

## OWNERSHIP STRUCTURE, INTERNAL GOVERNANCE AND EARNINGS MANAGEMENT IN HONG KONG

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### Abstract

This study examines whether ownership structure and internal governance mechanisms are associated with earnings management in Hong Kong. We hypothesize that the earnings management of a firm is associated with the ownership structure including ownership concentrations, different ownership concentration levels of family held companies and substantial institutional investors; and internal governance mechanisms including firms that are audited Big 4 auditors and proportion of outside directors. The non-discretionary accruals are measured using modified Jones model with cross-sectional basis. We employ multivariate model to investigate the relationship between discretionary accruals and various independent variables. Our results show that discretionary accruals are positively associated with high/low level of family ownership and negatively related to firms that are audited by Big 4 auditor as hypothesized. Our results reveal that the controlling shareholders in family businesses can expropriate minority shareholders by accounting manipulations and that independent non-executive directors cannot effectively constrain opportunistic earnings management. This requires regulators and standard setters to improve the extent of investor protection and to increase the independence of outside directors on the board.

**Keywords:** Ownership structure; Internal governance; Corporate governance; Earnings management

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### 1. Introduction

This study examines the relationships between ownership structures, internal governance and earnings management in Hong Kong. Corporate governance has been an issue of great importance for investors around the world in recent times. After corporate collapses in United States and the Asian financial crisis, investors have become more concerned about whether they are sufficiently protected. Since the United States had several major corporate collapses in the years 2001 and 2002, investor protection was thought to be under threat and emergency legislation was passed: the Sarbanes Oxley Act of 2002. The main issues for major corporate collapses in United States were whether the management had monitored company affairs appropriately, and whether the external auditors had done enough to stop accounting manipulations.

In the aftermath of the Asian financial crisis in 1997, there were many questions raised over issues of corporate governance in the Asian region. One of the main focuses has been that family firms in East Asian region tend to have very high ownership concentration (Claessens et al., 1998), different from US, UK or continental European firms which are mostly diversely held by the equity market. According to Fan and Wong (2002), high ownership

concentrations in family businesses cause information asymmetry between the controlling shareholder and minority shareholders, where the controlling shareholder is in a superior position to the minority shareholder. As a result, the controlling shareholder can expropriate the minority shareholders without awareness by such shareholders.

The above-referred issues indicate that firstly, internal governance should constrain manipulation of accounts. However, the corporate collapses in the United States demonstrated deficiencies in internal governance mechanisms. Secondly, family businesses are dominant in most of the East Asian region and there is the possibility that the controlling shareholders in a family firm could overpower the internal governance mechanisms and investors' protection could be under threat.

Corporate governance mechanisms are important to limiting the agency problems proposed by Jensen and Meckling (1976). The agency problem refers to the different interests of the manager and owner which causes managers to make decision that maximise their own interests instead of the shareholders' interests. The managers have the ability to control financial information, so they have power to make decisions that maximise their own benefit. Information control creates opportunities to manipulate accounting numbers without the

awareness of the owners, via managers' using judgement to maximise their own benefits. The conflict between managers and owners can however be minimised by corporate governance mechanisms operating internally or externally, enabling protection of the rights of investors (Leuz, 2003). Effective corporate governance systems should enable the shareholders to actively monitor the managers' behaviour, so reducing the problem of separation between ownership and management (Adams, 2003).

Examination of the relationship between ownership structure, internal governance and earnings management is motivated by two factors. Firstly, corporate governance mechanisms are relevant to regulators, stakeholders and investors around the world. The financial sector is very important to Hong Kong, and the inflow of foreign investment capital is one of the most important supports for the financial sector. To remain competitive in terms of foreign investment, the regulators must ensure that investors are properly protected by regulation in Hong Kong. Therefore, this study will help regulators in Hong Kong to search for improvement in terms of investors' protection in Hong Kong. Secondly, a number of studies have evaluated the relationship between ownership structure and earnings management in an Asian context. For example, Su (2001) examined the relationship between family controlled firms and earnings management in Taiwan, Fan and Wong (2002) tested the relationship between ownership structures and accounting earnings' informativeness in East Asia and Kim and Yi (2005) examined ownership structure and earnings management in South Korea. Jaggi and Tsui (2007) investigated whether Hong Kong firms engage in insider trading and whether reporting earnings are managed to maximise benefits on insider selling. However, to the best of our knowledge no study has been investigated the relationship between ownership structure, internal governance and earnings management in the context of Hong Kong. The present study fills this gap by examining whether the ownership structure affect the level of earnings management, and the effectiveness of internal governance in reducing accounting manipulation in Hong Kong.

The evidence for the study is based on 60 Hong Kong listed companies, using data from the financial years 2002 and 2003. We select Hong Kong because it occupy an important position in the Southeast Asian region in terms of per capita income (Brockman and Chung, 2003) and is considered as fifth largest international financial market (Jaggi and Tsui, 2007). For the ownership structure purpose, we attempt to explain the relationship between largest shareholder ownership concentration, different ownership concentration levels of family held companies and the presence of substantial institutional investors and the strength of earnings management. With respect to internal governance, we attempt to explain the relationship of auditing by Big 4 auditors and the proportion of outside directors with earnings

management. The non-discretionary accruals are measured using the modified Jones model on a cross-sectional basis. We employ a regression model to investigate the relationship between discretionary accruals and various independent variables. Our results show that discretionary accruals are positively associated with high/low level of family ownership and negatively related to auditing by Big 4 auditors, as hypothesized. However, we do not find significant relationship a between ownership concentration, institutional investors and earnings management.

The findings of the study indicate that controlling shareholders in family businesses can expropriate minority shareholders by accounting manipulation and that independent non-executive directors may not effectively constrain opportunistic earnings management. Since the independent non-executive directors are appointed by the management of the company under mandatory regulation of Hong Kong, there is scope for the regulators and standard setters to improve the extent of investor protection and to increase the independence of outside directors on company boards.

The remainder of this paper is structured as follows. In section 2 we briefly discuss the corporate governance environment in Hong Kong. The theoretical background, prior research related to corporate governance and earnings management, and development of hypotheses are discussed in Section 3. In Section 4 we describe our research design, while the results are analysed in Section 5. Section 6 concludes the paper.

## **2. Corporate Governance in Hong Kong**

### **2.1. Regulation on Corporate Governance**

Following the 1997 Asian financial crisis, it was commonly agreed that there were some deficiencies in transparency and corporate governance in the Asia-Pacific region. The collapse of Enron Corporation in the US and One Tel in Australia have demonstrated that such issues have reached to a critical point and that there is a need for structural reform of both external and internal of governance of large corporations and other listed companies. Before the financial crisis, most of the Asian countries did not consider corporate governance as an important issue (Chen et al., 2005). In the post-financial crisis, many countries in East Asian region began reforming the accountability and transparency bases of corporate governance in order to restore investors' confidence. However, Hong Kong has a strict monetary authority and reasonably strong financial system, which helped avoid a similar financial crisis and collapse in the banking sector as in South Korea, Thailand and other East Asia region countries (Khan, 1999a).

The regulatory framework for the Stock Exchange of Hong Kong includes statutory and non-statutory requirements. The statutory requirements include different ordinances, including providing an

annual report of the company and disclosure of directors and shareholders who hold 10 per cent or more of the listed company's total issued share capital. The non-statutory requirements are the listing requirements aimed at strengthening corporate governance practice (Cheung et al., 2006).

The Securities and Futures Commission (SFC) in Hong Kong supervises the securities and futures listed on the Hong Kong Stock Exchange. The SEC is authorised to ensure full disclosure in financial reports, that all the outside and minority shareholders are fairly treated and the avoidance of conflict between majority and minority shareholders. The SFC also has the right to check any listed company's record in Hong Kong if they suspect fraud or malpractice. The SFC, therefore, is responsible for investigating criminal actions and the prosecution of minor offences (Cheung et al., 2006).

Starting from 2005, new codes of corporate governance practice replaced the old code of best practice which included five areas such as the board of directors, remuneration of senior officers, accountability and audit, delegation by the board, and communications with shareholders (Lau and Young, 2006).

## 2.2. Ownership Structure and Internal Governance

The Asian region has a unique ownership structure compare to the West. Unlike companies in United States and United Kingdom the shares are diffusely held. A large proportion of listed companies in Asia have a single shareholder or a family group which holds a majority of the share capital of such companies. Khan (1999b) noted that the family-based system (FBS) is dominant for corporations in the South East Asia region where it is monitored neither by the equity market nor the financial institutions. Majority shares of capital are held by a single shareholder or a family group. Family-based firms have relatively small and less liquid markets for their shares due to high ownership concentrations of family members. As a result the public have relatively less liquid shares. Shareholders' right are relatively weak under the FBS. Therefore, expropriations are more likely to occur under FBS and the concentration of debt and equity under the FBS is high. The dominant conflict is between the controlling and the minority shareholders. The directors have a limited role in the FBS, as it is believed that the majority of the boards of directors are comprised of family members of the firm. There is also a unique situation under the FBS where the controlling shareholders can hold up important financial information of the firm and so information asymmetry and agency costs will tend to increase as the firm grows.

Claessens et al. (1998, 1999) stated two features of corporations in the East Asia region: families have control over the majority of corporations and such control is also magnified "... through the use of

pyramid structures, crossholdings and deviations from one-share-one-vote rules" (Claessens et al., 1999). Claessens and Fan (2003) described the main causes for high ownership concentration in Asian corporations as property rights not being well defined and a poor legal system, leading to the dominance of family controlled businesses in the region. La Porta et al. (1999) also argued that the countries with poor investor protection generally had more concentrated control compared to countries with good protection. According to Claessens et al. (2000) Hong Kong has the highest percentage (71.5 per cent) of family ownership compared to the other East Asia countries. In a survey conducted by the Hong Kong Society of Accountants on ownership structure 53 per cent of all listed companies have one shareholder or one family group owning more than 50 per cent of the total issued capital (HKSA 1997). The result of Cheung et al's. (2006) study indicates that ownership in Hong Kong is heavily distributed toward family groups.

Effective corporate governance should minimise the problem of majority shareholders expropriating the minority shareholders. For example, in Hong Kong, it is a requirement for listed companies that the board of directors must be composed of two independent non-executive directors. Another suggestion is that the institutional investors serve as "watchdogs" for the listed companies. In this study, we will concentrate on the effect of independent non-executive directors and the role of external auditors as internal corporate governance mechanisms.

## 3. Theoretical Background, Prior Research and Development of Hypotheses

### 3.1. Earnings Management

Earnings management is represented by managers using their ability to purposefully manipulate the financial figures to mislead stakeholders. The conflict of interest created by separation of ownership and control drives managers to manipulate accruals to achieve the desired level of income (Jensen and Meckling, 1976). However, there must be certain level of information asymmetry existing between managers and shareholders before earnings management can take place. Management expects to hold private information about the company relative to the shareholders, so that the managers have scope to manipulate the accounts and thereby mislead the shareholders. When a company has high ownership concentration, the majority shareholders will be owner-managers, and there will be separation between the majority shareholders and "outside" shareholders (Khan, 1999a). In this case the majority shareholders have the ability to "hold up" financial information on the company, causing information asymmetry between majority shareholders and "outside" shareholders (Fan and Wong, 2002).

For managers to opportunistically manage earnings, there must be an incentive for them to do so,

with most of the incentives deriving from the agency problems proposed by Jensen and Meckling (1976). The authors identified the agency problems associated with separation of ownership and management, a key reason, underlying opportunistic earnings management. If the motivation is identified, then it is possible to relate relevant indicators to discretionary accruals and evaluate whether the latter appear to be opportunistic or otherwise. Past research shows that firms may have strong motivations for earnings management. For example, prior to a public securities offering managers are more likely to managing earnings to window-dress financial statements so as to increase their compensation (e.g., see Teoh et al., 1998; Healy and Wahlen, 1999; Peasnell et al., 2001; Cheng and Warfield, 2005).

The incentives for earnings management in family businesses are different from the traditional agency problems arising from separation of ownership and management. Fan and Wong (2002) argued that the majority voting rights and cash flow rights attached to majority shareholdings may opportunistically deprive minority shareholders of their rights, reflecting the 'entrenchment effect'. Controlling shareholders in the company may be able to expropriate the minority shareholders under the entrenchment effect. For example, the controlling shareholder may sell the company's assets to a related company at lower than market price without disclosing this in the financial reports. We examine whether ownership structure and internal governance mechanisms are associated with earnings management in Hong Kong.

### 3.2. Ownership Structures

Jensen and Meckling (1976) argued that the owners play a more active role in terms of monitoring the company as their ownership concentration increases. There are a number of studies (e.g., see, Su 2001; Fan and Wong, 2002; Kim and Yi, 2005; Teshima and Shuto, 2005) evaluating the relationship between ownership structure and earnings management. Ownership concentration may have varying effects on earnings management according to its intensity. Fama and Jensen (1983) proposed that higher ownership concentration can effectively reduce the agency problem as it provides more in-depth control for the owners. This reduces the tendency to earnings management and is referred to as the 'alignment effect'. However, when the ownership concentration gets to a level where the majority owners can easily manipulate the accounts, an agency problem arises between the outside shareholders and inside shareholders. Higher ownership concentration may increase use of discretionary accruals. This is due to the ability of majority shareholders to manipulate the accounts increasing as ownership concentration increases, reflecting the entrenchment effect. When the ownership concentration reaches an extreme point where the majority shareholder holds nearly 100 per

cent of the company the majority shareholder is unlikely to expropriate his/her own wealth, so the alignment effect prevails instead (e.g., see Fan and Wong, 2002 and Teshima and Shuto, 2005).

Prior research including Iturriaga and Hoffmann (2005), Fan and Wong (2002), Kim and Yi (2005) and Su (2001) tested the relationship between earnings management and internal mechanisms of corporate governance and obtained mixed results. While Kim and Yi (2005) and Su (2001) generally agreed that there is a positive association between family group ownership concentration and earnings management, Iturriaga and Hoffmann (2005) found a negative relationship between ownership concentration and earnings management. Therefore, the following hypothesis is formulated:

*H1: Earnings management is negatively associated with ownership concentration for Hong Kong listed companies.*

An important issue for ownership structure is that of the identity of the majority shareholder: whether it is a family group, a person, an institutional investor, or another company. We believe that entrenchment effects will be dominant in family business at low and high levels of ownership concentration<sup>8</sup>. At a low level of ownership, the family group owners have less control over the financial information of the company, and the managers have the power to manipulate the accounts for their own purposes (Jensen and Meckling, 1976). When the family group has higher ownership and therefore more control, it can monitor the firm more effectively, reducing the scope for managers to manipulate the accounts, so as to maximize their own benefit and mislead the family owners (Jensen and Meckling, 1976 and Fama and Jensen, 1983). Therefore, we believe that for a medium level of ownership concentration of the family business<sup>9</sup>, there is a negative relationship between the level of family ownership and earnings management.

When the ownership concentration reaches the point where the family group has majority control of the company the controlled shareholders (family group) will have the power to manipulate the accounts. The group could maximise its benefit via expropriating the minority shareholders and, if wishing to do this, the controlled shareholders will manage the company's earnings to mislead minority shareholders (Fan and Wong, 2002). We therefore hypothesise that:

*H2a: Earnings management is positively associated with ownership concentration in Hong Kong family businesses at high or low levels and*

<sup>8</sup> In this study, low or high levels of ownership concentration in a family business represents ownership concentration that is less than 33% or higher than 66% of total shares capital held by family group in Hong Kong.

<sup>9</sup> Medium level of ownership concentration of family business represents ownership concentration that is between 33% and 66% of total shares capital held by family group in Hong Kong.

*H2b: Earnings management is negatively associated with ownership concentration in Hong Kong family businesses at the medium level.*

### 3.3. Institutional Investors

It is believed that the existence of institutional investors can constrain the level of earnings management as they are considered to be expert “watchdogs” of the company in the process of looking after their own interests. Studies that have considered the relationship between institutional investors and earnings management include Chung et al. (2002), Bushee (1998) and Rajgopal et al. (1999).

Chung et al. (2002) examined the relationship between institutional monitoring and earnings management. The results indicated that institutional shareholders with substantial shareholdings will restrict the managers if they suspect opportunistic discretionary accruals exist. Bushee (1998) investigated the relationship between institutional investors, long term investment and earnings management and observed that managers are less likely to manipulate the accounts by cutting R & D cost when institutional ownership is high. Rajgopal et al. (1999) found a negative relationship between levels of institutional ownership and discretionary accruals, supporting the notion that institutional investors on average are effectively monitoring the company. Therefore, we test the following hypothesis: *H3: Earnings management is negatively associated with institutional investment if the institutional investors are substantial shareholders.*

### 3.4. Outside Directors

The purpose of outside directors on the board of the company is an advisory and monitoring role according to Ng and Roberts (2005). Fama and Jensen (1983) suggested that there are incentives for outside directors to monitor the company due to competition in the outside directors’ labour market. According to Dunn (1987), a board that comprises of a majority outside directors is in a better position to monitor and control management. Hence we generally believe that outside directors can effectively constrain earnings management. There are a range of previous literatures studying the relationship between outside directors and earnings management including Jeanjean (2000), Peasnell, Pope and Young (2001), Chtourou et al. (2001), Su (2001), Osma and Nogue (2003), Park and Shin (2004), Davidson et al. (2005) and Chen et al. (2005).

Peasnell et al. (2001) examined the relationship between outside directors and levels of earnings management. The results indicated that the proportion of outside board members is associated with less income-increasing earnings management. Chtourou et al. (2001) found a positive association between the percentages of independent non-executive directors on the board and earnings management. Davidson et

al.’s. (2005) results indicate a positive relationship between the proportion of non-executive directors on the board and levels of earnings management. Su (2001) observed a negative relationship between independent supervision and earnings management with the presence of such supervision limiting the extent of earnings management. Chen et al. (2005) found that voluntary formation of independent directorship is negatively associated with levels of earnings management.

Park and Shin’s (2004) results suggest no evidence for a link between the degree of accrual manipulation and the proportion of outside directors. Osma and Nogue (2003) observed a positive relationship between the proportion of independent non-executive directors on the board and the levels of earnings management. Jeanjean (2000) found that independent directors are important in order to constrain earnings management, and that the optimal proportion of independent directors on the board in this sense is 30 to 40 per cent. This leads to development of the following hypothesis:

*H4: Earnings management is negatively associated with the proportion of independent directors in Hong Kong listed companies.*

### 3.5. Choice of Independent Auditors

The failures of Enron and WorldCom in United States and One Tel in Australia caused queries as to whether the external auditors performed their job properly in relation to protection of minority investors. It is a wide perception that the earnings quality of firms audited by Big 4 audit firms is generally higher than otherwise in that the Big 4 auditors are more likely to issue a qualified audit report than non-Big 4 auditors in similar circumstances. It is also typically believed that the Big 4 auditors are more conservative than the non-Big 4 auditors. Especially, it is believed that the Big 4 auditors are more conservative subsequent to the dismissal of Arthur Anderson due to the Enron case.

There are various studies on the relationship between the auditing of firms by Big 4 or Big 5 auditors and levels of earnings management, including Chen et al. (2005), Krishnan (2003) and Davidson et al. (2005). Chen et al.’s. (2005) results indicate a positive relationship between firm’s auditors being of the Big 5 and levels of earnings management. Krishnan (2003) found that on average, the non-Big 6 auditors’ clients are more likely to manipulate their accounts than non-Big 6 clients. Davidson et al. (2005) reported a negative association between clients of Big 5 auditors and earnings management. Since Big 4 auditors are presumed to be more conservative than the non-Big 4 auditors given the need to maintain their quality and reputation in the industry, we suggest that the Big 4 auditors will carefully examine the companies’ accounts and thereby constrain earnings management. To test this notion our fifth hypothesis is proposed:

H5: Earnings management is negatively associated with the auditing of firms by Big 4 auditors for Hong Kong listed companies.

## 4. Research Method

### 4.1. Sample Selection

For the present study, 60 listed companies were selected from the Hong Kong Stock Exchange for the financial years ending 2002 to 2003, comprising a sample of 120 company-years. Financial data such as total assets, operating cash flow, revenue, net income, values of property, plant and equipment, leverage and audit firm identity for the companies in the study were obtained from such companies' annual reports. However, annual reports in Hong Kong do not require disclosure of information such as the percentage of shares held by the largest substantial shareholder, and the percentage held by institutional shareholders. This latter data were collected from the database of the Hong Kong Stock Exchange, where listed companies are required to disclose their shareholder interests.

#### Insert Table 1 About Here

The sample firms in this study were selected randomly, taking into account industry sectors via the Hong Kong Stock Exchange's Industrial Classified System<sup>10</sup>. The selection process was as follows. Nine industry sectors were randomly chosen, and sample firms were selected from these industry sectors. Industry sectors having less than six firms were reselected, until each sector had at least six firms. Companies with missing data and incomplete information were eliminated. The financial sector<sup>11</sup> was not included in this study due to the unique way of calculating accruals applying in that industry. After the selection process, 8 industry sectors were represented, comprising Industrial, Technology, Construction, Manufacturing, Retail, Transportation and Logistics, Property and Telecommunications. Table 1 shows the sample by industry sector. The largest representation is for the Industrial sector, making up 16.67 per cent of the sample, while the smallest is Construction, with 10 per cent.

### 4.2. Measurement of Earnings Management

Young (2000) proposed three steps to detect opportunistic earnings management, including identifying the motive for the management of earnings, and developing a regression model to test the relationship between the motives of earnings management and levels of abnormal earnings. A

significant positive relationship between the latter was suggested as indicating that opportunistic earnings management exists.

Healy (1985) was first to use a specific discretionary accruals model to detect where opportunistic earnings management occurs. The later the modified Jones model was introduced, with empirical evidence by Dechow et al. (1995) indicating that it may be the most effective model for detecting earnings management. The modified Jones model has become the mainstream models for estimation of discretionary accruals in earnings management studies, with most of the recent studies using these models (see, Davidson et al., 2005; Grace et al., 2005). Therefore, in this study, we use the cross-sectional version of modified Jones model to estimate the discretionary accruals for the sample firms. To determine discretionary accruals, we need to estimate total accruals. We do this by using a cross-sectional regression model as follows:

$$TACR_{ij}/A_{ij-1} = \alpha_{ij}(1/A_{ij-1}) + \beta_{1j}(\Delta REV_{ij}/A_{ij-1}) + \beta_{2j}(PPE_{ij}/A_{ij-1}) + \varepsilon_{ij} \quad (1)$$

where:

$TACR_{ij}$  = total accruals in year  $t$  for firm  $i$  in industry  $j$ ;

$\Delta REV_{ij}$  = the revenues in year  $t$  less revenues in year  $t-1$  for firm  $i$  in industry  $j$ ;

$PPE_{ij}$  = the gross property, plant, and equipment in year  $t$  for firm  $i$  in industry  $j$ ;

$A_{ij-1}$  = the total assets in year  $t-1$  for firm  $i$  in industry  $j$ ;

$\varepsilon_{ij}$  = the error term in year  $t$  for firm  $i$  in industry  $j$ ;

Total accruals are estimated using the cash flow approach<sup>12</sup> rather than the balance sheet approach<sup>13</sup> as we predict the managers are unlikely to manipulate certain balance sheet items such as depreciation. This prediction is based on the fact that if it is decided to manage earnings by changing depreciation policy for example, this policy change must be disclosed in the annual report. The cash flow approach involves determining the difference between net income before extraordinary items and operating cash flow (NIBX-OCF). We expect total accruals to be typically negative, due to non-current accruals such as depreciation and amortisation (Hribar and Collins, 2002).

The coefficients  $\alpha_j$ ,  $\beta_{1j}$ , and  $\beta_{2j}$  from equation (1) are scaled by lagged total assets, as in prior studies and in order to limit heteroscedasticity. We expect to see that  $\beta_{1j}$  is positive and  $\beta_{2j}$  negative<sup>14</sup>. These

<sup>12</sup> Hribar and Collins (2002) prove that the cash flow approach is superior to the balance sheet approach.

<sup>13</sup> According to the balance sheet approach; total accruals = ( $\Delta$  current asset -  $\Delta$  cash) - ( $\Delta$  current liabilities) - depreciation and amortisation expense.

<sup>14</sup> Davidson et al. (2005) explained that the coefficient of changes in revenues expect to be positive; and expect to be positively related to changes in working capital accounts. The level of fixed assets are expected to drive depreciation

<sup>10</sup> The Hong Kong Stock Exchange Industrial Classification System includes 12 industry sectors.

<sup>11</sup> This research eliminates 2 industry sectors as they are financial-based.

coefficients represent industry-specific parameters and then can be used to determine the coefficients  $\alpha^j$ ,  $\beta^1_j$ , and  $\beta^2_j$  by the following equation (2):

$$NDACR_{ij} = \alpha^j(1/A_{ij-1}) + \beta^1_j(\Delta REV_{ij} - \Delta REC_{ij} / A_{ij-1}) + \beta^2_j(PPE_{ij} / A_{ij-1}) \quad (2)$$

where:

$NDACR_{ij}$  = the non-discretionary accruals in year  $t$  for firm  $i$  in industry  $j$ ;

$\Delta REC_{it}$  = the net receivable in year  $t$  less year  $t-1$  scaled by total assets at  $t-1$ , and used to adjust the change in revenue in the same period.

After the estimation of total accruals ( $TACR$ ) and non-discretionary accruals ( $NDACR$ ) the estimate of discretionary accruals is the value of equation (3) as follows:

$$DACR_{ij} = TACR_{ij} - NDACR_{ij} \quad (3)$$

$DACR_{ij}$  represents the discretionary accruals in year  $t$  for firm  $i$  in industry  $j$ . The discretionary accruals can then be used to test the influence of other variables such as that reflecting ownership structure.

### 4.3. Ownership Structure, Internal Governance and Control Variables

Ownership structure variables are measured by four variables including the percentage of shares owned by the largest substantial shareholder ( $CONC$ ), and others which reflect the characteristics of the largest substantial shareholder: family ownership with less than 33 per cent of total shares issued or more than 66 per cent of total shares issued ( $LHFAM$ ), family ownership between 33 per cent to 66 per cent of total shares issued ( $MEDFAM$ ), family ownership with more than 70 per cent of total shares issued ( $HIGHFAM$ ), and an institutional investor being the largest substantial shareholder ( $INS$ ). We also include internal governance variables; whether a majority of the board are independent, non-executive directors, to test for better monitoring of the company and hence the limiting of earnings management ( $OUT$ ), and whether engagement of Big 4 auditors<sup>15</sup> ( $BIG4$ ) tends to curb earnings management.

The control variables in our model are likely associated with the dependent variable, discretionary accruals. The natural log of total assets ( $LNSIZE$ ) is included to allow for the size of the company having an effect on levels of earnings management, and leverage ( $LEV$ ) is included to allow for a potential debt-intensity influence on earnings management.

### 4.4. Model Specification

To test the hypotheses stated above, we estimate the following regression equation. The dependent variable used in the model is discretionary accruals, and the

expenses and deferred taxes, therefore, the coefficient of property, plant and equipment would be negative.

<sup>15</sup>The Big 4 auditors are Deloitte Touche Tohmatsu, Ernst & Young, KPMG and PricewaterhouseCoopers.

independent variables are ownership structure variables, internal governance variables and control variables, as specified below.

$$DACR = a + B_1CONC + B_2LEV + B_3LHFAM + B_4MEDFAM + B_5INS + B_7OUT + B_8LNSIZE + B_9BIG4 + B_{10}Y2002 + B_{11}Y2003 \quad (4)$$

where:

$DACR$  = total accruals – non discretionary accruals and scaled by lagged total assets;

$CONC$  = the percentage of shares held by largest substantial shareholder;

$LEV$  = total debts/Total assets;

$LHFAM$  = value 1 if the largest substantial shareholder is one person or family group held less than 33% or more than 66% of total shares, 0 otherwise;

$MEDFAM$  = value 1 if the largest substantial shareholder is one person or family held between 25% to 70% of total shares, 0 otherwise;

$INS$  = value 1 if the largest substantial shareholder is institutional investor, 0 otherwise;

$OUT$  = proportion of outside directors on board;

$LNSIZE$  = Log (total assets);

$BIG4$  = value of 1 if the firm is audited by Big 4 auditors, 0 otherwise;

$Y2002$  = value 1 for year 2002, 0 otherwise;

$Y2003$  = value 1 for year 2003, 0 otherwise.

## 5. Empirical Results

### 5.1. Descriptive Statistics

Table 2 displays the descriptive statistics for the modelling. Panel A of Table 2 shows that the average net income of the surveyed sample is \$464.056m, operating cash flow is \$631.29m with least and greatest values of -\$1,969m to \$12,533m respectively and that total accruals, as calculated by the cash flow method have an average value of -\$167.234m. Panel B reports that the average proportion of shares held by the largest shareholder is 44.49 per cent, and that 93.3 per cent of firms in the sample are clients of Big 4 auditors. The proportion of sample firms with a high/low level of family ownership is 16.7 per cent, while the proportion with an intermediate level of family ownership is 40 per cent. Moreover, the proportion of firms with an institutional investor as the largest substantial shareholder is 18.3 per cent. The average percentage of outside directors on the board is 39.4 per cent.

**[Insert Table 2 here]**

Table 3 depicts the Pearson correlation matrix for the variables in the modified Jones model. It is expected that the coefficient  $\beta_1$  (change in revenues) will be positive and  $\beta_2$  (net property, plant and equipments) will be negative, implying that the management of earnings is effected by increasing

revenues and decreasing expenditures on property, plant and equipment. The correlation matrix in Table 3 indicates that total accruals has a positive correlation with the change in revenues and a negative correlation with net property, plant and equipment, consistent with our predictions.

**[Insert Table 3 here]**

Table 4 displays the correlation matrix of dependent and independent variables in the discretionary accruals model (equation 4). Discretionary accruals (*DACR*) are positively correlated with the percentage holding of the largest shareholder (*CONC*) and low/high levels of ownership concentration in family businesses (*LHFAM*). This result is again consistent with the hypotheses proposed earlier. The table also indicates that there is a negative correlation between discretionary accruals and both auditing by Big 4 audit firms and intermediate levels of ownership concentration, also consistent with our hypotheses. The most significant positive correlation is that between leverage (*LEV*) and the natural log of total assets (*LNSIZE*), with a value of 0.265. The most significant negative correlations are found between low/high levels of family ownership concentration (*LHFAM*) and largest substantial shareholder concentration (*CONC*). The correlation between other variables is small, indicating relative freedom from multicollinearity problems.

## 5.2. Regression Results

The regression analysis includes two models: one representing ownership structure and the other, internal governance. Table 5 provides the results of the regression modelling. The first model evaluates ownership structure variables: ownership concentration, low/high levels of ownership held by the family group, medium level of ownership held by the family group, and institutional investors (*CONC*, *LHFAM*, *MEDFAM* and *INS* respectively) with discretionary accruals (*DACR*) as the dependent variable. The second model evaluates internal governance variables: the outside shareholders and Big 4 auditors (*OUT* and *BIG4*) with discretionary accruals (*DACR*) to be explained. The adjusted  $R^2$  for Model 1 and Model 2 are 0.108 and 0.067 respectively. The regression analysis includes two additional control variables: the natural log of total assets (*LNSIZE*) and leverage (*LEV*).

## 5.3. Results on Ownership Structure Variables

Model 1 explains the relationship between ownership structure variables and discretionary accruals. According to hypothesis 1 there is a negative relationship between the ownership concentration and earnings management. The coefficient for ownership

concentration (*CONC*) is positive but not statistically significant, with a p-value of 0.093 and t-statistics of -1.298. Therefore, there is no statistical evidence for a relationship between ownership concentration in terms of largest substantial shareholder and earnings management; hence, hypothesis 1 is not supported by the sample. This result is in contrast to the findings of Iturriaga and Hoffmann (2005), who found a negative relationship between ownership concentration and earnings management. The current result might be attributable to high family ownership in Hong Kong firms, with controlling shareholders manipulating accounts to maximise their interests. Therefore family ownership concentration may be adverse to the constraint of earnings manipulation.

**[Insert Table 5 here]**

Hypothesis 2a states that there is a negative relationship between the low/high levels of family ownership and earnings management. The coefficient for low/high levels of family ownership is positive and significant, with p-value of 0.009 and t-statistic of 2.649. This estimate indicates a positive relationship between low/high level of family ownership and earnings management, i.e. low or high levels of family ownership encourages earnings management. The result is therefore consistent with hypothesis 2a. This evidence is also consistent with Jensen and Meckling's (1976) agency theory approach, the entrenchment effect supported by Fan and Wong (2002), and the result of Su (2001) and of Kim and Yi (2005). These latter studies indicated that high ownership levels are related to higher earnings management.

Hypothesis 2b suggests a positive relationship between medium levels of family ownership and earnings management. The coefficient, while negative has a p-value of 0.817 and a t-statistic of -0.233 indicating no statistically significant relationship between medium levels of family ownership and earnings management. Therefore, hypothesis 2b is not supported. A potential reason could be that managers entrench the minority shareholders. When majority shareholders have majority voting and cash flow rights, they would start to overpower the minority shareholders. Therefore controlling shareholders would manipulate the accounts, instead of effectively monitoring the company, in family business with medium level of ownership concentration.

As discussed earlier section, institutional investors (*INS*) may have the ability to constrain earnings management. The coefficient for *INS* is positive but is not statistically significant with p-value of 0.807 and t-statistics of 0.245. Therefore, there is no evidence shows for a relationship between institutional investors and earnings management. So, hypothesis 3 is not supported by the sample results. This finding is inconsistent with Chung et al. (2002), Bushee (1998) and Rajgopal et al. (1999). They found negative relationship between institutional investors



and earnings management. The current result may be attributable to institutional investors usually hold their portion of shares for a short term and only focusing on quarterly returns.

The natural log of assets (*LNSIZE*) has a positive coefficient with p-value of 0.58 and t-statistics of 0.556, indicating no relationship between values of total assets and earnings management. However the leverage of the firms (*LEV*) has a positive coefficient with a p-value of 0.01 and t-statistics of 2.629, indicating a statistically significant relationship between leverage and earnings management.

#### 5.4. Result on Internal Governance Variables

Model 2 explains the relationship between internal governance variables and earnings management. Hypothesis 4 refers that there is a negative relationship between the proportion of outside directors and earnings management. Table 5 shows a negative value of the coefficient for outside directors. However, the p-value and t-statistics are 0.601 and -0.525 respectively which means that there is no statistically significant relationship between outside directors and earnings management. This result is therefore not consistent with hypothesis 4. This result is also inconsistent with the studies of Chen et al. (2005), Davidson et al. (2005), Jeanjean (2000), Peasnell et al. (2001), Chtourou et al. (2001) and Su (2001). However, the result is consistent with Park and Shin (2004) where they found no association between proportion of outside director and earnings management. This could be attributed to the lack of independence of outside directors as they are appointed by the management of the company according to Park and Shin (2004).

Hypothesis 5 proposes that there is a negative relationship between Big 4 auditors and earnings management. The coefficient of Big 4 auditors is negative. The result is statistically significant with the p-value of 0.03 and t-statistics of -2.205 signifying a negative relationship between Big 4 auditors and earnings management. This indicates that the Big 4 auditors do constrain earnings management in Hong Kong, consistent with hypothesis 5. This result is also consistent with Chen et al. (2005), Krishnan (2003) and Davidson et al. (2005).

The natural log of assets (*LNSIZE*) has a positive coefficient with p – value of 0.978 and t – statistics of 0.028. This result indicates no relationship between values of total assets and earnings management. The leverage of the firms (*LEV*) has a positive coefficient with p-value of 0.03 and t-statistics of -2.205 representing a significant statistical relationship between leverage and earnings management.

In summary, three out of the seven variables modeled are statistically significant influences on earnings management. These variables, low/high levels of family ownership (*LHFAM*), Big 4 auditors' (*BIG4*) engagement and leverage (*LEV*) are related to

discretionary accruals (*DACR*). However the remaining four variables of ownership concentration (*CONC*), medium levels of family ownership (*MEDFAM*), institutional investors (*INS*), outside directors (*OUT*) and total assets (*LNSIZE*) have no statistically significant relationship with discretionary accruals.

#### 6. Conclusion

Following the financial crisis in East Asian region and major corporate collapses in United State; investors are concerned with the effectiveness of corporate governance. Most firms in Hong Kong are held by family groups and they tend to have high ownership concentration. The separation between ownership and management can allow management to manipulate the accounts. The main incentive for controlling shareholders of family business firms to manipulate the firm's accounts is to maximize their interest at the expense of minority shareholders. Therefore, in this paper, we examined whether ownership structure and internal governance systems are associated with earnings management in Hong Kong.

Our results are based on data from 60 listed companies for the financial years 2002 and 2003. Discretionary accruals are estimated by applying the modified Jones model. After controlling for other identified motivations in our regression model we find that ownership structures and internal corporate governance are significantly related to levels of earnings management. We find a positive relationship between high/low levels of family ownership and earnings management, consistent with Jensen and Meckling (1976); Su (2001); Kim and Yi (2005). We also observe a negative relationship between engagement of Big 4 auditors and levels of earnings management. However, we find no significant relationship between the proportions of outside director in the board and earnings management, in contrast to the findings of Peasnell et al. (2001); Chtourou et al. (2001); Su (2001); Davidson et al. (2005) and Chen (2005). Significant relationships were not been found between ownership concentration in terms of largest substantial shareholder and earnings management, a result inconsistent with Iturriaga and Hoffmann (2005). We expected a negative relationship between substantial institutional investors and earnings management (e.g., see, Chung et al., 2002; Bushee, 1998; Rajgopal et al., 1999). However, we find no significant relationship between institutional investor holdings and earnings management.

The overall findings of the study suggest that controlled shareholders in family businesses can expropriate minority shareholders by accounts manipulation. And, independent non-executive directors cannot not effectively constrain opportunistic earnings management. Under the mandatory regulation in Hong Kong, the independent non-executive directors are appointed by the

management of the company. Therefore, there is a scope for the regulators and standard setters to improve the extent of investor protection by increasing the independence of outside directors in the board.

The present study is subject to number of limitations. Firstly, the present study examines the association between ownership structure, internal governance and earnings management, however, the study does not determine the causes of earnings management. Second, this study uses cross-sectional version of the modified Jones model to estimates discretionary accruals. Although the modified Jones model is popular in the earnings management literature it is subject to limitations. According to McNichols (2000), the benchmark for each firm's accruals is the behavior of the other firms in the sample so that the final results for positive or negative discretionary accruals may not reflect the actual earnings management of the firm.

## References

1. ADAMS, I., (2003), "The morality of corporate governance: issue of quality and quantity", Conference of the economic Society of South Africa.
2. BROCKMAN, P. and CHUNG, D. Y. (2003), "Investor protection and firm liquidity", *The Journal of Finance*, Vol. 58, No. 2, pp. 921-937.
3. BUSHEE, B. J. (1998), "The Influence of Institutional Investors on Myopic R&D Investment Behaviour", *Accounting Review*, Vol 73, pp. 305-333.
4. CADBURY COMMITTEE (1992), "Report of the committee on the financial aspects of corporate governance", Gee: London.
5. CHEN, K. Y., ELDER, R. J. and HSIEH, Y. M. (2005), "Corporate governance and earnings management: The implications of corporate governance best-practice principles for Taiwanese listed companies", Working Paper, National Cheng Kung University.
6. CHENG, Q. and WARFIELD T. D. (2005), "Equity incentives and earnings management", *The Accounting Review*, Vol. 80, pp. 441-476.
7. CHEUNG, Y. S., CONNELLY, J. T., LIMPAPHAYON, P. and ZHOU, L. (2006), "Determinants of corporate disclosure and transparency: evidence from Hong Kong and Thailand", Working paper.
8. CHTOUROU, S. M., BEDARD, J. and COURTEAU, L., (2001), "Corporate governance and earnings management", Working Paper.
9. CHUNG, R., FIRTH, M. and KIM, J. B. (2002), "Institutional monitoring and opportunistic earnings management", *Journal of Corporate Finance*, Vol. 8, pp. 29-48.
10. CLAESSENS, S. and FAN, P. H. (2003), "Corporate Governance in Asia: A Survey", Working Paper.
11. CLAESSENS, S., DJANKOV, S. and LANG H, H. P. (1998), "East Asian Corporate: Growth, Financing and Risks over the Last Decade", Working Paper, World Bank.
12. CLAESSENS, S., DJANKOV, S. and LANG, L. H. P. (1999), "Who controls East Asian corporations", Working Paper, The World Bank.
13. CLAESSENS, S., DJANKOV, S. and LANG, L. H. P., (2000), "The separation of ownership and control in East Asian corporation", *Journal of Financial Economics*, Vol. 58, No. 1, pp. 81-112.
14. DAVIDSON, R., KENT, P. and STEWART, J. G. (2005), "Internal governance structures and earnings management", *Accounting and Finance*, Vol. 45, pp. 241-267.
15. DECHOW, P., SLOAN, R. and SWEENEY, A. (1995), "Detecting earnings management", *The Accounting Review*, Vol. 70, pp. 193-225.
16. DUNN, D. J. (1987), "Directors aren't doing their jobs", *Fortune* (March), pp. 117-119.
17. FAMA, E. F. and JENSEN, M. C. (1983), "Separation of ownership and control", *Journal of Law and Economics*, Vol. 26, pp. 301-325.
18. FAN, J. P. H. and WONG, T. J. (2002), "Corporate ownership structure and the informativeness of accounting earnings in East Asia", *Journal of Accounting and Economics*, Vol. 33, No. 2, pp. 401-425.
19. GRACE, C., HSU, M. and KOH, P. (2005), "Does the presence of institutional investors influence accruals management? Evidence from Australia", *Corporate Governance: An International Review*, Vol. 13, No. 6, pp. 809-823.
20. HEALY, P. M. (1985), "The Effect of bonus schemes on accounting decisions", *Journal of Accounting and Economics*, Vol. 7, pp. 85-107.
21. HEALY, P. M. and WHALEN, J. M. (1999), "A review of earnings management literature and its implication for standard settings", *Accounting Horizons*, Vol. 13, pp. 365-383.
22. HIGGS, D. (2003), "Review of the role and effectiveness of non-executive directors", The Department of Trade and Industry, London.
23. HO, S. M. (2003), "Corporate governance in Hong Kong: Key problems and prospects", Working Paper, The Chinese University of Hong Kong.
24. HONG KONG, CHINA SOCIETY OF ACCOUNTANTS. (1997), "Second Report of the Corporate Governance Working Group", HKCSA..
25. HRIBUR, P. and COLLINS, D. (2002), "Errors in estimating accruals: implication for empirical research", *Journal of Accounting research*, Vol. 40, No. 1, pp. 102-134.
26. ITURRIAGA, F. J. L. and HOFFMANN, P. S. (2005), "Manager's discretionary behaviour, earnings management and internal mechanisms of corporate governance: empirical evidence from Chilean firms", Working paper, University of Valladolid.
27. JAGGI, B. and TSUI, J. (2007), "Insider trading, earnings management and corporate governance: Empirical evidence based on Hong Kong firms", *Journal of International Financial Management and Accounting*, Vol. 18, No. 3, pp. 192-222.
28. JEANJEAN, T. (2000), "Corporate governance and earnings management", Working Paper, CEREG, University of Paris-Dauphine, France.
29. JENSEN, M. C. and MECKLING, W. (1976), "Theory of the firm: Managerial behaviour, agency cost, and capital structure", *Journal of Financial Economics*, Vol. 3, pp. 305-360
30. JONES, J. (1991), "Earnings management during import relief investigation", *Journal of Accounting Research*, Vol. 29, pp. 193-228
31. KHAN, H. A. (1999a), "Corporate governance of

- family businesses in Asia: What's right and what's wrong"? ADBI Working Paper no. 3.
32. KHAN, H. A. (1999b), "Corporate governance of family-based businesses in Asia: Which road to take"? Second anniversary symposium of ADBI, Tokyo.
  33. KIM, J. B. and YI, C. H. (2005), "Ownership structure, business group affiliation, listing status, and earnings management: Evidence from Korea", Working paper, The Hong Kong Polytechnic University.
  34. KRISHNAN, G. V. (2003), "Does big 6 auditor industry expertise constraint earnings management"? Accounting Horizons, Vol. 17, pp. 1-16.
  35. LA PORTA, R., SILANES, F. D. and SHLEIFER, A. (1999), "Corporate ownership around the world", NBER Working paper.
  36. LAU, L. and YOUNG, A. (2006), "Corporate governance in Hong Kong: The state of affairs", Working Paper.
  37. LEUZ, C., NANDA, D. and WYSOCKI, P. D. (2003), "Earnings management and investors protection: an international comparison", Working Paper.
  38. MCNICHOLS, M. F. (2000), "Research design issues in earnings management studies", Journal of Accounting and Public Policy, Vol. 19, pp. 313-345.
  39. NG, W. and ROBERTS, J. (2005), "Helping the extended family: The role of outside directors in ethnic Chinese, family-controlled firms", Working paper.
  40. OSMA, B. G. and NOGUER, B. (2003), "Corporate governance and earnings management in Spain", Working Paper.
  41. PARK, Y. W. and SHIN, H. H. (2004), "Board composition and earnings management in Canada, Journal of Corporate Finance, Vol. 10, pp. 431-457.
  42. PEASNELL, K. V., POPE, P. F. and YOUNG, S. (2001), "Board monitoring & earnings management: Do outside directors influence abnormal accruals"? Working paper, Lancaster University Management School.
  43. RAJGOPAL, S., VENKATACHALAM, M. and JIAMBALVO, J. J. (1999), "Is institutional ownership associated with earnings management and the extent to which stock prices reflect future earnings"? Working paper, University of Washington.
  44. SU, Y. H. (2001), "An Empirical analysis of the relation between board composition and earnings management of family controlled companies", Working paper, Soo Chow University.
  45. TEOH, S. H., WELCH, I. and WONG, T. J. (1998), "Earnings management and the long run market performance of initial public offerings", Journal of Finance, Vol. 53, pp. 1935-1975.
  46. TESHIMA, N. and SHUTO, A. (2005), "Managerial Ownership and Earnings Management: Theory and Evidence", Working Paper, Senshu University.
  47. YOUNG, S. (2000), "The increasing use of non-executive directors: Its impact on UK board structure and governance arrangements", Journal of Business Finance and Accounting, Vol. 27, pp. 1311-1342.

**Table 1.** Sample firms per Hong Kong Stocks Exchange Industrial Classification System

Sectors	Samples	Percentages
Industrial	10	16.67
Technology	7	11.67
Constructions	6	10.00
Manufactures	6	10.00
Retails	8	13.33
Transportations and Logistics	7	11.67
Properties	8	13.33
Telecommunications	8	13.33
Total	60	100.00

**Table 2.** Panel A: Descriptive statistics for financial variables

1) Financial variables	Mean	Median	Minimum	Maximum	Standard deviation
Net income	464.056	68.556	(6100.000)	9815.000	1752.124
Operating cash flow	631.290	86.898	(1969.000)	12533.000	1870.239
2) Total accruals	(167.234)	(49.631)	(5949.000)	3747.000	1073.177
Total assets	14891.456	1856.405	81.373	199986.000	41752.843
Revenue	3292.581	1242.840	10.847	33090.000	5996.029
Receivable	462.131	169.700	1.609	6298.000	953.128
Net PPE	6445.772	465.923	2.206	90989.000	18669.956
Total debt	3103.320	193.935	0.000	34666.000	7652.900

1) All the numbers in table 2 are shown in million (HKD)

2) The total accruals are calculated via cash flow method, where: total accruals = Net income before extraordinary item – operating cash flow (NI – OFC).

**Panel B:** Descriptive statistic for regression variables

Regression variables	Mean	Median	Maximum	Minimum	Standard deviation
1) Discretionary accruals ( <i>DACR</i> )	0.050	0.029	0.512	-0.241	0.137
Percentages of largest shareholders ( <i>CONC</i> )	44.492	46.805	100.000	5.700	20.465
2) Big 4 Audit Firm ( <i>BIG4</i> )	0.933	1.000	1.000	0.000	0.250
3) High/Low level of family ownership ( <i>LHFAM</i> )	0.167	0.000	1.000	0.000	0.374
4) Intermediate level of family ownership ( <i>MEDFAM</i> )	0.400	0.000	1.000	0.000	0.492
Institutional investors ( <i>INS</i> )	0.183	0.000	1.000	0.000	0.389
% of outside (Independent) directors ( <i>OUT</i> )	0.394	0.378	0.667	0.083	0.119
5) Natural log of total assets ( <i>LNSIZE</i> )	3.399	3.269	5.301	1.910	0.734
6) Leverage ( <i>LEV</i> )	0.171	0.149	0.776	0.000	0.160

**Panel C:** Descriptive statistics for dummy regression variables

Dummy Variables	Number of firms	Proportion of total firms (%)
2) Big 4 Audit Firm	54	93.33
3) High/Low level of family ownership	9	16.67
4) Intermediate level of family ownership	23	40.00
Institutional investors	11	18.33

- 1) Discretionary accruals (*DACR*) are the differences between total accruals (*TACR*) and discretionary accruals (*NDACR*) and scaled by lagged total asset.
- 2) Big 4 auditors are Deloitte Touche Tohmatsu, Ernst & Young, KPMG and PricewaterhouseCoopers.
- 3) High/Low level of family ownership represents the family businesses which held less than 33% of total shares or held more than 66% of the total shares of the company.
- 4) Medium level of family ownership represents the family businesses which held between 33% and 66% of the total shares of the company.
- 5) *LNSIZE* represents the natural log of total assets.
- 6) Leverage is total debt/total asset of the company.

**Table 3.** Correlation matrix for modified Jones model variables

	$TACR_{it}/T_{it-1}$	$1/A_{ij-1}$	$\Delta REV_{ij} / A_{ij-1}$	$PPE_{it} / A_{ij-1}$
$TACR_{it}/T_{it-1}$	1			
$1/A_{ij-1}$	-0.349	1		
$\Delta REV_{ij} / A_{ij-1}$	0.089	-0.065	1	
$PPE_{it} / A_{ij-1}$	-0.071	-0.0348	-0.013	1

$TACR_{it}/A_{ij-1}$  represents total accruals (*TACR*) scaled by lagged total assets.  $1/A_{ij-1}$  represents 1 divided by lagged total assets.  $\Delta REV_{ij} / A_{ij-1}$  represents the change in revenues from time  $t-1$  to  $t$  scaled by lagged total assets.  $PPE_{it} / A_{ij-1}$  represents the net properties, plants and equipments scaled by lagged total assets.

**Table 4.** Correlation matrix of regression variables

	<i>DACR</i>	<i>CONC</i>	<i>Big4</i>	<i>LHFAM</i>	<i>MEDFAM</i>	<i>INS</i>	<i>OUT</i>	<i>LNSIZE</i>	<i>LEV</i>
<i>DACR</i>	1.00								
<i>CONC</i>	0.049	1.00							
<i>BIG4</i>	-0.133	-0.025	1.00						
<i>LHFAM</i>	0.115	-0.452	-0.239	1.00					
<i>MEDFAM</i>	-0.037	0.122	0.081	-0.365	1.00				
<i>INS</i>	0.036	-0.003	-0.046	-0.211	-0.387	1.00			
<i>OUT</i>	0.001	-0.086	-0.126	0.213	-0.067	0.017	1.00		
<i>LNSIZE</i>	0.002	-0.015	0.224	-0.288	-0.008	0.193	-0.297	1.00	
<i>LEV</i>	0.099	0.057	0.064	-0.196	0.192	-0.096	0.038	0.265	1.00

*DACR* = total accruals (*TACR*) – non-discretionary accruals (*NDACR*) and scaled by lagged total asset. *CONC* = the percentage of shares held by the largest shareholder. *BIG4* = a dummy variable with value of 1 if the firm is audited by Big 4 auditors, 0 otherwise. *LHFAM* = a

dummy variable with value of 1 if the largest shares of the firm are held by a family group or a person with less than 33% or more than 66%, 0 otherwise. *MEDFAM* = a dummy variable with value of 1 if the largest shares of the firm is held by a family group or a person that is between 33% and 66%, 0 otherwise. *INS* = a dummy variable with value of 1 if the largest shares of the firm is held by institutional investor. *OUT* = the percentage of independent non-executive directors in the board. *LNSIZE* = natural log of total assets. *LEV* = total debt divided by total assets

**Table 5.** Regression model

$$DACR = a + B_1CONC + B_2LEV + B_3LHFAM + B_4MEDFAM + B_5INS + B_6OUT + B_7LNSIZE + B_8BIG4$$

Variable	Model 1			Model 2		
	Coefficient	t-statistic	p-value	Coefficient	t-statistic	p-value
Ownership structure variable						
CONC	0.001	1.696	(0.093*)	-	-	-
LHFAM	0.108	2.649	(0.009***)	-	-	-
MEDFAM	-0.007	-0.233	(0.817)	-	-	-
INS	0.009	0.245	(0.807)	-	-	-
Internal governance variables						
OUT	-	-	-	-0.100	-0.525	(0.601)
BIG4	-	-	-	-0.052	-2.205	(0.03**)
Control variables						
LNSIZE	0.009	0.556	(0.580)	0.001	0.028	(0.978)
LEV	0.195	2.629	(0.010***)	0.167	2.268	(0.025**)
R <sup>2</sup>	0.123			0.083		
Adjusted R <sup>2</sup>	0.108			0.067		
Models' F-value	2.506			2.472		
Models' significance level	(0.026**)			(0.049**)		

Notes: The numbers with parentheses are *p* – values.

\*, \*\*, and \*\*\* represents significant level at 10%, 5% and 1% respectively.

*p* – values are one tail unless otherwise stated.

*DACR* (Discretionary accruals) = total accruals (*TACR*) – non-discretionary accruals (*NDACR*) and scaled by lagged total asset. *CONC* = the percentage of shares held by the largest shareholder. *BIG4* = a dummy variable with value of 1 if the firm is audited by Big 4 auditors, 0 otherwise. *LHFAM* = a dummy variable with value of 1 if the largest shares of the firm are held by a family group or a person with less than 33% or more than 66%, 0 otherwise. *MEDFAM* = a dummy variable with value of 1 if the largest shares of the firm is held by a family group or a person that is between 33% and 66%, 0 otherwise. *INS* = a dummy variable with value of 1 if the largest shares of the firm is held by institutional investor. *OUT* = the percentage of independent non-executive directors in the board. *LNSIZE* = natural log of total assets. *LEV* = total debt divided by total assets.

Total accruals = net income before extraordinary items – operating cash flows

$$NDACR = TACR_{it} / A_{ij,t-1} = \alpha_{ij}(1/A_{ij,t-1}) + \beta_{1j}(\Delta REV_{ij} / A_{ij,t-1}) + \beta_{2j}(PPE_{ij} / A_{ij,t-1}) + \varepsilon_{ij}$$

Where: *TACR<sub>ij</sub>* represents the total accruals in year *t* for firm *i* in industry *j*, *ΔREV<sub>ij</sub>* represents the revenues in year *t* less revenues in year *t-1* for firm *i* in industry *j*, *PPE<sub>ij</sub>* represents the gross property, plant, and equipment in year *t* for firm *i* in industry *j*, *A<sub>ij,t-1</sub>* represents the total assets in year *t - 1* for firm *i* in industry *j*, *ε<sub>ij</sub>* represents the error term in year *t* for firm *i* in industry *j*. All of the variables in modified Jones model are scaled by lagged total assets.