

**Family Ownership, Auditor Choice and Audit fees: Evidence from Hong Kong**

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### **Abstract**

The audit risks of family firms are commonly perceived to be higher than non-family firms. However, the family firm may also appoint higher quality external auditor to reduce the information asymmetry, enhance credibility of the financial report, and increase firm value. Using unique unbalanced panel data of 2724 firm-year observations of firm listed in the main board of Hong Kong during the period 2001–2009, we find that family firms tend to more likely to choose Big N auditors, this is consistent with the signaling hypothesis. Surprisingly, contrasting the perceived higher audit risk, they incur lower audit fees. Our results also show the independent audit committee member with multiple directorships are not affected by their busyness. These results are robust to alternative definitions of family firms. Our results suggest that the choice of external auditors matters to audit risk for family firms.

**Key Words:** Agency Cost, Family Ownership; Family Control; Multiple Directorship; Auditor choice; Audit fee

## 1. Introduction

Recently, family firms in Hong Kong have received increasing attention include connected transactions and the firms' corporate governance issue. The prevalence of family controlled firms in Hong Kong and their potential incentive to "tunneling" (e.g. Cheung *et al.* 2006, Lei and Song, 2011) raise the question of how family firm influence various aspects of monitoring mechanisms such as external audit. Related party transactions regularly occur in family firms and internal control are vastly different from non-family firms. The audit risks of family firms are generally perceived higher as internal control are inferior. External audit are often considered as an inevitable one of the effective external corporate governance mechanisms to mitigate the agency problems and reduce the information asymmetry and enhance credibility of financial reporting. Do family firms in Hong Kong select higher quality auditor? Higher audit risks given the same profit level of firms imply more audit workload thus higher audit fee. Do family firms pay higher audit fee? This paper examines the effect of family ownership on the auditor selection as well as audit fee in Hong Kong.

According to agency theory, family owners pay more efforts to monitor managers than other types of large shareholders, suggesting that in compared to non-family firm, Type I agency problem may be less prevalent in family firms as less information asymmetry, conflict of interest inherent in manager-owner arrangements and internal monitoring improvement (Anderson *et al.*, 2003). However, Type II agency problem is perceived to be more severe in family firm as family owners may have both incentive and the ability to extract private benefits at the expense of minority shareholders which is harmful to firm value. Overall, theories concerning Type I and II agency problems predict that family firms have lower demand for high-quality auditors

On the contrary, Carey *et al.* (2000) investigate the demand for audit quality in family firms and find that the demand for voluntary audits increases when agency costs

increase. They argue that the incentives for family firms to extract private benefits as well as their propensity to influence the financial reporting process are high which raise agency costs (Anderson *et al.*, 2003). In this viewpoint family firms are more likely to appoint Big N auditors to ensure high quality audit to signal they are willing to adopt sound corporate governance practice. In summary, these two contradicting theories imply that the likelihood of family firms to appoint high quality auditor is still in question.

Similarly, for effect on the audit fees, the demand-side theory suggests that family firms have lower demand for quality audit due to their less severe Type I agency problems and more severe Type II agency problems, therefore accordingly incur lower audit fees. However, for the perspective of supply-side theory, in the viewpoint of auditor, since the incentives for family firms to extract private benefits as well as their propensity to influence the financial reporting process are high and thus are higher likely to raise agency costs. Consequently, increasing agency costs cause *higher* assessed audit risk in audit planning stage and accordingly make high audit efforts to mitigate the risk, resulting in *higher* audit fee. In contrast, family ownership can also be perceived to improve internal monitoring and diminish conflict of interest inherent in manager-owner arrangements and thus reduce assessed audit risk in audit planning stage and therefore subsequently resulted in *lower* audit fee. Therefore, whether family firms are more or less audit fee than those of non-family firms is also still debatable.

Hong Kong institutional settings present an interesting and suitable arena to test the related hypotheses. Unlike those in developed economies, Hong Kong is a mixture of the West and East. The legal environment of HK is strongest legal protections among all emerging markets, (see La Porta *et al.*, 2000) implying that financial reporting quality is also scrutinized. Also, the listing rules require disclosure of all material connected transactions. Besides, there is evidence of tunneling in HK (Cheung *et al.*, 2006, Lei and Song, 2011). Family firms are predominant in HK firms, across all sizes and industry,

more than 70 percent of Hong Kong's listed companies are controlled by either their founders or by members of founding families<sup>1</sup>. Overall, the corporate governance in HK is among the best in emerging markets, and thus, it is plausible that family firms signal higher financial reporting quality through auditor choice, yet the actual costs can even be lower.

Using unique unbalanced panel data of 2724 firm-year observations of firm listed in the main board of Hong Kong during the period 2001–2009, we find that family firms tend to more likely to choose Big N auditors, this is consistent with the signaling hypothesis where family controlled firms take steps to signal their sound corporate governance by choosing high quality auditors. And surprisingly, contrasting the perceived higher audit risk, they incur lower audit fees, we conjecture that the benefit effect of lower Type I agency problem in family firm outweighs the harm of increasing of the Type II agency problem. Our results also show the independent audit committee member with multiple directorships are not affected by their busyness. These results are still robust to alternative definitions of family firms. The corporate governance reform of HK in 2003 does not affect our results as we examine the subsample after 2004.

Our paper contributes to the existing literature in the following ways. First, response to the recent call for the study on family firms (Trotman & Trotman, 2010), we examine how family control influence the firm's decision in auditor choice and audit fee within the context of developing economies. As family firms have a distinctive ownership structure with a different type of agency problem, omitting family influence on the analyses of auditor choice and audit fee may create substantial bias. To the best of our knowledge there are few prior studies examined the family influence on audit choice using Hong Kong data, our study also fill this gap. Secondly, our study explores other determinants of auditor choice and audit fee that have not been studied before such as the characteristics

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<sup>1</sup> [http://www.director.co.uk/magazine/2011/3\\_march/john-elkington\\_64\\_07.html](http://www.director.co.uk/magazine/2011/3_march/john-elkington_64_07.html)

of audit committee, little attention has been paid to the relationship between multiple directorships and auditors in auditing literature, we also extend literature by investigate the effect of independent audit committee member with multiple directorship on auditor choice and audit fee using Hong Kong data. Finally, our findings will also shed light on the practice of family firms on audit monitoring which is expected to help the investors and public to know more on family firm corporate governance mechanisms to protect their interest.

The remainder of the paper is organized as follows: Section 2 reviews prior literature and develops our hypotheses. Section 3 discusses the sample and research design. Section 4 presents our empirical results, and we analyze their robustness in Section 5. Section 6 summarizes concluding remarks.

## **2. Literature review and hypothesis development**

### ***2.0 Studies on Family firms in Hong Kong***

The early studies in Hong Kong find that the family control have an adverse effect on corporate governance. Family members presented on corporate boards significantly is found to reduce the effectiveness of audit committees (Chau & Leung, 2006), the effectiveness of Board independence on financial disclosures (Chen & Jaggi, 2000) and is likely to perform earning management (Jaggi *et al.*, 2009) and is likely less the level of information disclosure (Chau & Gray, 2002). Using 346 firm-year observations and covering the periods of 2001-2003, Lam and Lee (2012) indicate family ownership have an adverse effect on the relationship between board committees, remuneration committee, and the performance of public companies in Hong Kong. In summary, these prior studies for Hong Kong implied that the family ownership generally have adverse effect on corporate governance in early year.

### ***2.1 Family firms and auditor choice***

#### **2.1.1 Type I agency problems and auditor choice**

Several prior research argues that Big N auditors provide better quality service than non-Big N auditors due to their scale, technical expertise, and reputation risk (Barton, 2005; DeAngelo, 1981). Therefore, it is argued that the tendency of a firm to appoint a Big N audit firm increases when the severity of its Type I agency problems increases and vice versa. With the view that families generally have strong incentives to monitor managers and minimize information asymmetry and therefore face less severe Type I problems compared to non-family firms (Ali *et al.*, 2007; Anderson *et al.*, 2003; Shleifer & Vishny, 1997; Wang, 2006). Consistent with this theory, the empirical studies also find that family firms are less likely to select Big N auditors probably due to lower Type I agency costs (e.g Anderson *et al.*, 2003; Shleifer & Vishny, 1997).

With the argument discussed above, in comparison to non-family firms, we expect that family firms may have lower demand for high-quality auditors who is generally

considered as a monitoring function in alleviating Type I agency problems between managers and investors.

### *2.1.2 Type II agency problems and auditor choice*

Conversely, due to concentration of ownership, firm families are subject to severe Type II agency conflicts between large and small shareholders. More specifically, the close control over the board creates unique entrenchment opportunity which allows controlling family owners to expropriate minority shareholders through self-beneficial activities such as related party transactions in easy way, without challenged by the board of directors (Claessens *et al.*, 2002). Then it is expected that they would be more willing to increase the financial reporting opacity and hence be *less* likely to hire a higher-quality auditor.

### *2.1.3 Signaling theory on auditor choice*

However, the perceived entrenchment problem as discussion above may come at a price to the family owners and their firms. Claessens *et al.* (2002) argue that external investors anticipate this potential problem and therefore discount the firm value and might ask for risk premium, leading it difficult and costly for equities or bonds financing. External audit are often argued as an effective external monitoring mechanism to mitigate the agency conflicts and to improve financial reporting opacity. Therefore it can enhance firms' financing market. Given the expectation of Type II agency problem in family firm, consequently, the family owners, especially from large family, are willing to invest for the long term success, may more likely to employ Big N auditors to signify their incentives to reduce agency problem by adopting sound corporate governance practice and also to signify their financial reporting credibility and reliability in exchange for lower cost of capital.



Consistent with this theory, Leung *et al.* (2012) document that Hong Kong family firms disclose more information than their non-family firms to reassure outside investors and creditors that they are not expropriating the firms. Fan and Wong (2005) document a positive relationship between the Big N auditor choice and the wedge of vote-cash flow rights in eight East Asia companies, suggesting Hong Kong family firms may signal their motivations to small investors through auditor choice. Therefore, the hypothesis is set as follows.

*H1a: Compared to non-family firms, family firms are more likely to appoint high quality auditors proxied by Big 5 firm*

## **2.2 Family control and Audit fee**

Prior studies have examined the relationship between firm characteristics and audit fees in term of both the demand-side and supply-side theories.

### *2.2.1 The demand-side theory perspective*

Family firms' demands on the audit quality are in twofold. The direct and close monitoring of firm activities by family owners as discussed earlier can lower information asymmetry between owners and managers, therefore reducing the demand for high-extensive and high-quality auditing services proxied by the audit fee. Moreover, the entrenchment problems within family firms may result in family owners' greater demand for opaqueness in financial reporting, which further reduces the demand for high-quality auditing services. In summary, the demand-side theory suggests that family firms have lower demand for external auditing.

### *2.2.2 The supply-side theory perspective*

Viewed from the supply-side theory, auditors are required to assess client-related risks and to perform procedures to mitigate audit risks to an acceptable level. The audit

fee paid is positively related to the audit work done to mitigate those audit risks. Prior have documented that the determinants of audit fees are associated with firms' size, risk, and complexity (Abbott *et al.*, 2003; Bedard & Johnstone, 2004; Bell *et al.*, 2001; Firth, 1997; S. W. M. Ho & Ng, 1996).

As argued above that family firms may either alleviate or aggravate agency problems. The close monitoring and the concern on the whole family reputation reduces the overall audit risk assessed by the auditors of material misstatements in financial reporting which may in turn arrange fewer audits works to mitigate their audit risks resulting in lower audit fees. Ali *et al.* (2007) and Wang (2006) document that family firms have better quality earnings in US. On the other hand, auditors may increase the assessed risk of fraudulent reporting due to potential expropriation incentives of family owners (Type II agency problems) (Shleifer & Vishny, 1997). Khalil *et al.* (2011) provide evidence that Family ownership may change an auditor's exposure to future litigation through the misappropriation of assets and/or the financial reporting quality.

Overall, due to the mixed effects of two types of agency problems on family firms' financial reporting process, the supply-side theory and demand-side theory provide alternative predictions on the assessed audit risk of family firms.

For the empirical result, J. L. Y. Ho and Kang (2010) found that US family firms tend to incur lower audit fees. Similarly, of particular relevance to our study, Gul *et al.* (1997) report a negative association between audit fees and family ownership in Hong Kong using 134 company-year observations from 1993-1994. Therefore, following this study, our hypothesis is:

*H1b: Compared to non-family firms, family firms incur lower audit fee*

### **2.3 Audit committee Multiple Directorships, Audit fee and Auditor choice**

Audit committee has relevance and important role to ensure the quality financial reporting (Hunton & Rose, 2008). Davison *et al.* (1984) find that the significant impact of

interlocking directorates on the choice of auditor are important and Carcello et al. (2002) find a significant positive relationship between the number of outside directorships as a measure of expertise and audit fees. Their study suggests that boards with greater expertise will employ higher quality auditors, accordingly they will improve the overall corporate governance mechanism. However, Sharma and Iselin (2012) suggest that independent audit committee members with multiple directorship may be stretched too thinly to effectively perform their monitoring. Similarly Boo and Sharma (2008) argue that when directors serve on multiple board will spend less time on their board/audit committee role in any one of firm they served and, consequently, they may demand additional assurances from external auditors and demand a more extensive audit to protect their reputation capital. They also find positive relationship between board/audit committee multiple directorships and audit fees. Similarly, Hunton and Rose (2008) document that directors holding multiple directorships are less likely to accept an auditor's restatement recommendation for the previous year than directors with a single directorship due to the adverse effect on their reputation capital. It suggests that directors holding multiple directorships demand for high audit quality. From a supply side perspective, as directors with multiple directorships devote less time to monitor management, audit risk would be perceived as higher by auditors, leading to an increase in the extent of audit work. Therefore, it is expected that there is a positive association between independent audit committee member with multiple directorships and audit fees and the likelihood of appointment of quality auditor proxied by Big 5 firm. Hence, we hypothesize that:

*H2a: Independent audit committee member with multiple directorships is more likely to appoint Big 5 Firms.*

*H2b: There is positive relationship between independent audit committee member with multiple directorship and audit fees.*

### 3. Methodology and Model

#### 3.1 Data and sample

The original samples are all firms traded on the Hong Kong main board during the period 2001–2009 for which financial and audit fee data are available on the *Datastream* International. The family control, family ownership and other corporate governance data are hand-collected from both annual reports and public announcements which are available on the HKEx website<sup>2</sup> and the directorship data is hand-collected from Webb-site<sup>3</sup>.

We also excluded the utilities and financial firms and the observation without audit committee information or did not set up audit committee in early year from the sample. Finally, we obtained 2724 firm-year observations for the period 2001–2009. The sample selection is summarized in Table 1.

<b>Table 1 Sample description</b>	2001-2009
Number of firm-year with relevant financial data available in datastream	3107
Less:	
Financial and utility firms	(127)
Observations without audit committee information or did not set up audit committee	(256)
Final firm-year observations	<u>2724</u>

Table 2 summarizes the industry distribution and family firm composition for the sample over the nine years spanning the period 2001-2009 across the different industry categories classified according to Hong Kong Standard Industrial Classification Version 1.1<sup>4</sup>. On average, 43.39% of the firms are classified as family firms.

<sup>2</sup> [http://www.hkexnews.hk/listedco/listconews/advancedsearch/search\\_active\\_main.asp](http://www.hkexnews.hk/listedco/listconews/advancedsearch/search_active_main.asp)

<sup>3</sup> Webb-site.com established by Mr. David M. Webb who the ex-independent director of Hong Kong Stock Exchange is to provides independent commentary and corporate database and economic governance, business, finance, investment and regulatory affairs in Hong Kong.

<sup>4</sup> Refer to [www.statistics.gov.hk/pub/B2XX00182008XXXXB0800.pdf](http://www.statistics.gov.hk/pub/B2XX00182008XXXXB0800.pdf) for details

**Table 2 Industry distribution and family firm composition for the sample**

Industry	Year									Non-family		Total	%	Proportion of family firm
	2001	2002	2003	2004	2005	2006	2007	2008	2009	Family	Family			
Aerospace & Defense	1	1	1	1	1	1	1	1	1	9	0	9	0.33%	0.00%
Alternative Energy	1	1	1	1	0	0	0	0	0	4	0	4	0.15%	0.00%
Automobiles & Parts	3	3	2	3	2	3	3	3	3	16	9	25	0.92%	36.00%
Beverages	3	2	2	4	4	4	5	5	6	24	11	35	1.28%	31.43%
Chemicals	3	3	4	3	5	7	5	7	10	39	8	47	1.73%	17.02%
Construction & Material	3	10	8	14	15	17	17	17	17	56	62	118	4.33%	52.54%
Electronic & Electric	6	10	13	22	23	24	24	25	26	94	79	173	6.35%	45.66%
Fixed Line Telecommunication	2	2	2	2	1	1	1	1	1	9	4	13	0.48%	30.77%
Food & Drug Retailers	0	0	0	0	0	0	1	1	1	0	3	3	0.11%	100.00%
Food Producers	4	6	6	6	8	8	8	9	9	30	34	64	2.35%	53.13%
Forestry & Paper	0	0	1	1	2	1	2	2	3	6	6	12	0.44%	50.00%
Gas, Water & Multi-utility Related	2	3	5	6	6	6	6	7	5	42	4	46	1.69%	8.70%
General Industrials	7	11	12	18	17	16	16	16	16	78	51	129	4.74%	39.53%
General Retailers	8	7	7	12	12	13	15	15	15	46	58	104	3.82%	55.77%
Health Care Equipment	0	1	2	4	4	4	4	4	3	19	7	26	0.95%	26.92%
Household Goods & Home Construction	6	9	11	13	14	14	14	14	15	61	49	110	4.04%	44.55%
Industrial Engineering	3	5	5	9	9	9	10	9	9	14	54	68	2.50%	79.41%
Industrial Metals & Minerals	4	7	7	8	7	8	8	9	9	52	15	67	2.46%	22.39%
Industrial Transportation	6	6	7	8	9	11	11	11	13	64	18	82	3.01%	21.95%
Leisure Goods	7	8	9	13	13	14	15	15	18	43	69	112	4.11%	61.61%
Media	4	7	8	11	12	13	17	18	19	61	48	109	4.00%	44.04%
Mining	2	2	2	4	5	7	8	7	8	38	7	45	1.65%	15.56%
Mobile Telecommunication	1	1	2	3	4	4	4	4	5	24	4	28	1.03%	14.29%
Oil & Gas Producers	2	2	2	2	2	2	2	3	3	20	0	20	0.73%	0.00%
Oil Equipment & Service	3	2	1	4	5	5	5	5	4	32	2	34	1.25%	5.88%
Personal Goods	8	15	17	24	27	32	35	37	37	97	135	232	8.52%	58.19%
Pharmaceuticals & Biotechnology	0	1	2	7	5	5	5	7	6	34	4	38	1.40%	10.53%
Real Estate Investment	26	35	39	52	52	58	65	66	70	221	242	463	17.00%	52.27%
Software & Computer S	3	5	4	10	7	8	9	9	9	57	7	64	2.35%	10.94%
Support Services	1	2	7	10	10	9	9	11	11	47	23	70	2.57%	32.86%
Technology Hardware & equipment	6	11	13	16	14	16	17	19	18	106	24	130	4.77%	18.46%
Travel & Leisure	14	18	23	29	28	30	33	34	35	99	145	244	8.96%	59.43%
<b>Total</b>	<b>139</b>	<b>196</b>	<b>225</b>	<b>320</b>	<b>323</b>	<b>350</b>	<b>375</b>	<b>391</b>	<b>405</b>	<b>1542</b>	<b>1182</b>	<b>2,724</b>	<b>100.00%</b>	<b>43.39%</b>

### **3.2 Measuring family ownership and control**

We use two different ways to measure the impact of family firms: (1) family control which is a dummy variable that equals one for family controlled firms and 0 otherwise and; (2) family ownership which is the percentage of shares held by the family as a group. The variable family control captures the impact of family control, while family ownership addresses the impact of different levels of share the family held. The definition of family control is to be discussion below.

There is no universal accepted measure or criterion for identifying a family control. We definite the firm is family-controlled when the family has significant influence on the company. Under international financial reporting standards (IFRS), if an investor holds at least 20 percent of the voting power of an investee, the investor is presumed to have significant influence. Consistent with this notion, a number of previous studies use a 20% cut off point to identify family firms (e.g La Porta *et al.*, 1999; Setia-Atmaja *et al.*, 2009; Villalonga & Amit, 2006). However, IFRS also stipulated that board of directors' representation is as alternative evidence of significant influence. We argued that it may be a good proxy to measure the substantive control of family over the board. Therefore, consistent with Jaggi *et al.* (2009) , we define the firms as family controlled when two or more members of the controlling family are appointed as directors which implied the corresponding family has significant influence over the board decision in substance.

### 3.3 Model and variable measurement

We use the following Panel Data Probit Model to examine the relationship between family firm and the choice of auditor. Audit quality is very difficult to observation, this study uses the size or reputation of the audit firm to proxy for audit quality following DeAngelo (1981). It is perceived that Big N auditors have these two characteristics, and therefore we use Big N auditors as proxy for high quality auditors.

$$\begin{aligned} \text{BIGN} = & \alpha_0 + \alpha_1 \text{FAM} + \alpha_2 \text{PINED} + \alpha_3 \text{CEODUALITY} + \alpha_4 \text{LOGBDSIZE} + & (1) \\ & \alpha_5 \text{LOGACSIZE} + \alpha_6 \text{PINAC} + \alpha_7 \text{PACAFE} + \alpha_8 \text{ACMD} + \alpha_9 \text{LOGASSET} + \\ & \alpha_{10} \text{NSUB} + \alpha_{11} \text{REV} + \alpha_{12} \text{DERATIO} + \alpha_{13} \text{LOSS} + \alpha_{15} \text{NEGCFO} + \\ & \alpha_{16} \text{LAGQDOPIN} + \alpha_{17} \text{ADR} + \varepsilon \end{aligned}$$

We use the following Panel Data Regression Model to examine the relationship between family control and the audit fee.

$$\begin{aligned} \text{LNAFEE} = & \beta_0 + \beta_1 \text{FAM} + \beta_2 \text{INED} + \beta_3 \text{CEODUALITY} + \beta_4 \text{LOGBDSIZE} + & (2) \\ & \beta_5 \text{LOGACSIZE} + \beta_6 \text{PINAC} + \beta_7 \text{PACAFE} + \beta_8 \text{ACMD} + \beta_9 \text{LOGASSET} + \\ & \beta_{10} \text{LOGREC} + \beta_{11} \text{REV} + \beta_{12} \text{DERATIO} + \beta_{13} \text{ROA} + \beta_{14} \text{ADR} + \beta_{15} \text{NSUB} + \\ & \beta_{16} \text{BIGN} + \beta_{17} \text{LAGQDOPIN} + \beta_{18} \text{DELAY} + \beta_{19} \text{MONTH} + \varepsilon \end{aligned}$$

Where

FAM	=	(1) Family control: Dichotomous variable equaling 1 if the firm is classified as a family firm, and 0 otherwise; or (2) Family ownership: The percentage of shares held by the family as a group
LNAFEE	=	Natural logarithm of Audit Fee;
PINED	=	Proportion of independent directors on the board;
CEODUALITY	=	Dichotomous variable equaling 1 if the CEO is also chairman of the board, and 0 otherwise;
LOGBDSIZE	=	Natural logarithm of Board Size;
LOGACSIZE	=	Natural logarithm of Audit committee Size;
PINAC	=	Proportion of independent directors on the Audit committee;
PACAFE	=	Proportion of independent directors on the Audit committee are accounting and finance expert;
ACMD	=	Average Directorship of independent directors on the Audit committee;
LOGASSET	=	Natural logarithm log of total asset;
LOGREC	=	Natural logarithm of receivable scaled by total assets t-1;
REV	=	Revenue scaled by total asset t-1;
DERATIO	=	Debt to Equity Ratio;
ROA	=	Return on Asset;

NSUB	=	Number of subsidiary for the firm;
BIG5	=	Dichotomous variable equaling 1 if the auditor is a big 5 auditor and zero otherwise;
LAGQDOPIN	=	Dichotomous variable equaling 1 if qualified or disclaimer audit opinion in the previous year;
DELAY	=	Dichotomous variable equaling 1 if delay in releasing annual report;
MONTH	=	Dichotomous variable equaling 1 if the financial year end in Dec, Jan, Feb & Mar (peak season), and 0 otherwise;
REV	=	Turnover Ratio, measured as sales scaled by total assets t-1;
LOSS	=	Dichotomous variable equaling 1 if the net income for the year t is negative, and 0 otherwise;
NEGCFO	=	Dichotomous variable equaling 1 if Cash Flow from operation is negative, and 0 otherwise;
ADR	=	Dichotomous variable equaling 1 if the firm has ADR trading in US

### ***Explanatory variables***

As discussion above, to test the hypotheses of the study, we include two measures for family firm: (1) a dummy variable FAMCTRL, which equals one if the firm is classified as a family firm and (2) FAMOWN which is the percentage of shares held by the family as a group in both regression models

In order to support H1a where *family firms are more likely to appoint high quality auditors proxied by Big 5 firm*, we expect the sign of the coefficient on FAMCTRL and FAMOWN are positive in the auditor choice regression. H1b predict that family firms incur lower audit fee. Therefore, we expect the negative coefficient on FAMCTRL and FAMOWN in the auditor fee regression model. H2a & H2b make prediction the firm with higher multiple directorships for independent audit committee member (ACMD) are more likely use big4 incur higher audit fee, therefore we expect positive coefficients in both auditor and audit fee model.



### ***Control variables***

Consistent with prior studies, we expect that client firm size, complexity, and risk will influence auditor choices and audit fees (e.g Carcello *et al.*, 2002; Gul *et al.*, 2003; S. W. M. Ho & Ng, 1996; Lin and Liu, 2009). We proxy firm size by the natural logarithm of total assets (LOGASSET), control for firm complexity by natural logarithm of receivable (LOGREC), the number of subsidiaries (NSUB) and control for profitability by revenue (REV). We also control for firm risk by return on assets (ROA), Debt to Equity Ratio (DERATIO), loss (LOSS) and negative cash flow from operation (NEGCFO). Other control variables that capture firms' board characteristics include board independence (PINED), CEO duality (CEODUALITY), audit committee characteristics include the size of audit committee (ACSIZE), audit committee independence (PINAC), percentage of independent Audit committee members have accounting and financial expertise (PACAFE). ADR trading in US (ADR), Peak season (MONTH), qualified or disclaimer audit opinion in the previous year (LAGQDOPIN), delay in releasing annual report (DELAY) are also included in the regressions.

## **4. Empirical results**

### **4.1 Summary statistics**

Table 3 provides descriptive statistics of the variables for the full sample (Panel A) and subsamples of family and non-family firms (Panel B). As seen in Panel A, in the full sample 78.3 percent of the firms choose Big 5 auditors with an average audit fee of \$ 4.07 million. The average size of the audit committee is 3.09. On average 93.2% of the audit committee members are independent non-executive directors. Of the audit committee members, 40% have accounting or financial expertise. Panel B of Table 3 presents difference of means tests for variables between family and non-family firms. Family firms represent around 43% of the sample. On average, family firms pay lower audit fee

than non-family firms ( $p < 0.001$ ). 79.8% of family firms and 77.2% of non-family firms choose Big 5 auditors, this difference is marginally significant ( $p = 0.1104$ ). Family firms are generally more likely to have CEO duality, have lower board size, audit committee size and lower audit committee independence, lower higher qualified and disclaimer opinion in the previous year, the differences is statistically significant. Family firms appear to be higher multiple directorship level on audit committee than non-family firms. However, this difference is statistically insignificant.

### Table 3 Descriptive statistics

Summary statistics of firm control, multiple directorship and other firm characteristics variables. Panel A provides descriptive statistics for full sample and Panel B provides the Difference Of means Tests between family firms and non-family firm. LNAFEE, LOGACSIZE, PINAC, PACAFE, LOGASSET, LOGREC, REV, DERATIO, ROA, NSUB are winsorized at the 1th and 99th percentiles.

#### Panel A: Descriptive statistics for the full sample (N=2724)

Variable	N	Mean	Std. Dev	Min	Median	Max
BIG5	2,724	0.783	0.412	0.000	1.000	1.000
LNAFEE	2,724	7.460	1.020	4.580	7.390	10.500
AUDITFEE('000)	2,724	4,067.000	15,134.000	24.000	1615.000	300,000.000
FAMCTRL	2,724	0.434	0.496	0.000	0.000	1.000
FAMOWN	2,724	0.204	0.260	0.000	0.000	0.900
PINED	2,724	0.364	0.115	0.077	0.333	1.000
CEODUALITY	2,724	0.406	0.491	0.000	0.000	1.000
LOGBDSIZE	2,724	2.160	0.312	1.390	2.200	2.940
NUMOFACMEM	2,724	3.090	0.693	1.000	3.000	7.000
LOGACSIZE	2,724	1.100	0.218	0.690	1.100	1.610
PINAC	2,724	0.932	0.132	0.140	1.000	1.000
PACAFE	2,724	0.400	0.245	0.000	0.330	1.000
ACMD	2,724	3.290	1.830	0.000	3.000	12.000
LOGASSET	2,724	14.500	1.840	9.190	14.400	20.400
NSUB	2,724	26.800	27.600	1.000	18.000	147.000
ROA	2,724	0.009	0.214	-1.720	0.042	0.457
ADR	2,724	0.113	0.316	0.000	0.000	1.000
LOGREC	2,724	-2.360	1.320	-6.830	-2.130	0.088
REV	2,724	0.858	0.940	0.005	0.584	5.570
DERATIO	2,724	0.197	0.181	0.000	0.160	0.949
LOSS	2,724	0.276	0.447	0.000	0.000	1.000
NEGCFO	2,724	0.294	0.456	0.000	0.000	1.000
LAGQGOPIN	2,724	0.042	0.199	0.000	0.000	1.000
DELAY	2,724	0.012	0.108	0.000	0.000	1.000
MONTH	2,724	0.883	0.322	0.000	1.000	1.000

**Table 3 Descriptive statistics (Continued)***Panel B:* Difference of Means tests (Non-Family firm: FAMCTRL=0 and Family firm: FAMCTRL=1)

	Non-Family (N=1,542)		Family (N=1,182)		Differences in Means	p-value
	Mean1	Std. Dev.	Mean2	Std. Dev.		
BIG5	0.772	0.419	0.798	0.402	0.026	0.1104
LNAFEE	7.524	1.026	7.379	0.999	-0.145	0.0002
AUDITFEE('000)	3,900	10,000	4,300	20,000	400.000	0.5561
FAMCTRL	-	-	1.000	0.000	-	-
FAMOWN	-	-	0.468	0.173	-	-
PINED	0.368	0.119	0.360	0.110	-0.008	0.1062
CEODUALITY	0.382	0.486	0.438	0.496	0.056	0.0030
LOGBDSIZE	2.169	0.312	2.147	0.312	-0.022	0.0666
LOGACSIZE	1.113	0.207	1.095	0.231	-0.018	0.0344
PINAC	0.946	0.119	0.914	0.145	-0.032	0.0000
PACAFE	0.418	0.245	0.377	0.242	-0.041	0.0000
ACMD	3.246	1.810	3.347	1.861	0.101	0.1527
LOGASSET	14.550	1.933	14.475	1.712	-0.075	0.2948
NSUB	22.503	23.288	32.316	31.567	9.813	0.0000
ROA	-0.010	0.249	0.033	0.155	0.043	0.0000
ADR	0.109	0.312	0.118	0.322	0.009	0.4795
LOGREC	-2.279	1.287	-2.461	1.349	-0.182	0.0003
REV	0.885	0.996	0.822	0.860	-0.063	0.0831
DERATIO	0.205	0.190	0.186	0.167	-0.019	0.0092
LOSS	0.317	0.466	0.222	0.416	-0.095	0.0000
NEGCF0	0.319	0.466	0.262	0.440	-0.057	0.0013
LAGQGOPIN	0.058	0.235	0.020	0.138	-0.038	0.0000
DELAY	0.018	0.131	0.004	0.065	-0.014	0.0014
MONTH	0.900	0.301	0.860	0.347	-0.040	0.0017

Table 4 reports the Pearson correlation matrix of the main variables. Selection of Big5 auditor (BIG5) is and positively correlated with both FAMCTRL and FAMOWN, the measures of family firms, but only statistically significant for FAMOWN. Audit fees (LNAFEE) is significantly and negatively correlated with both FAMCTRL and FAMOWN. Multiple directorship level of independent audit committee member (ACMD) is significantly and positively correlated with both auditor choice and audit fee. All are consistent with our hypotheses. In general, the correlations between independent variables are small. Overall suggests low multicollinearity problem.

**Table 4 Pearson correlations among variables**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	
(1) <i>BIG5</i>	1.000																								
(2) <i>LNAFEE</i>	0.387***	1.000																							
(3) <i>AUDITFEE</i>	0.106***	0.465***	1.000																						
(4) <i>FAMCTRL</i>	0.023	-0.075***	0.003	1.000																					
(5) <i>FAMOWN</i>	0.056***	-0.060***	0.008	0.899***	1.000																				
(6) <i>PINED</i>	-0.174***	-0.168***	-0.013	-0.023	-0.003	1.000																			
(7) <i>CEODUALITY</i>	-0.059***	-0.061***	-0.005	0.057***	0.082***	0.046**	1.000																		
(8) <i>LOGBDSIZE</i>	0.217***	0.483***	0.229***	-0.039**	-0.053***	-0.641***	-0.187***	1.000																	
(9) <i>LOGACSIZE</i>	0.022	0.267***	0.085***	-0.044**	-0.031*	0.152***	-0.171***	0.243***	1.000																
(10) <i>PINAC</i>	-0.115***	-0.129***	-0.101***	-0.110***	-0.108***	0.154***	0.072***	-0.235***	-0.394***	1.000															
(11) <i>PACAFE</i>	-0.047**	-0.076***	-0.033*	-0.079***	-0.092***	0.065***	-0.067***	-0.079***	-0.090***	0.217***	1.000														
(12) <i>ACMD</i>	0.194***	0.135***	0.040**	0.027	0.039**	-0.230***	-0.026	0.194***	-0.012	-0.118***	-0.029	1.000													
(13) <i>LOGASSET</i>	0.337***	0.800***	0.414***	-0.025	-0.001	-0.216***	-0.066***	0.537***	0.266***	-0.183***	-0.124***	0.200***	1.000												
(14) <i>NSUB</i>	0.177***	0.472***	0.240***	0.171***	0.176***	-0.130***	-0.038*	0.260***	0.078***	-0.138***	-0.083***	0.143***	0.517***	1.000											
(15) <i>ROA</i>	0.184***	0.233***	0.070***	0.095***	0.106***	-0.045**	-0.010	0.134***	0.105***	-0.065***	-0.025	0.074***	0.339***	0.102***	1.000										
(16) <i>ADR</i>	0.113***	0.381***	0.308***	0.016	-0.008	-0.111***	0.047**	0.283***	0.028	-0.095***	-0.077***	0.041**	0.391***	0.238***	0.083***	1.000									
(17) <i>LOGREC</i>	-0.028	0.015	-0.045**	-0.063***	-0.091***	0.049***	0.033*	-0.111***	-0.062***	0.121***	0.048***	-0.121***	-0.193***	-0.027	0.066***	-0.038**	1.000								
(18) <i>REV</i>	0.012	0.006	-0.028	-0.028	-0.057***	0.065***	0.055***	-0.126***	-0.018	0.090***	0.064***	-0.113***	-0.172***	-0.105***	0.110***	-0.056***	0.517***	1.000							
(19) <i>DERATIO</i>	-0.017	0.129***	0.072***	-0.058***	-0.051***	-0.031	-0.005	0.033*	-0.035*	-0.011	-0.047**	0.023	0.119***	0.111***	-0.141***	0.053***	0.018	-0.036*	1.000						
(20) <i>LOSS</i>	-0.220***	-0.271***	-0.096***	-0.101***	-0.112***	0.126***	0.029	-0.230***	-0.136***	0.129***	0.043**	-0.112***	-0.388***	-0.167***	-0.567***	-0.127***	-0.020	-0.092***	0.129***	1.000					
(21) <i>NEGCF0</i>	-0.185***	-0.231***	-0.086***	-0.061***	-0.069***	0.061***	0.018	-0.138***	-0.083***	0.093***	0.022	-0.061***	-0.263***	-0.070***	-0.314***	-0.109***	0.047**	-0.052***	0.174***	0.364***	1.000				
(22) <i>LAGQGOPIN</i>	-0.233***	-0.139***	-0.041**	-0.095***	-0.093***	0.025	0.021	-0.079***	-0.077***	0.068***	0.040**	-0.058***	-0.212***	-0.090***	-0.135***	-0.065***	0.059***	-0.001	0.138***	0.184***	0.154***	1.000			
(23) <i>DELAY</i>	-0.096***	0.015	-0.001	-0.061***	-0.063***	0.022	0.018	0.007	-0.027	0.057***	-0.038**	-0.060***	-0.011	-0.017	-0.059***	0.001	0.032*	-0.008	0.040**	0.067***	0.010	0.111***	1.000		
(24) <i>MONTH</i>	0.038**	0.018	0.016	-0.069***	-0.095***	-0.051***	-0.058***	0.008	-0.036**	0.066***	0.088***	-0.006	-0.036*	-0.128***	-0.013	-0.048***	-0.042**	0.025	-0.003	0.017	-0.016	-0.003	-0.042**	1.000	

## 4.2 Empirical results for auditor choice on family ownership

Table 5 Panel A presents the regression results to test H1a, H2a. As discussed earlier, the dummy variable FAMCTRL and FAMOWN is used to capture the impact of family firms' characteristics on auditor choice. We find a significant and positive coefficient on both FAMCTRL (0.624,  $p = 0.009$ ) and FAMOWN (1.499,  $p = 0.001$ ), indicating that compared to non-family firms, family firms are more likely to hire Big 5 auditors which is consistent with the signaling theory that due to perceive Type II agency problems embedded in the family firms, listed family firms in Hong Kong demand high quality auditor than non-family firm to reassure outside investors and debtor that they are not expropriating the firm, but adopting good corporate governance practice and performing credible financial reporting. We also find that a significant and positive coefficient on ACMD (0.218,  $p = 0.000$ ) in both family firm measures), which support the hypothesis H2a that that firms with higher Audit committee multiple directorship level are more likely to use Big 5 auditor. Consistent with prior studies and my expectation, the selection of Big-5 auditors, positively associated with client firm size, revenue level and negatively associated with the presence of qualified or disclaimer opinion in last year.

**Table 5 Panel Data Probit Model for Auditor Choice**

	<i>Expected</i>	(1)		(2)	
	<i>Sign</i>	<i>Coeff.</i>	<i>p-value</i>	<i>Coeff.</i>	<i>p-value</i>
<b>FAMCTRL</b>	+	0.624 <sup>***</sup>	(0.009)		
<b>FAMOWN</b>	+			1.499 <sup>****</sup>	(0.001)
PINED	+/-	-5.676 <sup>****</sup>	(0.000)	-5.633 <sup>****</sup>	(0.000)
CEODUALITY	+/-	0.278	(0.142)	0.262	(0.166)
LOGBDSIZE	+/-	-0.626	(0.160)	-0.630	(0.158)
LOGACSIZE	+/-	-2.548 <sup>****</sup>	(0.000)	-2.480 <sup>****</sup>	(0.000)
PINAC	+/-	-1.809 <sup>**</sup>	(0.035)	-1.780 <sup>**</sup>	(0.038)
PACFE	+/-	-0.800 <sup>**</sup>	(0.043)	-0.782 <sup>**</sup>	(0.048)
<b>ACMD</b>	+	0.218 <sup>****</sup>	(0.000)	0.218 <sup>****</sup>	(0.000)
LOGASSET	+	0.370 <sup>****</sup>	(0.000)	0.386 <sup>****</sup>	(0.000)
NSUB	+	0.001	(0.825)	0.001	(0.829)
REV	+	0.401 <sup>****</sup>	(0.000)	0.402 <sup>****</sup>	(0.000)
ADR	+	-0.390	(0.299)	-0.377	(0.314)
DERATIO	+/-	-0.014	(0.975)	-0.071	(0.875)
LOSS	+	-0.205	(0.197)	-0.199	(0.210)
NEGCFO	+	-0.192	(0.212)	-0.196	(0.201)
LAQQDOPIN	-	-1.683 <sup>****</sup>	(0.000)	-1.697 <sup>****</sup>	(0.000)
Intercept		5.644 <sup>***</sup>	(0.001)	5.183 <sup>***</sup>	(0.003)
<i>N</i>		2,724		2,724	
<i>F</i>		155.02	(0.000)	157.96	(0.000)

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

Results for some control variables are not consistent with prior studies (Abbott *et al.*, 2003). In particular, we find significantly negative coefficient on board independence (PINED, both  $p = 0.000$ ), audit committee size (LOGACSIZE, both  $p = 0.000$ ), audit committee independence (PINAC,  $p = 0.035$  &  $0.038$  respectively) and financial and accounting expertise on audit committee (ACMD, both  $p = 0.000$ ), which means that demand for high-quality auditor is lower when independent Board and independent audit committee, higher audit committee size and more independent audit committee member with auditing and finance expertise presented. It supports the substitution theory on sound corporate governance that demand for high-quality auditor is lower when independent board, independent audit committee, higher audit committee size, and

independent audit committee member with auditing and finance expertise presented, implying they may be an effective monitoring mechanism to improve financial reporting quality therefore substitute the demand of high quality auditor.

### **4.3 Regression results for audit fees on family ownership**

Table 6 is the regression results to test H1*b*, H2*b*. We find a significant and negative coefficient on both family firm measures namely FAMCTRL (-0.081,  $p = 0.008$ ) and FAMOWN (-0.134,  $p = 0.021$ ), which supported the hypothesis H1*b* that compared to non-family firms, family firms incur higher audit fee. We find a significant and negative coefficient on ACMD (both are -0.014,  $p = 0.030$ ) indicating that independent audit committee member with multiple directorship incur low audit fee which is the opposite direction as H2*b* predict. We conjecture that this is because multiple directorships imply better quality directors, and busyness of these directors is less prevalent in Hong Kong. (see Lei and Deng, 2013) It implies that the multiple directorship signal the expertise and competent monitor over financial report therefore lower the audit risk which in term lower the audit fee.

Our results for control variables are generally consistent with prior research. Consistent with expectation, audit fees are higher for firms with greater size (LOGASSET) and complexity (LOGREC, NSUB) as indicated by their specific significant and positive coefficients. I find Big-N audit firms charge a premium for their quality. ROA is negative associated with audit fee, commensurate with lower audit risk. As indicated by the positive coefficient, the firms with (LAQQDOPIN) and delay in releasing annual report (DELAY) incur higher audit fees, commensurate with higher audit risk and this higher audit workload. For corporate governance variable, firms that have CEO duality (CEODUALITY) incur lower audit free, it implies that when the functions of CEO and board chair are not separated, the board chair may not be willing to demand a higher quality audit thus incur lower audit fee. Interestingly, we find that

LOGBDSIZE, LOGACSIZE and PACAFE are positively associated with auditor fee which are inconsistent with the results from audit choice model. It implies although they did not select Big-N auditor, they also invite more extensive audit work from their auditor. In Table 6 Panel B, we test whether the audit pricing pattern changes between the firms appointing Big 5 and non-Big 5 firms. Similarly, we also observe a significant and negative relation between family ownership and audit fees for both Big N sample and non-Big N sample.

**Table 6 Fixed Effect Panel Data Regression Model for Audit Fee**

<b>Panel A: Full sample</b>					
	<i>Expected Sign</i>	(1) <i>Coeff.</i>	<i>p-value</i>	(2) <i>Coeff.</i>	<i>p-value</i>
<b>FAMCRTL</b>	-	-0.081 <sup>***</sup>	(0.008)		
<b>FAMOWN</b>	-			-0.134 <sup>**</sup>	(0.021)
PINED	+/-	0.300 <sup>**</sup>	(0.015)	0.314 <sup>**</sup>	(0.011)
CEODUALITY	+/-	-0.060 <sup>***</sup>	(0.004)	-0.059 <sup>***</sup>	(0.006)
LOGBDSIZE	+/-	0.160 <sup>***</sup>	(0.005)	0.160 <sup>***</sup>	(0.005)
LOGACSIZE	+/-	0.195 <sup>****</sup>	(0.000)	0.193 <sup>****</sup>	(0.000)
PINAC	+/-	-0.016	(0.884)	-0.013	(0.909)
PACAFE	+/-	0.096 <sup>**</sup>	(0.050)	0.097 <sup>**</sup>	(0.047)
<b>ACMD</b>	+	-0.014 <sup>**</sup>	(0.030)	-0.014 <sup>**</sup>	(0.030)
LOGASSET	+	0.367 <sup>****</sup>	(0.000)	0.366 <sup>****</sup>	(0.000)
LOGREC	+	0.026 <sup>***</sup>	(0.005)	0.026 <sup>***</sup>	(0.005)
REV	+/-	-0.010	(0.450)	-0.011	(0.424)
DERATIO	+/-	-0.038	(0.498)	-0.039	(0.492)
ROA	+	-0.198 <sup>****</sup>	(0.000)	-0.198 <sup>****</sup>	(0.000)
ADR	+	-0.071	(0.141)	-0.071	(0.143)
NSUB	+	0.008 <sup>****</sup>	(0.000)	0.008 <sup>****</sup>	(0.000)
BIG5	+	0.246 <sup>****</sup>	(0.000)	0.246 <sup>****</sup>	(0.000)
LAQQDOPIN	+	0.111 <sup>**</sup>	(0.012)	0.112 <sup>**</sup>	(0.011)
DELAY	+	0.277 <sup>****</sup>	(0.000)	0.279 <sup>****</sup>	(0.000)
MONTH	+	-0.122	(0.137)	-0.129	(0.117)
Intercept		1.338 <sup>****</sup>	(0.000)	1.334 <sup>****</sup>	(0.000)
<i>N</i>		2,724		2,724	
<i>R</i> <sup>2</sup>		0.432		0.432	
adj. <i>R</i> <sup>2</sup>		0.306		0.306	
F		89.336	(0.000)	89.189	(0.000)

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$



**Table 6 Fixed Effect Panel Data Regression Model for Audit Fee (Continued)****Panel B: Sub-sample of the firms using Big 5 or Non-Big 5 Auditors**

	<i>Expected Sign</i>	Big5		Non-Big5	
		(1)	(2)	(1)	(2)
<b>FAMCRTL</b>	-	-0.096*** (0.005)		-0.229*** (0.008)	
<b>FAMOWN</b>	-		-0.155** (0.014)		-0.361* (0.052)
PINED	+/-	0.219 (0.113)	0.235* (0.088)	0.430 (0.183)	0.514 (0.109)
CEODUALITY	+/-	-0.070*** (0.003)	-0.067*** (0.004)	-0.063 (0.239)	-0.072 (0.183)
LOGBDSIZE	+/-	0.129* (0.051)	0.125* (0.058)	0.189 (0.182)	0.200 (0.159)
LOGACSIZE	+/-	0.185**** (0.001)	0.184**** (0.001)	-0.116 (0.418)	-0.124 (0.387)
PINAC	+/-	0.014 (0.909)	0.016 (0.892)	-0.159 (0.671)	-0.154 (0.683)
PACAFE	+/-	0.085 (0.131)	0.088 (0.115)	0.249** (0.040)	0.262** (0.031)
<b>ACMD</b>	+	-0.013* (0.076)	-0.013* (0.074)	-0.011 (0.581)	-0.009 (0.659)
LOGASSET	+	0.438**** (0.000)	0.437**** (0.000)	0.257*** (0.000)	0.258**** (0.000)
LOGREC	+	0.033*** (0.005)	0.033*** (0.005)	-0.006 (0.758)	-0.007 (0.717)
REV	+/-	-0.055*** (0.002)	-0.056*** (0.002)	0.035 (0.134)	0.034 (0.152)
DERATIO	+/-	-0.138* (0.089)	-0.139* (0.086)	0.079 (0.406)	0.074 (0.433)
ROA	+	-0.257**** (0.000)	-0.256**** (0.000)	-0.061 (0.304)	-0.066 (0.268)
ADR	+	-0.055 (0.285)	-0.055 (0.286)	-0.097 (0.498)	-0.096 (0.508)
NSUB	+	0.007**** (0.000)	0.007**** (0.000)	0.005 (0.156)	0.005 (0.116)
LAQQDOPIN	+	0.140* (0.058)	0.141* (0.056)	0.010 (0.878)	0.013 (0.835)
DELAY	+	0.183 (0.155)	0.185 (0.151)	0.261*** (0.010)	0.274*** (0.007)
MONTH	+	-0.123 (0.161)	-0.121 (0.165)	0.245 (0.493)	0.052 (0.888)
Intercept		0.724** (0.011)	0.726** (0.011)	2.697**** (0.000)	2.756**** (0.000)
<i>N</i>		2,134	2,134	590	590
<i>R</i> <sup>2</sup>		0.480	0.480	0.292	0.286
adj. <i>R</i> <sup>2</sup>		0.354	0.354	-0.010	-0.018
F		88.136	87.949	9.455	9.192

*p*-values in parentheses\* *p* < 0.10, \*\* *p* < 0.05, \*\*\* *p* < 0.01, \*\*\*\* *p* < 0.001

## 4.4 Robustness

### 4.4.1 Robustness tests with sub-sample 2004-2009

In 2003, there is a major corporate governance reform undertaken in Hong Kong. This may structurally change the auditor choices and audit fees of firms. The improved corporate governance may lower the incentive to signal good CG and financial report. Therefore, we investigate the effect with the sample from 2004-2009. Table 7 and 8 display the results, and are similar to those for the above results.

**Table 7 Panel Data Probit Model for Auditor Choice (y: 2004-2009)**

	<i>Expected</i>	(1)		(2)	
	<i>Sign</i>	<i>Coeff.</i>	<i>p-value</i>	<i>Coeff.</i>	<i>p-value</i>
<b>FAMCTRL</b>	+	0.606**	(0.018)		
<b>FAMOWN</b>	+			1.514***	(0.002)
PINED	+/-	-6.751****	(0.000)	-6.582****	(0.000)
CEODUALITY	+/-	0.113	(0.599)	0.103	(0.632)
LOGBDSIZE	+/-	-1.428***	(0.006)	-1.376***	(0.009)
LOGACSIZE	+/-	0.460	(0.448)	0.508	(0.404)
PINAC	+/-	-1.736*	(0.087)	-1.625	(0.110)
PACFE	+/-	-0.132	(0.779)	-0.159	(0.735)
<b>ACMD</b>	+	0.153**	(0.029)	0.148**	(0.034)
LOGASSET	+	0.391****	(0.000)	0.399****	(0.000)
NSUB	+	0.001	(0.843)	0.001	(0.900)
REV	+	0.459****	(0.000)	0.459****	(0.000)
ADR	+	-0.296	(0.483)	-0.294	(0.489)
DERATIO	+/-	-0.169	(0.736)	-0.187	(0.710)
LOSS	+	-0.160	(0.377)	-0.156	(0.390)
NEGCFD	+	-0.224	(0.193)	-0.222	(0.197)
LAQQDOPIN	-	-1.612****	(0.001)	-1.648****	(0.001)
Intercept		3.369*	(0.099)	2.905	(0.156)
<i>N</i>		2,164		2,164	

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

**Table 8 Panel Data Fixed Effect Regression Model for Audit Fee (y: 2004-2009)**

	<i>Expected</i>	(1)		(2)	
	<i>Sign</i>	<i>Coeff.</i>	<i>p-value</i>	<i>Coeff.</i>	<i>p-value</i>
<b>FAMCRTL</b>	-	-0.075**	(0.049)		
<b>FAMOWN</b>	-			-0.121*	(0.091)
PINED	+/-	0.507****	(0.000)	0.516****	(0.000)
CEODUALITY	+/-	-0.083***	(0.002)	-0.083***	(0.002)
LOGBDSIZE	+/-	0.201***	(0.002)	0.199***	(0.002)
LOGACSIZE	+/-	0.133**	(0.049)	0.131*	(0.053)
PINAC	+/-	-0.053	(0.727)	-0.051	(0.734)
PACAFE	+/-	0.163**	(0.013)	0.166**	(0.011)
<b>ACMD</b>	+	-0.024***	(0.006)	-0.024***	(0.005)
LOGASSET	+	0.351****	(0.000)	0.350****	(0.000)
AR	+	0.003	(0.754)	0.003	(0.758)
REV	+/-	-0.019	(0.178)	-0.020	(0.162)
DERATION	+/-	-0.087	(0.163)	-0.088	(0.155)
ROA	+	-0.198****	(0.000)	-0.199****	(0.000)
ADR	+	-0.058	(0.295)	-0.057	(0.303)
NSUB	+	0.006****	(0.000)	0.006****	(0.000)
BIG5	+	0.251****	(0.000)	0.251****	(0.000)
LAQQDOPIN	+	0.103**	(0.028)	0.105**	(0.026)
DELAY	+	0.227***	(0.003)	0.229***	(0.003)
MONTH	+	-0.058	(0.518)	-0.058	(0.520)
Intercept		1.480****	(0.000)	1.481****	(0.000)
<i>N</i>		2,164		2,164	
<i>R</i> <sup>2</sup>		0.397		0.397	
adj. <i>R</i> <sup>2</sup>		0.224		0.223	
F		58.258	(0.000)	58.170	(0.000)

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

#### 4.4.2 Robustness tests for Alternative definitions of family firm

There are diverse definitions of family firm for existing studies. These alternative definitions may produce different results. Another common definition is to use a 20% cut off point to identify family firms (FAMOWNNEW). We also use also investigate the effect with this measure and the results remain robust. Table 9 and 10 display the results.

**Table 9 Panel Data Probit Model for Auditor Choice with alternative definitions of family firm**

	<i>Expected</i>	(1)		(2)	
	<i>Sign</i>	<i>Coeff.</i>	<i>p-value</i>	<i>Coeff.</i>	<i>p-value</i>
<b>FAMOWN</b>	+	1.499****	(0.001)		
<b>FAMOWNNEW</b>	+			0.722***	(0.002)
PINED	+/-	-5.633****	(0.000)	-5.590****	(0.000)
CEODUALITY	+/-	0.262	(0.166)	0.261	(0.166)
LOGBDSIZE	+/-	-0.630	(0.158)	-0.627	(0.158)
LOGACSIZE	+/-	-2.480****	(0.000)	-2.518****	(0.000)
PINAC	+/-	-1.780**	(0.038)	-1.790**	(0.036)
PACFE	+/-	-0.782**	(0.048)	-0.775*	(0.050)
<b>ACMD</b>	+	0.218****	(0.000)	0.217****	(0.000)
LOGASSET	+	0.386****	(0.000)	0.375****	(0.000)
NSUB	+	0.001	(0.829)	0.002	(0.793)
REV	+	0.402****	(0.000)	0.394****	(0.000)
ADR	+	-0.377	(0.314)	-0.367	(0.328)
DERATIO	+/-	-0.071	(0.875)	-0.046	(0.918)
LOSS	+	-0.199	(0.210)	-0.205	(0.195)
NEGCF0	+	-0.196	(0.201)	-0.205	(0.180)
LAQQDOPIN	-	-1.697****	(0.000)	-1.687****	(0.000)
Intercept		5.183***	(0.003)	5.394***	(0.002)
<i>N</i>		2,724		2,724	

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

**Table 10 Panel Data Fixed Effect Regression Model for Audit Fee with alternative definitions of family firm**

	<i>Expected</i>	(1)		New proxy	
	<i>Sign</i>	<i>Coeff.</i>	<i>p-value</i>	<i>Coeff.</i>	<i>p-value</i>
<b>FAMOWN</b>	-	-0.134**	(0.021)		
<b>FAMOWNNEW</b>	-			-0.086***	(0.004)
PINED	+/-	0.314**	(0.011)	0.303**	(0.014)
CEODUALITY	+/-	-0.059***	(0.006)	-0.059***	(0.005)
LOGBDSIZE	+/-	0.160***	(0.005)	0.159***	(0.005)
LOGACSIZE	+/-	0.193****	(0.000)	0.193****	(0.000)
PINAC	+/-	-0.013	(0.909)	-0.014	(0.900)
PACAFE	+/-	0.097**	(0.047)	0.095*	(0.053)
<b>ACMD</b>	+	-0.014**	(0.030)	-0.014**	(0.028)
LOGASSET	+	0.366****	(0.000)	0.366****	(0.000)
AR	+	0.026***	(0.005)	0.027***	(0.004)
REV	+/-	-0.011	(0.424)	-0.010	(0.455)
DERATION	+/-	-0.039	(0.492)	-0.038	(0.507)
ROA	+	-0.198****	(0.000)	-0.200****	(0.000)
ADR	+	-0.071	(0.143)	-0.074	(0.127)
NSUB	+	0.008****	(0.000)	0.008****	(0.000)
BIG5	+	0.246****	(0.000)	0.246****	(0.000)
LAQQDOPIN	+	0.112**	(0.011)	0.111**	(0.012)
DELAY	+	0.279****	(0.000)	0.277****	(0.000)
MONTH	+	-0.129	(0.117)	-0.130	(0.115)
Intercept		1.334****	(0.000)	1.355****	(0.000)
<i>N</i>		2,724		2,724	
<i>R</i> <sup>2</sup>		0.432		0.433	
adj. <i>R</i> <sup>2</sup>		0.306		0.307	
F		89.189	(0.000)	89.445	(0.000)

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

## 5. Conclusion

We examine the relation between family ownership and control, and audit committee multiple directorships level on audit fee and auditor choice in Hong Kong Listed firm. Using unique unbalanced panel data of 2724 firm-year observations of firm listed in the main board of Hong Kong during the period 2001–2009, consistent with signal theory, our empirical results indicate that compared to non-family firms, family firms are more likely to hire Big N firms to signify their incentives to reduce agency problem, adopting sound corporate governance practice and also as a signal of credible financial reporting in exchange for better contracting terms (e.g. lower cost of capital). Our results suggest that the choice of external auditors matters to audit risk for family firms. We also find family firms (measured by family control and family ownership) pay lower audit fee than non-family firms. This is consistent with lower Type I agency problem argument (i.e., Lower assessed client-related risks due to family owners closer monitoring of management, lower information asymmetry and higher incentive to maintain family reputation). More specifically, the benefit effect of lower Type I agency problem in family firm outweighs the harm of increasing Type II agency problem.

Similarly, Firms with higher audit committee multiple directorship level is more likely to use Big 5 auditor but incur lower audit fee. These results are robust to alternative definitions of family firms.

Our research extends existing studies on the relationship between firms' ownership, auditor choice, and audit fees by investigating the associations between them simultaneously. Our research also adds to extant audit committee literature. Future studies could further explore whether family characteristics affects the non-audit fees and auditor switch and investigate whether there are other potential reasons why family firms incur lower audit fee such as networking.

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