

**Impact of Family Dominance on Monitoring of Earnings Management by  
Audit Committees : Evidence from Hong Kong**

By

**Bikki Jaggi**

Professor

Department of Accounting and Information Systems

School of Business

Rutgers University

Email: jaggi@rbsmail.rutgers.edu

And

**Sidney Leung\***

Associate Professor

Department of Accountancy

City University of Hong Kong

Email: acsleung@cityu.edu.hk

**MAY 2006**

---

\*Corresponding author. City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong. Tel.: +852 2788 7924; fax: +852 2788 7944; *E-mail address:* [acsleung@cityu.edu.hk](mailto:acsleung@cityu.edu.hk).

# **Impact of Family Dominance on Monitoring of Earnings Management by Audit Committees : Evidence from Hong Kong**

## **Abstract**

This study examines whether the establishment of audit committees by Hong Kong firms would constrain earnings management, especially in firms with family dominated corporate boards, a condition unique to Hong Kong. The study uses the methodology of three-stage (3SLS) regression analyses to control for endogeneity among earnings management, voluntarily established audit committee, and corporate board size. The results of regression analyses based on 523 observations for the period of 1999-2000 when the audit committees were first established by Hong Kong firms show that overall audit committees play a significant role in constraining earnings management even in the business environment of higher ownership concentration. The effectiveness of audit committees is, however, significantly reduced when family members are present on corporate boards, especially when family members dominate the corporate board.

**Key Words:** Earnings management, Audit committee, Family dominance, Discretionary accruals, Ownership Concentration

**Data Availability:** Data are publicly available from sources identified in the paper

# **Impact of Family Dominance on Monitoring of Earnings Management by Audit Committees : Evidence from Hong Kong**

## **Introduction**

Recent corporate failures and accounting scandals (e.g. Enron, Worldcom etc.) provided a strong impetus to regulators to re-evaluate corporate board independence. In response to the concerns raised by these failures and scandals, the US Congress enacted Sarbanes-Oxley Act in 2002 to strengthen corporate board independence of US firms. The Act also emphasized independence of audit committees. Recently, some empirical studies based on the US firms examined whether independent audit committees were more effective in constraining earnings management. The findings of these studies provide evidence that a higher percentage of independent members on audit committees is generally associated with lower discretionary accruals, suggesting that independent audit committees have a constraining effect on the managerial behavior of earnings management (e.g. Klein, 2002a).

With globalization of business and financial markets, there has been a strong demand for quality information from firms across countries so that investors can conduct comparative evaluation of risk and return of firms from different countries. Consequently, regulators in several countries outside the USA also started paying increased attention to corporate governance to improve the quality of reported information. The committees appointed by the Hong Kong Stock Exchange (HKEX) and Hong Kong Society of Accountants (HKSA) to evaluate corporate governance have recently recommended that audit committees be established on a voluntary basis by the Hong Kong listed companies. The business and institutional environments as well as ownership structure of firms from Hong Kong and other Asian countries, however, differ from those of the US firms.

La Porta et al. (1999) have highlighted the differences in the business and institutional environments of different countries. An important difference among countries

relates to property rights protection, which is generally shaped by customs, social norms and legal environment of the country<sup>1</sup>. Another important difference relates to the firm's ownership. The ownership in US firms is widely diffused, whereas there is high family ownership concentration in firms from Asian countries<sup>2</sup>. It is well documented in the literature that one or several members of a family tightly hold shares in a typical Asian corporation (e.g. Fan and Wong, 2002; Claessens and Fan, 2002). The unique characteristic of ownership concentration in Hong Kong firms has also been emphasized by Ho and Wong (2001) and Mok et al. (1992). While there is no empirical evidence to show what causes ownership concentration in these countries, the ownership concentration is generally the result of social norms, customs, lack of property rights and weaker enforcement of property rights in these countries (e.g. Claessens and Fan, 2002).

In view of the unique characteristics of institutional environment and family ownership concentration in Asian firms that have an impact on the protection of the shareholders' property rights and their enforcement, the existing findings on the monitoring effectiveness of audit committees based on US firms may not be valid for firms with family ownership concentration. Thus, this paper empirically tests whether newly established audit committee by Hong Kong firms on a voluntary basis would be effective in constraining managerial behavior of earnings management. Support for the monitoring effectiveness of audit committees of Hong Kong firms will suggest that the regulatory bodies' decision to establish audit committees in countries with family ownership concentration is a step in the right direction to control earnings management and improve the quality of reported information.

---

<sup>1</sup> Claessens and Fan (2002) evaluate different studies on corporate governance in Asia. According to their survey of the literature, most researchers agree that there is limited protection of minority rights in Asia.

<sup>2</sup> Shleifer and Vishny (1997) argue that ownership concentration has a significant impact on corporate governance. Leuz, et al. (2003) also argue that firms in countries with dispersed ownership structure and well developed capital markets have strong investor protection rights.

The family ownership concentration generally leads to the appointment of family members on corporate boards in Asian countries. The survey results on Hong Kong firms show that most firms with family ownership concentration have family members on corporate boards to take care of family interests (e.g. Ho and Wong, 2001; HKSA, 1997). It has been observed that most family board members also hold executive positions in the firm, which creates a unique situation of family ownership domination with control of the firm. It has been pointed out in the literature that the agency problem in family owned and controlled firms shifts from the manager-shareholder conflict to majority-minority shareholder conflict (e.g. Claessens and Fan 2002). In family owned and controlled firms, there will be great potential for manager-owners to expropriate the interests of minority shareholders (e.g. Claessens and Fan, 2002)<sup>3</sup>. Leuz, et al. (2003) document that “earnings management is negatively associated with the quality of minority shareholder rights and legal enforcement (p. 526)”<sup>4</sup>. They interpret these findings to suggest that there is an important link between investor protection and the quality of accounting earnings reported to market participants<sup>5</sup>. Based on these findings, we argue that the effectiveness of audit committees of Hong Kong firms in constraining managerial behavior of earnings management will be significantly reduced when family members are present on corporate boards. Support for this argument would suggest that the effectiveness of audit committees in monitoring earnings management is valid only when there are no family members on corporate boards in these countries. A policy implication of this finding will be that the board composition and procedures for the appointment of board members in the Asian countries needs to be carefully re-evaluated

---

<sup>3</sup> Johnson et al. (2000b) describe different forms that expropriation can take. Johnson et al. (2000a) document several instances of expropriations of minority shareholders during the 1997 Asian financial crisis.

<sup>4</sup> Mitton (2002) argues that inadequate legal protection gives firms some power over expropriation of minority shareholder interests.

<sup>5</sup> Mitton’s (2002) findings suggest that individual firms have an opportunity to improve minority shareholder interest by improving the quality of their disclosures.

Consistent with earlier studies, we use the magnitude of discretionary accruals as a proxy for earnings management (e.g. Warfield et al., 1995; Becker et al., 1998; Bartov et al., 2001 and Klein, 2002a). We, however, recognize that audit committees may not be fully exogenously determined. Though the establishment of an audit committee is supported on the ground that it would reduce earnings management, it may, however, also be argued that their voluntary establishment may be influenced by the extent of earnings management. A firm with lower earnings management may prefer to have an audit committee, whereas a firm with higher discretionary accruals may avoid establishing an audit committee on a voluntary basis. Additionally, it has been argued in the literature that corporate board size is also endogenously determined (e.g., Hermalin and Weisbach, 1998; Lehn et al., 2005). On one hand, it is argued that the corporate board size may have an impact on the establishment of audit committees (Klein, 2002b; Bradbury, 1990) and also on earnings management (e.g., Xie et al., 2003). On the other hand, we argue that the corporate board size may be influenced by the need to establish an audit committee. Large corporate boards may facilitate the establishment of an audit committee on a voluntarily basis, whereas small corporate board would have limited resources for establishing an audit committee. Because of joint endogeneity, the coefficient estimates calculated using ordinary least squares (OLS) could be biased and inefficient, and inferences about the direction of causality of the variables will not be clear. Therefore, we develop a research design that alleviates the endogeneity problem. We use the simultaneous equation methodology for evaluating the association among earnings management, audit committees and corporate board size. We use three-stage (3SLS) regression analyses to resolve the endogeneity problem.

The study is based on 523 observations of Hong Kong firms for the period of 1999-2000, which are the first two years after the Hong Kong Stock Exchange (HKEX) included

the recommendation for establishing audit committees in the ‘best practice guide of the listing rules’. The results based on the 3SLS regression analyses indicate that there is a negative association between voluntarily established audit committees and discretionary accruals, proxy for earnings management. These results thus show that audit committees, established on a voluntary basis are associated with lower earnings management, suggesting that their establishment improves the monitoring effectiveness of corporate boards of Hong Kong firms. Thus, these findings indicate that the quality of reported information is likely to be better for the firms that establish audit committees compared to the firms that do not establish audit committees.

Additionally, the findings show that the effectiveness of audit committees in monitoring managerial behavior of earnings management is weakened when family members are present on corporate boards, especially when corporate board is dominated by family members. These results thus indicate that the monitoring effectiveness of audit committees is stronger when there is no family member on corporate boards.

The findings of this study make the following contributions to the literature on audit committees. First, audit committees established on a voluntary basis in countries with family ownership concentration also perform a useful function in constraining over-aggressive managerial behavior of earnings management. This evidence thus suggests that the establishment of audit committees will thus improve the quality of reported information, which will prove to be useful in protecting minority shareholders’ interests. Second, the monitoring effectiveness of audit committees is significantly reduced if corporate boards are dominated by family members, which may be due to the loyalty of audit committee members to the family members appointing them on corporate boards. In order to improve the monitoring effectiveness of audit committees, it is important that corporate boards are independent, and especially family members are not appointed on the board. Third, given

similarities in the business and institutional environment of firms in emerging economies, especially in the East and Southeast Asian region, the findings based on Hong Kong firms can be expected to have a wider validity for firms in other countries with similar environment.

The remainder of the paper is organized as follows: Section II provides background and hypotheses for the study. The research design is presented in section III. The results are discussed in section IV, and section V contains a summary and conclusion.

## **II. Background on Audit Committees in Hong Kong Firms and Hypotheses**

### **1. Background on Audit Committees**

The Hong Kong Society of Accountants, HKSA (now renamed as Hong Kong institute of CPAs, HKICPA) first formed a Corporate Governance Working Group in 1993 to evaluate how to implement the recommendations of the Cadbury Committee Report (1992) for strengthening the corporate governance practices of Hong Kong listed companies. One recommendation of this Group related to the formation of an audit committee by Hong Kong firms. But this recommendation did not receive much attention and not many firms established audit committees on a voluntary basis<sup>6</sup>.

In December 1997, the HKSA Working Group issued another report, titled as “*A Guide For The Formation of An Audit Committee*” (HKSA 1997), which once again recommended the establishment of audit committees by Hong Kong listed companies. In addition, this “Guide“ suggested that the audit committees’ principle duties shall include review and supervision of the company’s financial reporting and internal control processes. Moreover, the committee shall have written terms of reference that clearly deal with the audit committee’s authority and duties. Further, this report recommended that the

---

<sup>6</sup> Gul and Leung (2004) indicated that only 2.1 percent of Hong Kong firms voluntarily established audit committees in 1996.

committee shall consist of a minimum of three members, majority of which shall be independent. The Hong Kong Stock Exchange (HKEX) subsequently included the 1997 HKSA recommendation relating to the establishment of an audit committee in the “best practice guide of the listing rules” and required the listed companies to disclose in the annual financial reports, beginning with 1999, whether an audit committee has been established. As a result of this recommendation, some Hong Kong firms started establishing audit committees on a voluntary basis.

The Asian Financial Crisis (July 1997 – August 1998) highlighted the weaknesses in corporate governance mechanism in the region, and it was recognized that lack of audit committees partially contributed to the crisis. The lack of transparency in the financial reports led the HKEX to appoint a committee in 2002 to re-evaluate corporate governance of Hong Kong firms. The committee recommended increasing the number of independent non-executive directors on corporate boards to strengthen the corporate board independence and once again recommended that audit committees be established by Hong Kong firms on a voluntary basis (HKEX, 2002). In 2002, the HKSA also refined the details on guidelines for the establishment of an *effective* audit committee and issued a further report “*A Guide for Effective Audit Committees*” (HKSA, 2002). In 2004, the HKEX and Securities and Future Commission issued a draft code on corporate governance practices (HKEX, 2004) and their report embraced the 2002 HKSA guide for effective audit committees in the listing rules. Hence, the HKEX listing guidelines once again emphasized the importance of audit committees to ensure reliability of reported information.

Recently, Gendron et al. (2004) conducted a survey to identify important functions of audit committees. The survey results show that there is consensus among respondents that audit committees shall be particularly concerned with the accuracy of information

contained in the financial statements, appropriateness of the wording used in the financial reports, effectiveness of internal controls, and the quality of work performed by external auditors. The developments on the establishment of audit committees and acceptance of audit committees by Hong Kong firms demonstrate that Hong Kong regulators as well as Hong Kong firms are concerned with bringing the Hong Kong corporate governance standards and the quality of financial disclosures in line with international practices to maintain Hong Kong's status as an international financial center.

## 2. Hypotheses

### *(a) Audit Committees and Earnings Management*

Findings based on US firms document that independent audit committees are associated with lower discretionary accruals, proxy for earnings management (e.g. Klein, 2002a), suggesting that independent audit committees constrain managerial behavior of earnings manipulation, which improves the quality of reported earnings. Several countries outside the USA have recently also recognized the importance of audit committees in corporate governance for improving the quality of reported earnings. Following the US lead, countries with emerging economies, especially in the Southeast Asian region, have started requiring the firms to establish audit committees on a voluntary basis. The HKEX has recently included in the best practices for listing in the Hong Kong stock exchange the requirement to establish audit committees voluntarily. The family ownership concentration in Hong Kong firms similar to the family ownership in other Asian countries is, however, a unique characteristic of these firms. HKSA (1997) reported that ownership in a significant number of Hong Kong firms is concentrated in the hands of a few families. Recently, Leung and Horwitz (2004) also report that on average 38.6 percent of equity ownership in

the Hong Kong listed companies is concentrated in the hands of the firms' directors directly and indirectly.

As a result of family ownership concentration, the agency problem in these firms shifts from the owner-manager conflict to the majority-minority shareholders conflict (e.g. Claessens and Fan, 2002; Johnson, et al, 2000a). It has been argued that family ownership concentration is generally associated with lower protection for investors' rights and the majority shareholders may have a greater capability to expropriate minority interests (e.g. Fan and Wong, 2002). Though there is no empirical evidence to show what causes ownership concentration in the Asian firms, it has been argued that customs, social norms, institutions, especially financial and legal institutions, lower protection of investors' rights, and weak enforcement may be responsible for family ownership concentration (e.g. Claessens and Fan, 2002). In contrast to Asian firms, the US firms operate in well established financial institutions, where investors' rights are well protected and enforcement of investors' rights is strong. Given the differences in business and institutional environment of US and Asian firms, an interesting question arises whether the establishment of audit committees on a voluntary basis will be effective in monitoring managerial behavior of earnings management in the countries with family ownership concentration.

We focus on Hong Kong firms, where the establishment of audit committees has been a recent phenomenon. Under the newly established guides, the Hong Kong listed firms are encouraged to establish audit committees on a voluntary basis. Ho and Wong (2001) in a recent study examined the impact of voluntarily established audit committees on the extent of voluntary financial disclosures by Hong Kong firms. Their findings show that the "companies which have an audit committee are more likely to have a higher extent of voluntary disclosures (p.151)". In this study, we argue that audit committees in Hong

Kong firms will also be equally concerned with the reliability of reported information. Therefore, we expect that voluntarily establishment audit committees would also be effective in constraining managerial behavior of earnings management so that the quality of reported earnings can be improved. The following hypothesis is developed to test this expectation:

H1: *The Hong Kong firms with audit committees are associated with lower earnings management, proxied by discretionary accrual, compared to the firms without audit committees.*

*(b) Audit Committees, Earnings Management and Family Dominance of Corporate Boards*

As a result of unique characteristic of family ownership concentration, it has been reported that family members are routinely appointed on corporate boards (e.g., Ho and Wong, 2001). The findings of the HKSA's Second Report of the Corporate Governance Working Group (HKSA 1997) indicate that "there is some evidence that controlling shareholders tend to appoint members of their family as executive directors to manage their listed companies on a full-time basis." The appointment of family members apparently is to ensure that family members can fully control the firm to ensure that family interests are guaranteed. The presence of family members on corporate boards who also hold executive positions in the firm raises an interesting research question whether their presence would affect the monitoring effectiveness of audit committees in constraining managerial behavior of earnings management.

The listing guidelines of the HKEX require that the majority of audit committee members shall be independent<sup>7</sup>. This requirement is stipulated to ensure that there is no undue pressure on audit committee members from individuals with controlling interests. We argue in this paper that independence of corporate board members is, however, likely to be weakened when family members are present on corporate boards because non-executive independent board members will not be in a position to oppose the family members. The non-executive independent committee members will have to show loyalty to the controlling family board members who appoint them to the board. Their reappointment will depend on their personal relations with the family members. Thus, they will have to be supportive of the family board members' objectives and strategies that they follow to achieve their objectives. As discussed earlier, in the family owned and controlled firms the conflict of interests will shift from owners-managers to majority-minority shareholders. The firm's control will give the majority shareholders the capability to expropriate minority shareholders' interests and the controlling shareholders may use earnings manipulation to maximize their private benefits (e.g. Leuz, et al. 2003)<sup>8</sup>. Thus, we conjecture that the presence of family members on corporate boards would reduce the audit committees' monitoring effectiveness in controlling earnings management. The audit committees would be more effective in controlling earnings management when no family members are present on corporate boards. The following hypothesis is developed to test this expectation:

---

<sup>7</sup> The board member is considered independent when there is no relationship to the controlling family, equity ownership in the firm does not exceed 1% of the outstanding shares, and/or the member is not involved in any material business dealing with the firm (HKEX listing rules 3.13).

<sup>8</sup> For discussion how the controlling shareholders pursue their objectives that are at odds with those of minority shareholders, refer to Morck et al. (2000) and Bebchuk et al. (2000)

H2: *Audit committees are more effective in constraining managerial behavior of earnings management when no family members are present on corporate board.*

### **III. Research Design**

#### **I. Calculation of Discretionary Accruals**

Consistent with earlier research studies, we use discretionary accruals as a proxy for earnings management. In order to capture both upward and down adjustment of reported earnings using positive and negatively discretionary accruals respectively, we use absolute value of discretionary accruals. We use total discretionary accruals as well as performance adjusted discretionary accruals in this study. The total discretionary accruals (TDA) are calculated using the Cross Sectional Discretionary Accruals model suggested by Jones (1991) and modified later by Dechow et al. (1995). Lately, some researchers have argued that current discretionary accruals would be more susceptible to earnings management (e.g., Ashbaugh et al., 2003). Kothari et al. (2005) have further argued that the firm's performance plays an important role in calculation of discretionary accruals and therefore they have suggested that the company's performance should be taken into consideration in calculating discretionary accruals. In order to improve the robustness of findings, we also use the performance-adjusted current discretionary accruals (PACDA).

##### *(a) Total Discretionary Accruals (TDA)*

According to the modified Jones model, the scaled total discretionary accruals are calculated as a difference between total accruals and non-discretionary accruals, scaled by total assets for the beginning period, whereas the total accruals (TA) are the difference between net income and cash flows from operations.

$$\text{Discretionary accruals (TDA)} = \left( \frac{TA_{it}}{AT_{it-1}} - \frac{NDA_{it}}{AT_{it-1}} \right) \quad (1)$$

The parameters for calculation of non-discretionary accruals (NDA) are estimated by using the following equation:

$$\frac{TA_{it}}{AT_{it-1}} = a_0 \left( \frac{1}{AT_{it-1}} \right) + a_1 \left( \frac{\Delta REV_{it}}{AT_{it-1}} \right) + a_2 \left( \frac{PPE_{it}}{AT_{it-1}} \right) + \varepsilon_{it} \quad (2)$$

The NDA are estimated based on the parameters obtained from equation (2):

$$\frac{NDA_{it}}{AT_{it-1}} = a_0 \left( \frac{1}{AT_{it-1}} \right) + a_1 \left( \frac{\Delta REV_{it} - \Delta AR_{it}}{AT_{it-1}} \right) + a_2 \left( \frac{PPE_{it}}{AT_{it-1}} \right) \quad (3)$$

Where,

TA = total accruals, measured as the difference between net income (earnings before extraordinary items and discontinued operations) and operating cash flows for firm *i* in the year *t*;

$\Delta REV$  = change in net revenue for firm *i* in the year *t*;

$\Delta AR$  = change in accounts receivable for firm *i* in the year *t*;

PPE = property, plant and equipment for firm *i* in the year *t*;

AT = total assets for firm *i* in the year *t*;

$\varepsilon_{it}$  = error term for firm *i* in year *t*.

The model is estimated separately for each of two-digit SIC code and year to obtain industry-specific estimates of the coefficients. In case the number of observations for the two-digit SIC is less than 8, we combine the two-digit SIC codes. It should also be noted that, as suggested in the literature, change in Accounts Receivable ( $\Delta AR$ ) is not included in estimating the parameters, but is included in estimating non-discretionary accruals (e.g. Ashbaugh et al., 2003).

(b) *Performance-adjusted current discretionary accruals (PACDA)*

The cross-sectional performance-adjusted current discretionary accruals (PACDA) are calculated by including the lagged variable of ROA, as suggested by Kothari et al. (2005). The PACDA are similar to RECDAs calculated by Ashbaugh et al. (2003). The parameters for calculation of expected current accruals ECA are estimated by using the following equation:

$$\frac{TCA_{it}}{AT_{it-1}} = a_0 \left( \frac{1}{AT_{it-1}} \right) + a_1 \left( \frac{\Delta REV_{it}}{AT_{it-1}} \right) + a_2 (ROA_{it-1}) + \varepsilon_{it} \quad (4)$$

The expected current accruals (ECA) use the estimated parameters as follows:

$$\frac{ECA_{it}}{AT_{it-1}} = a_0 \left( \frac{1}{AT_{it-1}} \right) + a_1 \left( \frac{\Delta REV_{it} - \Delta AR_{it}}{AT_{it-1}} \right) + a_2 (ROA_{it-1}) \quad (5)$$

Where

TCA = total current accruals is net income (earnings before extraordinary items and discontinued operations) plus depreciation and amortization minus operating cash flows for firm *i* in the year *t*;

$\Delta REV$  = change in net revenue for firm *i* in the year *t*;

$\Delta AR$  = change in accounts receivable for firm *i* in the year *t*;

ROA = Ratio of net income before extraordinary items and discontinued operations to total assets for firm *i* in the year *t-1*;

AT = total assets for firm *i* in the year *t*;

$\varepsilon_{it}$  = error term for firm *i* in year *t*;

Consistent with the models developed by Kothari et al. (2005) and Ashbaugh et al. (2003), current discretionary accruals are defined:

$$PACDA = \left( \frac{TCA_{it}}{AT_{it-1}} - \frac{ECA_{it}}{AT_{it-1}} \right) \quad (6)$$

The model is estimated separately for each combination of two-digit SIC code and year to obtain industry-specific estimates of the coefficients in equation (4). Similar to the modified Jones model to calculate TDA, a minimum of eight observations is required for each two-digit SIC code and same year in the estimation of PACDA.

## 2. Simultaneous Regression Models

In examining the association between voluntarily established audit committees and earnings management, we recognize the existence of endogeneity problem between discretionary accruals and establishment of audit committees on a voluntary basis. While the extent of discretionary accruals will be affected by the existence of an audit committee, the establishment of an audit committee on a voluntary basis may also be influenced by the extent of discretionary accruals. Additionally, there may be an endogeneity problem between establishing an audit committee and corporate board size. Large boards may facilitate the establishment of an audit committee, whereas the corporate board size may also be influenced by the need to establish an audit committee. In order to alleviate the endogeneity problems, we use a system of simultaneous equations, and use 3SLS analyses. We use the basic theory as well as the results of prior research to identify each equation. Further, the number of variables in each equation is constrained by the need to satisfy the order condition to ensure that the equations are properly identified<sup>9</sup>.

The first equation in the system of equations is our main model to test hypothesis H1 in which the absolute value of discretionary accruals (DA) represents the dependent variable. In addition to the independent test variables of audit committee and family members on corporate boards (P\_FAM), we include a number of relevant control variables, based on prior research (e.g., Klein, 2002a; Xie et al., 2003)

$$\begin{aligned}
DA = & b_0 + b_1AC + b_2BD\_SIZE + b_3P\_FAM + b_4P\_NED + b_5CEO\_HOLD + \\
& b_6NED\_HOLD + b_7FOREIGN + b_8F\_SIZE + b_9DE + b_{10}MB + b_{11}CHGNI \\
& + b_{12}BIG5 + IND + e
\end{aligned}
\tag{Equation 1}$$

where,

DA = ABS\_TDA and ABS\_PACDA measured as the absolute value of discretionary accruals measured by TDA (total discretionary accruals) and PACDA (performance-adjusted current discretionary accruals) respectively;

AC = Dummy variable: 1 for presence of audit committee; 0 otherwise;

BD\_SIZE = Natural log of the total number of directors on the board;

P\_FAM = Proportion of directors from the same family on the board of directors;

P\_NED = Proportion of non-executive directors on the board of directors;

CEO\_HOLD = Number of shares held by Chief Executive Officer divided by the total number of shares outstanding;

NED\_HOLD = Number of shares held by all non-executive directors divided by the total number of shares outstanding.

FOREIGN = Natural log of one plus the total number of subsidiaries incorporated outside Hong Kong;

F\_SIZE = Natural log of the total assets in US dollars in millions;

DE = Ratio of long-term debt to total assets;

MB = Ratio of the firm's market value of common equity to book value of common equity at the beginning of fiscal year;

CHGNI = Absolute value of change in income before extraordinary items divided by lagged total assets;

BIG5 = Dummy variable: 1 for big5 auditor; 0 for non-big5 auditor;

IND = Industry dummy variables based on the two-digit SIC codes are included in the equation as a control for industry influence.

---

<sup>9</sup> A system of simultaneous equations satisfies the order condition for identification if the number of exogenous variables excluded from the equation is at least as large as the number of endogenous variables included in the right-hand side of the equation (Greene, 2000: p.670).

As discussed in hypothesis H1, we expect the coefficient of voluntarily established audit committees to be negative. As argued earlier, controlling families will have the capability to expropriate minority interests to maximize their private control benefits (e.g., Fan and Wong, 2002), which suggests that the coefficient of this variable (*P\_FAM*) is expected to be positive. Prior literature provides mixed findings on the monitoring effectiveness of board size. Jensen (1993) argues that large boards are less effective in monitoring and supervising due to coordination and processing problems. Yermack's (1996) findings also indicate that the firms with smaller boards are likely to dismiss CEOs if their performance is poor, suggesting that smaller boards are more effective in monitoring managerial performance. Similarly, Ching et al. (2002) find that the firms with a large board have a higher degree of earnings management around seasoned equity offerings. On the other hand, Xie et al.'s (2003) findings indicate that large corporate boards are associated with lower earnings management. In view of mixed findings, we do not have directional prediction on the sign of *BD\_SIZE* coefficient. The non-executive directors (*P\_NED*) are supposed to improve corporate board independence, which means that the coefficient for this variable should be negative. The firms with a large number of subsidiaries (*FOREIGN*) provide a greater flexibility to management to manage earnings, which means that we can expect a positive association for this variable. Previous studies suggest that change in earnings (*CHGNI*), smaller firm size (*F\_SIZE*) and financial leverage (*DE*) are related to higher earnings management (Warfield et al., 1995; Becker et al., 1998; Bartov et al., 2001), which means that we expect positive coefficients for the variables *CHGNI* and *DE* and a negative coefficient for *F\_SIZE*. Klein's findings (2002a) show that CEO shareholding (*CEO\_HOLD*) and *MB* are positively associated with the magnitude of abnormal accruals. Non-executive directors with a higher equity holding (*NED\_HOLD*) have stronger incentives to monitor managers' performance, which means

that a negative coefficient can be expected. Firms with *Big5* auditors are expected to have lower earnings management (Bartov et al., 2001). Finally, we control for industry dummies for industry-wide effects.

We develop second equation with audit committee (*AC*) as the dependent variable. The independent variables in this equation are selected on the basis of earlier studies (e.g., Klein, 2002b; Bradbury, 1990).

$$\begin{aligned}
 AC = & a_0 + a_1 DA(TDA \text{ or } PACDA) + a_2 BD\_SIZE + a_3 ROA + a_4 P\_NED + \\
 & a_5 CEO\_HOLD + a_6 NED\_HOLD + a_7 FOREIGN + a_8 F\_SIZE + a_9 DE \\
 & + a_{10} MB + a_{11} AIP + a_{12} BIG5 + a_{13} LOSS + IND + e \quad (\text{Equation 2})
 \end{aligned}$$

Most variables in this equation are the same as in equation 1. As we explain earlier, we need to exclude three exogenous variables in order to satisfy the order condition for the simultaneous equations (Greene, 2000, p.670). We drop the variables of *P\_FAM*, *CHGNI* and *Big5* which appear in equation 1. The variables of *P\_FAM* and *CHGNI* have not been included in the *AC* equation in earlier studies probably because they are not relevant for this equation. The variable of *BIG5* is dropped because an overwhelming majority of our sample firms are audited by Big5. Moreover, prior studies do not find any association between *BIG5* auditors and formation of audit committees. Based on the findings of earlier studies (e.g. Klein, 2002b; Fama and Jensen, 1983; Bradbury, 1990), we include the variables of *ROA*, *AIP*, and *LOSS* in equation 2; these variables do not appear in equation 1. Fama and Jensen (1983) argue that a firm structures its board and committees in response to the needs for unbiased expert information. It can be argued that a better performing firm (higher *ROA*) is likely to establish an audit committee for providing higher reliability to the reported information, which means that we can expect a positive coefficient for *ROA*. Similarly, the variables of *LOSS* and assets in place (*AIP*) may support the establishment of audit committees for providing reliable information to

outsiders (Klein, 2002b; Bradbury, 1992). *ROA* is measured as the ratio of net income before extraordinary items and discontinued operations to total assets. *LOSS* is used as a dummy variable. It is coded as 1 when the firm has negative earnings either in the last year or the current year, otherwise 0. *AIP* is measured as the ratio of fixed assets to the sum of market value of common equity and book value of preferred stock and debt. Other variables have been previously defined.

It has been argued in the literature that board size (*BD\_SIZE*), which appears in equations 1 and 2, may also be endogenously determined because its determination shall conform with value maximization (Hermalin and Weisbach, 1998; Fama and Jensen, 1983; Lehn et al., 2005). The following equation is used for determination of *BD\_SIZE*:

$$\begin{aligned} \text{BD\_SIZE} = & c_0 + c_1\text{DA}(\text{TDA or PACDA}) + c_2\text{AC} + c_3\text{ROA} + c_4\text{P\_NED} + \\ & c_5\text{CEO\_HOLD} + c_6\text{NED\_HOLD} + c_7\text{FOREIGN} + c_8\text{F\_SIZE} + c_9\text{DE} \\ & + c_{10}\text{MB} + c_{11}\text{AIP} + c_{12}\text{BIG5} + c_{13}\text{LOSS} + \text{IND} + e \quad (\text{Equation 3}) \end{aligned}$$

The exogenous variables in Equation 3 are similar to the variables in Equation 2. Yermack (1996) and Hermalin and Weisbach (1991) argue that board size is generally adjusted in response to the firm's operating performance (*ROA*). The variable of *P\_NED* is also considered to have an impact on the determination of board size and independence (Lipton and Lorsch, 1992; Jensen, 1993). Additionally, this equation controls for the proportion of non-executive directors' shareholdings. Hermalin and Weibach (1998) further argue that the board size is likely to be shaped by the influence and power of CEO. We, therefore, include the equity stockholding of CEO (*CEO\_HOLD*) to control for the CEO effects. We use *FOREIGN* and *AIP* to control for the scope and complexity of the firm's operations which are expected to influence board size (Fama and Jensen, 1983; Lehn et al., 2005). Lehn et al. (2005) show that board size is also positively related to firm size

(*F\_SIZE*) and negatively related to growth opportunities (*MB*). We include *DE*, *BIG5*, *LOSS* and industry dummies that are part of exogenous variables in equation 2.

### 3. Sample Selection and Data Collection

#### (a) *Sample Selection*

The HKSA's Corporate Governance Working Group recommended in December 1997 that audit committees be established in the Hong Kong listed companies. Our evaluation of the 1998 annual reports of Hong Kong companies indicated that very few firms voluntarily established audit committees in 1998. The number of firms establishing audit committees on a voluntary basis significantly increased in year 1999 and 2000. We, therefore, base our analyses on data for the years 1999 and 2000.

The sample selection process begins with searching the *Global Vantage* database (2002 December CD) for Hong Kong companies. *Global Vantage* covered 394 Hong Kong firms in 1999 and 399 in 2000. In the second step, we screened the firms for the availability of financial data required for estimation of discretionary accruals. This selection procedure resulted in a total of 633 firm year observations for which data were available for calculation of discretionary accruals.

In the third step, we examined the financial reports of sample firms to collect information on corporate governance variables and audit committees manually. The Companies Ordinance and HKEX's listing rules require the Hong Kong firms to provide description of the profile and biography for *each* director and senior manager, including the relationship among directors and senior management (e.g., husband and wife, father and son, nephews etc), if any, in the Directors' Report. This information enabled us to identify whether the directors were related to the same family. Based on this information, we could also calculate the proportion of family directors on the board. As a result of missing

reports or missing values for the required variables, the number of observations was further reduced to 564.

Finally, we screened the sample for the availability of financial data on control variables in the *Global Vantage* data base. As a result of missing values, we lost a small number of observations in this process. The final sample consisted of 523 firm-year observations. The number of firm-year observations by industry and year is provided in Table 1.

-----  
Table 1  
-----

Our analysis indicates that there is no significant difference in the number of observations for year 1999 and 2000. Though the observations are fairly evenly distributed over different industry groups, there is some concentration of observations in the industry groups of electronics and other electric equipment as well as wholesale trade of durable and nondurable goods.

*(b) An Analysis of Family Board Members*

Our analysis of family members on corporate boards indicates that out of the 523 sample firms, there is no family relationship among the board members for 253 firms, whereas 270 firms (51.6%) show family members on corporate boards. The number of firms with 2 family members serving on corporate boards is 139 (51.5%), whereas the number of firms with 3 family members on corporate boards is 71 firms (26.3%). The percentage of firms with 4 family members on the board is 10.4% and the percentage with more than 4 family members is 11.8%.

Additionally, the analysis indicates that among the 270 firms with family members on corporate boards, 94.8% (256 firms) have a key family member holding the position of

Board Chairman. We also find that in 240 (89%) family-dominated firms, all board members from the same family are insiders, meaning that they also hold one of the executive positions, such as chairman, CEO or executive directors. Even among the remaining 11% firms where not all family board members are executives in the firm, they have 3 or more family members on the board and majority of them serve as executive directors. In summary, in almost all firms with family ownership concentration, the firms are family owned and managed.

In terms of relationship among family board members, our analysis reveals that 48.2% of the family-dominated sample firms show the relationship of father/mother or son/daughter. In 26.7% of the sample firms, husband and wife jointly represent the family interest on corporate boards. The brother and sister link among family members is found in 160 firms (59.3%). Other family relationships, which are less common, represent the relations of son-in-law, brother-in-law, cousin/nephew/niece.

#### **IV. Results**

##### 1. Descriptive Statistics and Correlations among Variables

We calculate total discretionary accruals (TDA) and performance-adjusted current discretionary accruals (PACDA) using equations (1) and (6) respectively. Descriptive statistics on the absolute values of TDA and PACDA are provided in Panel A of Table 2.

-----  
Table 2  
-----

The means of *ABS\_TDA* and *ABS\_PACDA* are 0.1229 and 0.1154 respectively, whereas their medians are 0.0757 and 0.0675 respectively. These two measures of discretionary accruals are highly correlated with a correlation coefficient of 0.8362.

Descriptive statistics on other variables used in the analyses are also provided in Panel A of Table 2. The number of firms with audit committees is 362, which is 69.2 percent of the total sample, indicating that more than two thirds of firms established audit committees on a voluntary basis during the first two years. The overwhelming majority (96%) of sample firms are audited by Big5 auditors. The percentage of family members on corporate boards, on average, is 18.43, whereas the median is 16.67 percent. The maximum percentage is 80, whereas some firms have no family members on corporate boards. The statistics also show that the percentage of non-executive directors on average is 43.2, where the minimum percentage of NED is 12.5.

The correlation coefficients between different variables are shown in Panel B of Table 2. The coefficients show that the firm size is negatively correlated with *ABS\_TDA* and *ABS\_PACDA*, and positively correlated with *BD\_SIZE* and *ROA*. The audit committees are positively correlated with the board size. The *DA* measures are negatively correlated with *ROA* and positively associated with *CHGNI*. Larger board size is also correlated with lower CEO shareholdings, a higher *ROA* and a higher proportion of non-executive directors.

## 2. Regression Results

### (a) *Association between Earnings Management and Audit Committees*

First, we conduct an OLS test, and the results based on equation 1 are presented in Table 3.

-----  
 Table 3  
 -----

The OLS results show that the coefficient on audit committees (*AC*) is positive and insignificant both for *ABS\_TDA* and *ABS\_PACDA*. The Hausman test results indicate that

the null hypothesis of no endogeneity or simultaneity is rejected at the 0.001 level of significance. Thus, in view of endogeneity problem, the OLS may not provide reliable results.

In order to alleviate the endogeneity problem, we use the system of simultaneous equations. First, we use the 2SLS method, where *DA*, *AC* and *BD\_SIZE* are endogenously determined. An evaluation of the correlation matrix of the residuals from the 2SLS estimation of the three equations, however, indicates that the residuals are significantly correlated. The results of Lagrange multiplier statistic based on the Breusch and Pagan (1980) procedure indicate that the null hypothesis of a diagonal residual correlation matrix is rejected at the 0.001 level of significance<sup>10</sup>.

To overcome the problem of contemporaneous correlation among residuals, we use the 3SLS methodology and estimate the three equations jointly and simultaneously<sup>11</sup>. Except for the variables of *DA*, *AC* and *BD\_SIZE*, which are treated as endogenously determined, all other variables in the equations are treated as exogenous variables<sup>12</sup>. The use of 3SLS procedure solves the problems of heteroskedascity and contemporaneous correlation between the residuals of the equations<sup>13</sup>. Thus, the Hausman test and the Breusch and Pagan (1980) test confirm that the 3SLS approach is preferable over the OLS or 2SLS procedures.

The results based on 3SLS procedure are also provided in Table 3. The 3SLS results (Panel A, Table 3) show that the coefficient of *AC* is significantly negative (at the 0.001 level), suggesting that the establishment of audit committees is associated with lower earnings management. This finding thus indicates that the magnitude of total discretionary

---

<sup>10</sup> We also evaluate the contemporaneous correlations between the residuals of the equations based on the OLS estimation. The Breusch and Pagan (1980) test indicate that the null hypothesis of a diagonal residual correlation matrix is rejected at the 0.05 level of significance.

<sup>11</sup> We use SAS 'PROC MODEL' to run the 3SLS regressions

accruals is reduced when audit committees are established on a voluntary basis, which means that audit committees are effective in constraining managerial behavior of earnings management. Similar results are indicated when the performance-adjusted current discretionary accruals (*ABS\_PACDA*) are used as the dependent variable (Panel B). These findings support our hypothesis H1 that the Hong Kong firms with audit committees are associated with lower earnings management. These findings thus suggest that the firms that establish audit committees have lower earnings management compared to the firms that do not establish audit committees.

The coefficient for the board size is positive, suggesting that there are high discretionary accruals for firms with large boards. This result is consistent with Jensen's (1993) argument that smaller boards provide a better monitoring function than large boards. The results on *P\_NED* and *DE* control variables are significant and the coefficients are in the expected direction. The results show that the percentage of non-executive directors (*P\_NED*) has a positive impact on controlling earnings management, which reduces discretionary accruals. Consistent with the results in the prior studies, the coefficient on firm size (*F\_SIZE*) is significantly negative. The debt-equity ratio is positively associated with discretionary accruals, suggesting that a higher level of financial leverage encourages firms to manage earnings. The results on *CEO\_HOLD*, *NED\_HOLD*, *FOREIGN* and *CHGNI* are in the expected direction, but the coefficients are not significant. The coefficient for *P\_FAM* and *MB* are negative but insignificant. The coefficient for *BIG5* is insignificantly positive. The insignificant *BIG5* result is likely to be due to the fact that almost all (96%) of the firms are audited by *BIG5* auditors.

---

<sup>12</sup> Angrist (2001) suggests that the conventional simultaneous least squares model is a simple strategy for empirical practice to accommodate dummy endogenous regressors in estimation of a set of simultaneous equations.

<sup>13</sup> Furthermore this procedure is viewed as combining the ideas of the 2SLS and SUR methods.

(b) *Impact of Family Corporate Members on Boards on the Association between Audit Committees and Discretionary Accruals*

To examine the effect of family dominance on the association between *DA* and *AC*, we partition the full sample into two subsamples of firms. One subsample consists of firms where corporate boards have family members and the other subsample has the firms where the corporate boards have no family members. The firm is classified as without family board member when there is not a single family members on the board ( $P\_FAM = 0$ ). If two or more board members have family relationship, the firm is classified as the firm with family members on corporate boards ( $P\_FAM > 0$ ). We test hypothesis H2 by estimating Equations 1 to 3 simultaneously using the 3SLS procedure for the two subsamples separately. We expect the *AC* coefficient to be strongly negative for firms without family members on corporate boards and we expect either the *AC* coefficient to be insignificant or positive for the subsample of firms with family members on corporate boards. The results are also presented in Table 3.

For the firms without family members on corporate board, the *AC* coefficient is significantly negative both for *ABS\_TDA* and *ABS\_PACDA* at the 0.001 level, as expected. On the other hand, the *AC* coefficient for firms with family members on corporate board is insignificant both for *ABS\_TDA* and *ABS\_PACDA*. The *AC* coefficient is, however, positive for *ABS\_TDA* and negative for *ABS\_PACDA*. We also conduct a test on the total sample by including an interaction variable between *P\_FAM* and *AC*. The results (untabulated) indicate that the *AC* coefficient is significantly negative and the interaction coefficient is positive and significant at the 0.001 level.

The above findings thus support our Hypothesis H2 that audit committees are more effective in constraining managerial behavior of earnings management when no family members are present on corporate boards. The audit committees are less effective or

ineffective in constraining earnings management when members are present on corporate boards. These findings thus suggest that the presence of family members on corporate boards weakens the monitoring effectiveness of audit committees.

### 3. Sensitivity and additional Analyses

. We conduct sensitivity and additional tests to evaluate the robustness of our findings. First, we split sample into two groups based on the cut-off point of three family board members belonging to the same family. One group consists of firms with three or more family members on the corporate board and the other group consists of less than 3 board members. The results (untabulated) indicate that the AC coefficient for the group of firms with less than 3 family board members is significantly negative whereas the AC coefficient is positive for both *ABS\_TDA* and *ABS\_PACDA* for the group of firms with 3 or more board members belonging to the same family. These results confirm our earlier results that the presence of family members on corporate boards makes monitoring of earnings management by audit committees ineffective when the board is dominated by family members.

Second, we conduct test by treating *P\_FAM* as an additional endogenous variable. The 3SLS results reported in Tables 3 and 4 treat *P\_FAM* as an exogenous variable. The family representation on corporate boards is primarily determined by the family's voting rights in the firm. Thus, the number and proportion of family members on the board is unlikely to be determined as an equilibrium solution to control the agency problem between managers and shareholders. Thus, we consider it reasonable to treat *P\_FAM* as an exogenous variable. We, however, perform a robustness check to evaluate whether our results would hold if *P\_FAM* is considered as endogenously determined in the system of equations. The results of this are consistent with the results reported in Table 3, and the coefficient on AC is significantly negative.

Third, we evaluate the impact of family board on the association between earnings management and AC when all family board members are executives. We conduct regression tests on the sample by excluding the firms (N=49) where some family board members are non-executive. The results of 3SLS regressions for the remaining sub-sample are similar to the main results, and thus they confirm the robustness of our results.

Fourth, it is possible that the sample observations based on two years may not be fully independent as the same firm may appear in both years. Thus, pooling of data for two years may create the problem of heteroskedacity and contemporaneous correlations between the residuals. Though our 3SLS estimation addresses these problems, we conduct sensitivity analysis by including a year dummy variable in Equation 1. The results are robust to this sensitivity check.

#### 4. Intermediary Results

In Table 4, we present the results for equations 2 and 3 of the 3SLS estimates and also the results for OLS on *AC* and *BD\_SIZE*.

-----  
 Table 4  
 -----

The results presented in Table 4 are based on the *ABS\_PACDA* as the dependent variable. The results based on *TDA* as the dependent variable are not tabulated because these results are similar to the results reported in Table 4. We conduct OLS as well as *Probit* analyses on equation 2, where *AC* is used as the dependent variable. The results for both tests are presented in Table 4, and they are qualitatively similar.

The 3 SLS results for Equation 2 show that *AC* is negatively associated with discretionary accruals, suggesting that the firms with high levels of *DA* could avoid the establishment of an audit committee. The coefficient on *P\_NED* is negative and

insignificant. The results also indicate that the firms with a larger board size and a smaller firm size are more likely to establish *AC*. The results are consistent with Klein (2002b). We also find that the firms with higher debt levels are more inclined to have *AC*. The *OLS* results for the *AC* equation are very similar to the Probit estimation, which indicates that the propensity to establish an audit committee increases with board size and leverage, and decreases with *LOSS*.

The results for Equation 3 show that larger firms have larger board size. Firms with better financial performance (i.e., *ROA*) tend to have smaller board and firms with high CEO equity holdings have a smaller board. It is also shown that the firms with lower financial leverage tend to have a larger board.

## 5. Limitations

Limitations of this study include the issues related to the measurement of earnings management, family members on corporate boards, and endogeneity of other variables. It is widely recognized that there are measurement errors in calculating discretionary accruals, which are used as proxy for earnings management. We have attempted to mitigate this problem by using two different measures of discretionary accruals. Additionally, we have used performance adjusted current discretionary accruals, which is considered to be a better measure for earnings management.

We have identified family members on corporate boards based on information disclosed in the financial statements and the family relationship has been determined on the basis of information disclosed in the financial statements. Thus, the reliability of this measure depends upon the reliability of information contained in the financial statements.

We have treated *DA*, *AC* and *BD\_SIZE* as endogenously determined variables. It is possible that other corporate variables that are used as control variables in the analyses

might also be endogenously determined. Though this weakness in the study might influence the results, different sensitivity tests conducted show that the results are robust.

The results of this study based on Hong Kong data should be applicable to other countries with similar business and institutional environment, especially when the firms are family dominated. These results, however, may not be applicable to other countries whose institutional and regulatory environment differs from the Hong Kong environment.

## **VI. Conclusion**

This study has evaluated the role of audit committees in constraining earnings management during 1999-2000, i.e. immediately after audit committees were established on a voluntary basis by Hong Kong firms. The study is based on 523 firm-year observations. The findings show that the voluntarily established audit committees by Hong Kong firms perform an important role in constraining earnings management. We detect comparatively lower earnings management for the firms with audit committees compared to the firms without audit committees. The results also show that the effectiveness of audit committees in constraining earnings management is reduced when family members are present on corporate boards.

These findings thus show that audit committee can provide effective monitoring of earnings management even for firms that operate in the business and institutional environment of family ownership domination and control, where there is lower protection for investor rights and managers have greater motivation to manage earnings to maximize their private benefits. The findings in general support the HKEX efforts in encouraging the firms to establish audit committees, and suggest that similar efforts in other countries in the region would be fruitful in controlling the management of reported earnings. The requirement of establishing audit committees will enhance the reliability and transparency

of reported earnings. Additionally, the findings show that regulators need to re-evaluate composition of corporate boards in these countries. The appointment of family members on corporate boards would reduce corporate board independence and thus the board's monitoring effectiveness. It is worthwhile to investigate the alternative procedures for appointing independent non-executive directors on corporate boards where their appointment should be free of the dominating family's influences.

Prior research suggests that experience and knowledge of audit committee members may strengthen the oversight by audit committee oversight (DeZoort and Salterio, 2001). We could not evaluate this aspect in this study because of non-availability of data. The latest revision in the corporate governance regulations requires that the Hong Kong listed companies also disclose the details of the composition and scope of audit committees, and these details would become available beginning with 2005 annual reports. Future research is suggested to evaluate whether expertise and experience of audit committee members would improve their monitoring effectiveness.

## References

- Angrist, J. D. 2001. Estimation of limited dependent variable models with dummy endogenous regressors: Simple strategies for empirical practice. *Journal of Business & Economic Statistics*, 19(1): 2-16.
- Ashbaugh, H., R. LaFond, and B. Mayhew. 2003. Do nonaudit services compromise auditor independence? Further evidence. *The Accounting Review* 78 (3): 611-639.
- Bartov, E., Gul, F. and Tsui, J. 2001. Discretionary accruals models and audit qualifications. *Journal of Accounting and Economics* 30: 421-452.
- Bebchuk, L., Kraakman, R., Triantis, G., 2000. Stock pyramids, cross-ownership, and dual class equity. In: Morck, R. (Ed.), *Concentrated Corporate Ownership*. The University of Chicago Press, Chicago, 295-315.
- Becker, C., DeFond, M., Jiambalvo, J. and Subramanyam, K. 1998. The effect of audit quality on earnings management. *Contemporary Accounting Research* 15: 1-24.
- Bradbury, M. 1990. The incentives for voluntary audit committee formation. *Journal of Accounting and Public Policy* 9: 19-36.
- Breusch, T. and Pagan, A. 1980. The Lagrange multiplier test and its application to model specification in economics. *The Review of Economic Studies* 47(1): 239-253.
- Cadbury Committee Report. 1992. *Report of the Cadbury Committee on the Financial Aspects of Corporate Governance*. Gee, London.
- Ching, K., M. Firth., and O. Rui. 2002. Earnings management, corporate governance and the market performance of seasoned equity offerings. Working paper available at SSRN\_ID337880\_code021103540.pdf.
- Claessens, S., and J. Fan. 2002. Corporate governance in Asia: A survey. *International Review of Finance* 3(2): 71-103.
- Dechow, P., and R. Sloan, and A. Sweeney. 1995. Detecting earnings management. *The Accounting Review* 70 (April): 193-225.
- DeZoort, F. T., and S. E. Salterio. 2001. The effects of corporate governance experience and financial-reporting and audit knowledge on audit committee members' judgments. *Auditing: A Journal of Practice and Theory* 20(2): 31-47.
- Fama, E. F., and M. C. Jensen. 1983. Separation of ownership and control. *Journal of Law & Economics* 26 (June): 301-325.

Fan, J., and T. Wong. 2002. Corporate ownership structure and the informativeness of accounting earnings in East Asia. *Journal of Accounting and Economics* 33: 401-425.

Gendron, Y., Bedard, J., and M. Gosselin. 2004. Getting inside the black box: A field study of practices in “effective” audit committees. *Auditing: A Journal of Practice and Theory* 23(1): 153-171.

Greene, W. 2000. *Econometric Analysis*, Fourth edition, Prentice Hall.

Gul, F., and S. Leung. 2004. Board leadership, outside directors’ expertise and voluntary corporate disclosures. *Journal of Accounting and Public Policy* 23: 351-379.

Hermalin, B. and Weisbach, M. 1998. Endogenously chosen board of directors and their monitoring of the CEO. *The American Economic Review* 88: 96-118.

Hermalin, B. and Weisbach, M. 1991. The effects of board composition and direct incentives on firm performance. *Financial Management* 20:101-112.

Ho, S., and K. Wong. 2001. A study of the relationship between corporate governance structures and the extent of voluntary disclosure. *Journal of International Accounting, Auditing and Taxation* 10: 139-156.

Hong Kong Society of Accountants (HKSA). 1997. Second report of the Corporate Governance Working Group.

Hong Kong Society of Accountants (HKSA). 1997. *A guide for the formation of an audit committee*. Audit Committee Task Force of the HKSA Corporate Governance Working Group.

Hong Kong Society of Accountants (HKSA). 2002. A guide for effective audit committees.

Hong Kong Stock Exchange (HKEX). 2002. Consultation Paper on Proposed Amendments to the Listing Rules Relating to Corporate Governance Issue.

Hong Kong Exchange and Clearing Ltd. (HKEX). 2004. Exposure of Draft Code on Corporate Governance Practices and Corporate Governance Report.

Jensen, M. 1993. The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance* 25(3): 831-873.

Johnson, S., Boone, P., Breach, A., Friedman, E. 2000a. Corporate governance in the Asian financial crisis 1997-98. *Journal of Financial Economics*, 58, 141-186.

- Johnson, S., LaPorta, E., Lopez-de-Silanes, F., Shleifer, A., 2000b. Tunnelling, *American Economic Review* (Papers and Proceedings) 90 (2), 22-27.
- Jones, J. 1991. Earnings management during import relief investigations. *Journal of Accounting Research* 29 (Autumn): 193-228.
- Klein, A. 2002a. Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics* 33 (3): 375-400.
- Klein, A. 2002b. Economic determinants of audit committee independence. *The Accounting Review* 77(2): 435-452.
- Kothari, S., A. Leone, and C. Wasley. 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics* 39: 163-197.
- LaPorta, R., F. Lopez DeSilanes, and A. Shleifer. 1999. Corporate ownership around the world. *Journal of Finance* (April): 471-517.
- Lehn, K., Patro, S. and Zhao M. 2005. Determinants of the size and structure of corporate boards: 1935-2000. Working paper, University of Pittsburgh.
- Leung, S., and B. Horwitz. 2004. Director ownership and voluntary segment disclosure: Hong Kong evidence. *Journal of International Financial Management and Accounting* 15 (3): 235-260.
- Leuz, C., D. Nanda, and P. Wysocki. 2003. Earnings management and investor protection: An international comparison. *Journal of Financial Economics* 69: 505-527.
- Lipton, M., and J. Lorsch. 1992. A modest proposal for improved corporate governance. *Business Lawyer* 48 (1): 59-77.
- Mitton, T. 2002. A cross-firm analysis of the impact of corporate governance on the East Asian financial crisis. *Journal of Financial Economics*. 64, 215-241.
- Mok, H., K. Lam, and I. Cheung. 1992. Family control and return covariation in Hong Kong's common stocks. *Journal of Business Finance and Accounting* 19 (2): 277-293.
- Morck, R., Strangeland, D., Yeung, B. 2000. In: Morck, R. (Ed.). *Inherited wealth, corporate control and economic growth: the Canadian disease? Concentrated Corporate Ownership*. The University of Chicago Press, Chicago.
- Shleifer, A., Vishny, R., 1997. A survey of corporate governance. *Journal of Finance*. 52, 737-83.

Warfield, T., Wild, J. and Wild, K. 1995. Managerial ownership, accounting choices, and informativeness of earnings. *Journal of accounting and economics* 20: 61-92.

Xie, B., W. N. Davidson III, and P. J. DaDalt. 2003. Earnings management and corporate governance: the role of the board and the audit committee. *Journal of Corporate Finance* 9: 295-316.

Yermack, D. 1996. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics* 40(3): 185-211.

**TABLE 1**  
**Sample by industry and year**

Two-digit SIC Group	Year		Total
	1999	2000	
15 (General building contractors)	13	13	26
20 (Food & Kindred Products)	9	6	15
22 (Textile mill Products)	6	5	11
23 (Apparel & other textile products)	15	12	27
24-27 (Lumber & wood products, Furniture & Fixtures, Paper & allied products, printing & publishing)	18	15	33
28-29 (Chemicals & allied products, Petroleum & coal products)	8	8	16
30-31 (Rubber and misc. plastics products, Leather & leather products)	13	13	26
32-34 (Stone clay & glass products, Primary metal industries, Fabricated metal products)	7	7	14
35 (Industrial machinery & equipment)	17	15	32
36 (Electronic & other electric equipment)	38	34	72
37-39 (Transportation equipment, Instruments & related products, Mics. manufacturing industries)	21	21	42
47 (Transport services)	5	7	12
48 (Communications)	10	11	21
50-51 (Wholesale trade - Durable Goods, Nondurable Goods)	42	45	87
53-57 (General Merchandise Stores, Food Stores, Automotive dealers & service Stations, Apparel & accessory stores, Furniture & home Stores)	13	11	24
58 (Eating & drinking places)	9	7	16
70 (Hotels, other lodging places)	9	8	17
73 (Business services)	10	10	20
79-89 (Other services)	6	6	12
<b>Total</b>	<b>269</b>	<b>254</b>	<b>523</b>

**TABLE 2****Panel A: Descriptive Statistics of All Variables**

	<i>N</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Minimum</i>	<i>Median</i>	<i>Maximum</i>
ABS_TDA	523	0.1229	0.1410	0.0003	0.0757	0.7453
ABS_PACDA	523	0.1154	0.1408	0.0004	0.0675	0.7043
BD_SIZE	523	2.1946	0.2513	1.3863	2.1972	3.0445
ROA	523	-0.0350	0.3048	-1.7122	0.0210	1.6000
P_FAM	523	0.1853	0.2084	0.0000	0.1667	0.8000
P_NED	523	0.4319	0.1752	0.1250	0.4000	1.0000
CEO_HOLD	523	0.1207	0.1783	0.0000	0.0093	0.7499
NED_HOLD	523	0.0231	0.0901	0.0000	0.0000	0.9391
FOREIGN	523	2.2136	0.7728	0.0000	2.1972	4.8520
F_SIZE	523	4.8856	1.2814	0.9998	4.7978	8.7618
DE	523	0.0684	0.1069	0.0000	0.0213	0.4963
MB	523	2.2345	16.2942	-12.2865	0.5933	261.6268
CHGNI	523	0.1519	0.3160	0.0001	0.0499	2.0458
AIP	523	0.9542	0.9003	0.0013	0.7292	6.0409

DICHOTOMOUS VARIABLES	0	1
AC	161 (30.78%)	362 (69.22%)
BIG5	21 (4.02%)	502 (95.98%)
LOSS	264 (50.48%)	259 (49.52%)

ABS_TDA	= Absolute value of discretionary accruals from the cross-sectional modified Jones model, scaled by lagged total assets
ABS_PACDA	= Absolute value of performance-adjusted current discretionary accruals, scaled by lagged total assets
BD_SIZE	= Natural log of the total number of directors on the board
ROA	= Ratio of net income before extraordinary items to total assets
P_FAM	= Proportion of directors from the same family on the board of directors
P_NED	= Proportion of non-executive directors on the board of directors
CEO_HOLD	= Number of shares held by Chief Executive Officer divided by the total number of shares outstanding
NED_HOLD	= Number of shares held by all non-executive directors divided by the total number of shares outstanding
FOREIGN	= Natural log of one plus the total number of subsidiaries incorporated outside Hong Kong
F_SIZE	= Natural log of the total assets in US dollars in million
DE	= Ratio of long term debt to total assets
MB	= Ratio of the firm's market value of common equity to book value of common equity at the beginning of fiscal year
CHGNI	= Absolute value of change in net income before extraordinary items between years t-1 and t, scaled by lagged total assets
AIP	= Ratio of fixed assets to the sum of the market value of ordinary share capital and the book values of preference capital and debt
AC	= Dummy variable: 1 for presence of audit committee; 0 otherwise
BIG5	= Dummy variable: 1 for big5 auditor; 0 for non-big5 auditor
LOSS	= Dummy variable: 1 if the firms have negative net income in last year or the current year; 0 otherwise

**Panel B: Pearson correlation coefficients between variables**

	ABS_TDA	ABS_PACDA	BD_SIZE	ROA	P_FAM	P_NED	CEO_HOLD	NED_HOLD	FOREIGN	F_SIZE	DE	MB	CHGNI	AIP	AC	BIG5
ABS_PACDA	0.8362**															
BD_SIZE	-0.1469**	-0.0952*														
ROA	-0.2186**	-0.1992**	0.1395**													
P_FAM	-0.1317**	-0.1209**	-0.0609	0.0253												
P_NED	-0.1204**	-0.1059*	0.1057*	0.0494	-0.0291											
CEO_HOLD	-0.0396	-0.0579	-0.2138**	0.0369	0.1773**	-0.0129										
NED_HOLD	-0.0671	-0.0801	0.1103*	0.0420	0.0371	0.2746**	-0.0251									
FOREIGN	-0.0935*	-0.0879*	0.1039*	0.0756	0.0467	0.0058	0.1040*	0.0812								
F_SIZE	-0.2303**	-0.1716**	0.4455**	0.2779**	-0.0224	0.1606**	-0.0837	0.0356	0.4414**							
DE	0.0606	0.0898*	0.0115	0.0923*	-0.0444	0.0694	0.0241	-0.0093	0.0568	0.1637**						
MB	0.0333	0.0383	-0.0155	-0.0514	-0.0707	0.0729	0.0708	0.0615	0.0463	-0.0815	0.0613					
CHGNI	0.4176**	0.3692**	-0.2242**	-0.1658**	-0.0999*	-0.0895*	-0.0462	-0.0568	-0.0559	-0.3003**	0.1166**	0.0702				
AIP	-0.1340**	-0.1511**	0.0143	0.0122	0.1423**	0.1315**	-0.0747	-0.0006	0.0043	0.2138**	-0.0076	-0.0654	-0.0380			
AC	0.0013	-0.0066	0.1373**	0.0004	-0.0728	0.0257	-0.0595	0.0415	0.0691	0.1079*	0.0752	-0.0139	-0.1232**	-0.0168		
BIG5	-0.0233	0.0128	0.0143	0.0551	-0.0307	-0.0131	0.0096	-0.1974**	0.0400	0.0947*	0.0075	0.0225	-0.0280	0.0714	0.0535	
LOSS	0.2213**	0.2148**	-0.2411**	-0.3826**	-0.1293**	-0.0516	-0.0380	0.0243	-0.1504**	-0.3349**	0.1927**	0.0486	0.3545**	0.0531	-0.0934*	-0.1481**

\*\* Correlation is significant at the 0.01 level (two-tailed); \* Correlation is significant at the 0.05 level (two-tailed).

- ABS\_TDA = Absolute value of discretionary accruals from the cross-sectional modified Jones model, scaled by lagged total assets
- ABS\_PACDA = Absolute value of performance-adjusted current discretionary accruals, scaled by lagged total assets
- BD\_SIZE = Natural log of the total number of directors on the board
- ROA = Ratio of net income before extraordinary items to total assets
- P\_FAM = Proportion of directors from the same family on the board of directors
- P\_NED = Proportion of non-executive directors on the board of directors
- CEO\_HOLD = Number of shares held by Chief Executive Officer divided by the total number of shares outstanding
- NED\_HOLD = Number of shares held by all non-executive directors divided by the total number of shares outstanding
- FOREIGN = Natural log of one plus the total number of subsidiaries incorporated outside Hong Kong
- F\_SIZE = Natural log of the total assets in US dollars in million
- DE = Ratio of long term debt to total assets
- MB = Ratio of the firm's market value of common equity to book value of common equity at the beginning of fiscal year
- CHGNI = Absolute value of change in net income before extraordinary items between years t-1 and t, scaled by lagged total assets
- AIP = Ratio of fixed assets to the sum of the market value of ordinary share capital and the book values of preference capital and debt
- AC = Dummy variable: 1 for presence of audit committee; 0 otherwise
- BIG5 = Dummy variable: 1 for big5 auditor; 0 for non-big5 auditor
- LOSS = Dummy variable: 1 if the firms have negative net income in last year or the current year; 0 otherwise

**TABLE 3**  
**Coefficient Estimates from Three-Stage Least Square (3SLS) Regression for Equation 1**

**Panel A: Dependent variable = ABS\_TDA**

	Predicted Sign	<u>OLS Estimates</u>		<u>Total Sample : 3SLS Estimates</u>		<u>No Family Corporate Board Members: 3SLS Estimates</u>		<u>Family Corporate Board Members: 3SLS Estimates</u>	
		Coeff.	Two-tailed t-stat	Coeff.	Two-tailed t-stat	Coeff.	Two-tailed t-stat	Coeff.	Two-tailed t-stat
Intercept	+/-	0.2246	3.52***	-0.3573	-1.12	-0.3041	-1.43	0.1521	0.39
AC	-	0.0125	1.03	-0.3230	-3.24***	-0.4663	-3.69***	0.1267	1.12
BD_SIZE	+/-	-0.0089	-0.35	0.4394	2.30**	0.4647	3.51***	0.0029	0.01
P_FAM	+	-0.0425	-1.53	-0.0185	-1.29				
P_NED	-	-0.0665	-1.95*	-0.1053	-2.32**	-0.1667	-2.02**	-0.0431	-0.85
CEO_HOLD	+	-0.0028	-0.09	0.0434	0.75	0.0621	0.67	-0.0104	-0.18
NED_HOLD	-	0.0215	0.32	-0.0250	-0.27	0.1116	0.49	-0.0208	-0.25
FOREIGN	+	-0.0049	-0.60	0.0199	1.55	0.0121	0.60	-0.0155	-1.12
F_SIZE	-	-0.0125	-2.17**	-0.0595	-3.27***	-0.0458	-3.12***	-0.0166	-0.78
DE	+	0.0726	1.34	0.2972	3.39***	0.3307	2.63***	0.0126	0.10
MB	+	0.0001	0.37	-0.0003	-0.69	-0.0005	-0.77	-0.0059	-1.21
CHGNI	+	0.1375	6.98***	0.0215	1.29	0.0116	0.75	0.1701	3.52***
BIG5	-	0.0053	0.18	0.0416	1.04	0.0360	0.51	-0.0282	-0.62
INDUSTRY			Yes		Yes		Yes		Yes
N		523		523		253		270	
Adj. R-SQ		0.236		0.126		0.101		0.044	
P-value of F-stat		<0.001		<0.001		<0.001		<0.01	

\*, \*\*, \*\*\* designates statistical significance at the 0.1, 0.05, 0.01, level respectively, two-tailed test.

**TABLE 3**  
**Coefficient Estimates from Three-Stage Least Square (3SLS) Regression for Equation 1**  
**Panel B: Dependent variable = ABS\_PACDA**

	<u>OLS Estimates</u>			<u>Total Sample : 3SLS Estimates</u>		<u>NoFamily Corporate Board Members: 3SLS Estimates</u>		<u>Family Corporate Board Members: 3SLS Estimates</u>	
	Predicted Sign	Coeff.	Two-tailed t-stat	Coeff.	Two-tailed t-stat	Coeff.	Two-tailed t-stat	Coeff.	Two-tailed t-stat
Intercept	+/-	0.1925	3.01***	-0.8553	-4.49***	-0.3828	-2.56**	-0.4416	-1.16
AC	-	0.0010	0.08	-0.3257	-8.55***	-0.3816	-5.83***	-0.0611	-0.61
BD_SIZE	+/-	0.0068	0.27	0.7062	6.74***	0.4665	6.40***	0.3724	1.85*
P_FAM	+	-0.0294	-1.06	-0.0002	-0.08				
P_NED	-	-0.0911	-2.66***	-0.1280	-2.00**	-0.2047	-2.36**	-0.0713	-1.38
CEO_HOLD	+	-0.0091	-0.28	0.1022	1.60	0.1015	1.06	0.0347	0.61
NED_HOLD	-	0.0127	0.19	-0.0920	-0.73	0.1103	0.45	-0.0401	-0.47
FOREIGN	+	-0.0068	-0.82	0.0235	1.50	0.0140	0.65	-0.0053	-0.39
F_SIZE	-	-0.0108	-1.85*	-0.0806	-6.06***	-0.0408	-2.96***	-0.0547	-2.68***
DE	+	0.1334	2.45**	0.3853	3.77***	0.3606	2.83***	0.2572	2.17**
MB	+	0.0002	0.63	-0.0004	-0.62	-0.0003	-0.45	0.0002	0.03
CHGNI	+	0.1015	5.14***	0.0001	0.03	0.0020	0.23	0.0968	2.08**
BIG5	-	0.0196	0.67	0.0604	1.10	0.0414	0.55	0.0420	0.93
INDUSTRY			Yes		Yes		Yes		Yes
N			523		523		253		270
Adj. R-SQ			0.230		0.121		0.095		0.053
P-value of F-stat			<0.001		<0.001		<0.001		<0.01

\*, \*\*, \*\*\* designates statistical significance at the 0.1, 0.05, 0.01, level respectively, two-tailed test.

ABS\_TDA = Absolute value of discretionary accruals from the cross-sectional modified Jones model, scaled by lagged total assets

ABS\_PACDA = Absolute value of performance-adjusted current discretionary accruals, scaled by lagged total assets

AC = Dummy variable: 1 for presence of audit committee; 0 otherwise

BD\_SIZE = Natural log of the total number of directors on the board

P\_FAM = Proportion of directors from the same family on the board of directors

P\_NED = Proportion of non-executive directors on the board of directors

CEO\_HOLD = Number of shares held by Chief Executive Officer divided by the total number of shares outstanding

NED\_HOLD = Number of shares held by all non-executive directors divided by the total number of shares outstanding

FOREIGN = Natural log of one plus the total number of subsidiaries incorporated outside Hong Kong

F\_SIZE = Natural log of the total assets in US dollars in million

DE = Ratio of long term debt to total assets

MB = Ratio of the firm's market value of common equity to book value of common equity at the beginning of fiscal year

CHGNI = Absolute value of change in net income before extraordinary items between years t-1 and t, scaled by lagged total assets

BIG5 = Dummy variable: 1 for big5 auditor; 0 for non-big5 auditor

**TABLE 4**  
**3SLS Regression for Equations 2 and 3**

Dependent variable = ABS\_PACDA

	<u>Equation 2: AC</u>				<u>Equation 3: BD_SIZE</u>					
	<u>OLS Estimates</u>		<u>Probit Estimates</u>		<u>3SLS Estimates</u>		<u>OLS Estimates</u>		<u>3SLS Estimates</u>	
	Coeff.	Two-tailed t-stat	Coeff.	Two-tailed Chi-sq stat	Coeff.	Two-tailed t-stat	Coeff.	Two-tailed t-stat	Coeff.	Two-tailed t-stat
Intercept	0.2400	0.97	-0.8569	1.38	-2.7975	-8.31***	1.8587	22.90***	1.3071	10.00***
ABS_PACDA	-	-	-	-	-	-	-	-	-	-
AC	0.0730	-0.44	-0.2895	0.35	-2.0786	-2.58***	-0.0040	-0.05	0.9183	2.53**
BD_SIZE	0.1900	1.99**	0.5851	4.30**	2.1733	21.25***	0.0417	1.99**	0.4511	20.46***
ROA	0.0773	-1.02	-0.2584	1.33	0.1970	2.38**	-0.0174	-0.49	-0.0860	-2.31**
P_NED	0.0643	-0.50	-0.1864	0.24	-0.3053	-1.42	0.0153	0.25	0.1358	1.42
CEO_HOLD	0.1026	-0.84	-0.3075	0.77	0.2946	1.57	-0.2542	-4.53***	-0.1397	-1.69*
NED_HOLD	0.1665	0.67	0.5361	0.42	-0.3199	-0.82	0.2116	1.82*	0.1480	0.86
FOREIGN	0.0259	0.84	0.0622	0.45	0.0730	1.54	-0.0301	-2.10**	-0.0337	-1.60
F_SIZE	0.0042	-0.18	0.0022	0.00	-0.2389	-7.36***	0.0926	9.51***	0.1090	7.95***
DE	0.4157	1.99**	1.3636	4.64**	0.9621	2.77***	-0.1142	-1.17	-0.4320	-2.81***
MB	0.0010	-0.73	-0.0036	0.97	-0.0015	-0.74	0.0006	1.00	0.0007	0.77
AIP	0.0127	-0.52	-0.0405	0.33	0.0087	0.57	-0.0260	-2.28**	-0.0047	-0.61
BIG5	0.0869	0.79	0.2159	0.49	0.1347	0.79	-0.0297	-0.58	-0.0618	-0.82
LOSS	0.0848	-1.70*	-0.2612	3.20*	0.0215	0.67	-0.0508	-2.17**	-0.0112	-0.69
INDUSTRY		Yes		Yes		Yes		Yes		Yes
N		523		523		523		523		523
Adj. R-SQ		0.071		0.0974		0.039		0.267		0.138
P-value of F-stat		<0.001		<0.001		<0.01		<0.001		<0.001

\*, \*\*, \*\*\* designates statistical significance at the 0.1, 0.05, 0.01, level respectively, two-tailed test.

- ABS\_PACDA = Absolute value of performance-adjusted current discretionary accruals, scaled by lagged total assets
- AC = Dummy variable: 1 for presence of audit committee; 0 otherwise
- BD\_SIZE = Natural log of the total number of directors on the board
- ROA = Ratio of net income before extraordinary items to total assets
- P\_NED = Proportion of non-executive directors on the board of directors
- CEO\_HOLD = Number of shares held by Chief Executive Officer divided by the total number of shares outstanding
- NED\_HOLD = Number of shares held by all non-executive directors divided by the total number of shares outstanding
- FOREIGN = Natural log of one plus the total number of subsidiaries incorporated outside Hong Kong
- F\_SIZE = Natural log of the total assets in US dollars in million
- DE = Ratio of long term debt to total assets
- MB = Ratio of the firm's market value of common equity to book value of common equity at the beginning of fiscal year
- AIP = Ratio of fixed assets to the sum of the market value of ordinary share capital and the book values of preference capital and debt
- BIG5 = Dummy variable: 1 for big5 auditor; 0 for non-big5 auditor
- LOSS = Dummy variable: 1 if the firms have negative net income in last year or the current year; 0 otherwise