6 = dummy variable, 1 if the Big 6 auditor, otherwise 0; LOSS = dummy variable, 1 if negative earnings occurred in prior year, otherwise 0; DEBT = leverage (total debt / total equity); TA = natural log of total assets; and XLIST = dummy variable, 1 if the firm cross listed in the US, otherwise 0.

Table 3
OLS Regression of Earnings Management Measures on Firms with Different Levels of Investor Protection

Model:

[Dependent Variable] = $\alpha + \beta_1 TYPE + \beta_2 CFO + \beta_3 B6 + \beta_4 LOSS + \beta_5 DEBT + \beta_6 SIZE + \varepsilon$

	Panel A: IncTCA	Panel B: IncREDCA	Panel C: |TCA|	Panel D: |REDCA|
Intercept	0.343	0.160	0.153	0.105
	(0.01)	(< 0.01)	(< 0.01)	(0.01)
TYPE	0.224	0.049	0.085	0.041
	(< 0.01)	(< 0.01)	(< 0.01)	(< 0.01)
CFO	-0.166	-0.096	-0.030	-0.011
	(< 0.01)	(< 0.01)	(0.03)	(0.17)
B6	-0.047	-0.007	-0.001	0.002
	(0.18)	(0.35)	(0.47)	(0.44)
LOSS	0.001	-0.003	0.005	0.009
	(0.48)	(0.39)	(0.35)	(0.18)
DEBT	-0.027	-0.001	-0.019	-0.007
	(0.27)	(0.28)	(0.19)	(0.33)
SIZE	-0.014	-0.004	-0.003	-0.001
	(0.08)	(0.11)	(0.23)	(0.44)
Adjusted R^2	6%	8%	2%	1%
N	458	440	853	853

p-values of the estimated parameters are included in the parentheses.

The variables are defined as follows:
IncTCA = income-increasing total current accruals (scaled by lagged total assets); IncREDCA = income-increasing ROA-adjusted discretionary current accruals (scaled by lagged total assets); |TCA| = absolute value of total current accruals (scaled by lagged total assets); |REDCA| = absolute value of ROA-adjusted discretionary current accruals (scaled by lagged total assets); TYPE = dummy variable, 1 if the firm is a H-share, otherwise 0; CFO = cash flow from operations (scaled by lagged total assets); B6 = dummy variable, 1 if the Big 6 auditor, otherwise 0; LOSS = dummy variable, 1 if negative earnings occurred in prior year, otherwise 0; DEBT = leverage (total debt / total equity); and SIZE = natural log of total assets.

Table 4
OLS Regression of Earnings Management Measures on Firms with Different Levels of Investor Protection and US Cross Listing

[Dependent Variable] $= \alpha + \beta_1 TYPE + \beta_2 CFO + \beta_3 B6 + \beta_4 LOSS + \beta_5 DEBT + \beta_6 SIZE + \beta_7 XLIST + \beta_8 TYPE*XLIST + \varepsilon$

	Panel A: IncTCA	Panel B: IncREDCA	Panel C: |TCA|	Panel D: |REDCA|
Intercept	0.314	0.150	0.135	0.095
	(0.02)	(< 0.01)	(0.01)	(0.01)
TYPE	0.248	0.055	0.102	0.050
	(< 0.01)	(< 0.01)	(< 0.01)	(< 0.01)
CFO	-0.156	-0.096	-0.021	-0.007
	(< 0.01)	(< 0.01)	(0.09)	(0.29)
B6	-0.043	-0.006	0.002	0.004
	(0.21)	(0.38)	(0.46)	(0.40)
LOSS	-0.002	-0.005	0.004	0.008
	(0.47)	(0.33)	(0.38)	(0.19)
DEBT	-0.023	-0.007	-0.018	-0.006
	(0.30)	(0.32)	(0.20)	(0.34)
SIZE	-0.012	-0.004	-0.002	0.000
	(0.11)	(0.16)	(0.33)	(0.47)
XLIST	-0.024	-0.014	-0.016	-0.008
	(0.26)	(0.15)	(0.17)	(0.24)
TYPE*XLIST	-0.178	-0.052	-0.103	-0.056
	(0.05)	(0.09)	(< 0.01)	(0.03)
Adjusted R^2	7%	8%	3%	1%
N	458	440	853	853

p-values of the estimated parameters are included in the parentheses.

The variables are defined as follows:
IncTCA = income-increasing total current accruals (scaled by lagged total assets); IncREDCA = income-increasing ROA-adjusted discretionary current accruals (scaled by lagged total assets); |TCA| = absolute value of total current accruals (scaled by lagged total assets); |REDCA| = absolute value of ROA-adjusted discretionary current accruals (scaled by lagged total assets); |TCA/CFO| = ratio of absolute value of total current accruals to absolute value of operating cash flows; TYPE = dummy variable, 1 if the firm is a H-share, otherwise 0; CFO = cash flow from operations (scaled by lagged total assets); B6 = dummy variable, 1 if the Big 6 auditor, otherwise 0; LOSS = dummy variable, 1 if negative earnings occurred in prior year, otherwise 0; DEBT = leverage (total debt / total equity); SIZE = natural log of total assets; XLIST = dummy variable, 1 if the firm cross listed in the US, otherwise 0; and TYPE*XLIST = interaction term between TYPE and XLIST.

Endnotes

[1] Though the HKSE merged with Hong Kong Futures Exchange Limited and Hong Kong Securities Clearing Company Limited in 2000 and renamed the Hong Kong Exchanges and Clearing Limited (HKEx), we will continue to refer to the Exchange as the HKSE because the period of investigation in this paper is 1994-1999, which is before the occurrence of the merger.

[2] Except in the case of aggressive application of conservatism, where insiders construct 'cookie jar' reserves that are to be used in future periods (Levitt, 1998).

[3] Leuz et al. (2003) measured the levels of earnings management of a jurisdiction as the average rank of the various earnings management proxies across the 31 countries they studied for their analyses.

[4] This can be indirectly shown from the fact that the aggregate market capitalization of Mainland companies amounts to US$154 billions or about 28 percent of the total market capitalization of the Hong Kong securities market at the end of 2003, and during the period 1993 - 2003 these companies have raised about US$100 billions in Hong Kong.

[5] This principle is formally stipulated in the Basic Law of Hong Kong Special Administrative Region (HKSAR), the constitutional document of Hong Kong. For example, Article 18 of Chapter II of the Basic Law reads "The laws in force in the HKSAR shall be this Law, the laws previously in force in Hong Kong … and the laws enacted by the legislature of the Region… *[Chinese] National laws shall not be applied in the HKSAR*", and Article 19 reads "The HKSAR shall be vested with independent judicial power, including that of final adjudication."

[6] In its 2004 report, Hong Kong continues to be ranked as the freest economy among 153 countries, while China ranks 128th and falls in the category of 'mostly unfree'. Similar descriptions of discrepancies in legal protection between the two jurisdictions have also been found in other studies and reports. For example, according to The Economic Freedom of the World: 1998/1999 Interim Report, Hong Kong is regarded to be the freest economy in the world, followed by Singapore, New Zealand, United States and United Kingdom; while China ranks 79th in the world, just above Morocco, Fiji, Papua New Guinea. See http://www.fraserinstitute.ca/books/econ_free98/contents.html.

[7] These additional requirements, called the Mandatory Provisions for Articles of Association of Companies Seeking Listings in Hong Kong, require Chinese applicant companies to include in their articles of association certain imperative clauses for the purpose of protecting Hong Kong investors. However, it is argued that these

provisions are ambiguous, subject to alternative interpretations and are difficult to enforce. A detailed discussion can be found in Zhu (2001).

[8] See Brockman and Chung (2003) for a detailed discussion of the theoretical and empirical evidence on the positive relationship between firm liquidity and market values.

[9] Changes in short term loans are assumed to be zero if the firm does not report information on the variable.

[10] Prior studies that use discretionary accruals as a proxy for earnings management include Jones (1991), Dechow et al. (1995), Becker et al. (1998), Myers et al. (2003), Frankel et al. (2002) etc.

[11] Though there are different types of ADRs in the US with different disclosure and regulatory requirements, foreign firms cross listed in the US are subject to the US securities laws and hence the legal protection of investors dramatically increase for these firms when compared with China's legal environment. Therefore, we do not distinguish the types of ADRs the firms issue in this study.

[12] The list of firms for HSCEI is readily available on the HSI Services Limited website http://www.hsi.com.hk/.

[13] There are in total six H-share firms listed on the HKSE by the end of the year 1993.

[14] The use of one industry also provides a stronger test of the theory.

[15] To test for robustness of the results, we include in the cross listed sample those firms that also cross list their shares with the London Stock Exchange (LSE) and re-estimate the regressions. Similar results are found.

[16] We have also regressed the ratio of operating earnings variability to operating cash flows variability on the type of shares (TYPE), and untabulated result shows that the coefficient is –0.160 ($p < 0.10$), consistent with the above results.

[17] Other than operating cash flows, *pre-managed* earnings (reported net income less discretionary accruals) is also used as the denominator of this relative measure in sensitivity analysis to test the robustness of the above results. Unreported results show that H-shares have significantly higher magnitude of accruals relative to pre-managed earnings as in case of operating cash flows.

[18] Though Leuz et al. (2003)'s definition of small profits and small losses are in the ranges [0.00, 0.01] and [-0.01, 0.00], we find that definitions narrower than [0.00, 0.03] and [-0.03, 0.00] result in small number of observations for the tests on operating cash flows as discussed below, which will affect the validity of the Chi-square tests. Therefore we extend the definitions accordingly. Results using Leuz et al. (2003)'s definition also show that H-shares group (ratio = 6.67) have a much higher ratio (though not in statistical sense) than Hong Kong shares group (ratio = 3.38).

[19] We also compare the ratios of small 'pre-managed' profits to small 'pre-managed' losses between H-shares and Hong Kong shares with the Chi-square test, where 'pre-managed' earnings are defined as the reported net income – REDCA, another performance measure that is free of accounting earnings management. Similar to the case of the operating cash flows, we find no statistically difference between H-shares and Hong Kong shares in terms of the ratios of small pre-managed profits to small pre-managed losses (χ^2 = 1.053), suggesting the significant difference in the ratio of small reported profits to small reported losses between the two groups is the result of accruals management.

[20] We thank an anonymous reviewer for bringing up this point.

[21] For example, firms incorporated in different states in the US may be subject to different legal protection of investors (see Daines, 2001). This suggests that, instead of cross-country analyses, it may be more appropriate to investigate within-country variations in either the levels of investor protection or earnings management.