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Auditor Industry Specialization and Market Segmentation: Evidence from Hong Kong

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SUMMARY

Audit fees of Big 6 and non-Big 6 accounting firms are examined for 348 publicly listed Hong Kong companies. Using more recent data than prior studies, we find evidence of Big 6 premiums for both general brand name and for industry specialization. In addition, we find that the large local firm Kwan Wong Tan & Fong, which is the market leader in the property sector, has significantly lower fees than both Big 6 and other non-Big 6 auditors in that industry. Specialization thus leads to different results for Big 6 and non-Big 6 firms and suggests a market segment not previously identified: non-Big 6 specialization, which leads to production economies and the capture of market share through lower fees for a clientele seeking low-priced audits. These results also suggest that prior studies do not recognize sufficiently that Big 6 brand-name reputation is a necessary foundation on which to achieve higher priced quality-differentiated audits based on industry specialization.

INTRODUCTION

This study examines audit fees of Big 6 and non-Big 6 auditors for publicly listed companies in Hong Kong. Hong Kong is a unique market to study because, unlike the audit market in other countries that have been studied, there is a local non-Big 6 accounting firm (Kwan Wong Tan & Fong) comparable in size to the Big 6 firms in Hong Kong and that is the dominant supplier in one industry group (property development). This situation gives rise to more subtle market segmentation than has been previously analyzed in the literature. Prior studies characterize audit suppliers as one of three types: non-Big 6 accounting firms, brand-name Big 6 firms, and Big 6 industry specialists (Craswell et al. 1995). However, in Hong Kong there are *both* Big 6 and non-Big 6 industry specialists in the audit market for publicly listed companies. The primary purpose of our study is to examine the effects of this more subtle market segmentation on the audit fees of both Big 6 and non-Big 6 industry leaders, and to examine whether Kwan Wong Tan & Fong (KWTF) earns a premium for industry specialization comparable to Big 6 specialists, or, alternatively, if market share is used to achieve production economies leading to lower-priced audits (Craswell et al. 1995, 301).¹

Hong Kong is an interesting setting in which to study auditor reputation and pricing effects for a second reason. Audits in Hong Kong are performed out of one central office of each accounting firm rather than multiple offices throughout the country, as is the case in larger countries like Australia and the United States. This is important because it means that reputation effects based on

¹ Our study uses 1992 data and is similar to, but significantly extends, the industry analysis of Craswell et al. (1995) based on 1987 Australian data. Because of the British influence on the legal system and accounting institutions of both economies, they are similar enough to permit a comparison. More generally the Australian and Hong Kong stock markets and accounting professions are among the most maturely developed in the Pacific Rim.

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auditor clienteles and market shares are more accurate and reliable than in larger countries that have been studied. Francis et al. (1999) point out that accounting firm reputations are, at least to some extent, city-specific and related to the clienteles of individual offices.² Such city-to-city variation makes it more difficult to accurately generalize about an accounting firm's "national" reputation, particularly within specific industries. Our study overcomes this problem because the audit market in Hong Kong is, in effect, one large city-level market. Therefore auditor reputation effects, to the extent they are driven by office-specific clienteles, are accurately determinable in Hong Kong. This should result in a better setting to test the association between audit fees and an accounting firm's market share and industry leadership.

Our study finds that nonspecialist Big 6 audit fees average 37 percent more than the fees of non-Big 6 auditors. This is somewhat larger than the Big 6 premium of 20 percent to 30 percent reported in other countries, but comparable to the 31 percent to 50 percent premiums reported in prior studies that use Hong Kong data. We also find that Big 6 industry specialists earn a premium of 29 percent over Big 6 nonspecialists, which is comparable to the 34 percent premium reported by Craswell et al. (1995) for larger-sized companies in their sample of Australian firms. Importantly, the results are robust across the spectrum of company size in the Hong Kong market in contrast to Craswell et al. (1995), whose results are sensitive to company size for both Big 6 brand-name and industry-specialization premiums.

Finally, the large local firm Kwan Wong Tan & Fong does not earn a price premium for either general brand name or industry specialization and in fact has significantly lower fees in the industry in which it is the market leader. We interpret this to mean that KWTF uses its large market share in the property industry as a basis for production economies resulting in audit fees that are 31 percent lower than other non-Big 6 firms. These findings also suggest that the Big 6 industry-specialization premium reported by Craswell et al. (1995) is not due simply to industry specialization, but is in fact conditional on specialist accounting firms already having Big 6 brand-name cachet.

RESEARCH METHOD, SAMPLE, AND DATA

Research Method

A cross-sectional audit fee regression model is used to test for Big 6 premiums with respect to brand name and industry specialization. Audit fee models use a set of variables to control for cross-sectional differences in factors that affect fees such as client size, audit complexity, and auditor-client risk sharing (Simunic 1980). These models have demonstrated relatively high explanatory power (R^2 s of 0.65 or higher) and have been robust across different samples, time periods, and countries, and to sensitivity analyses for model misspecification (Francis and Simon 1987; Chan et al. 1993). To test for differential audit pricing, an experimental variable is added to the audit fee model to specify different groups of auditors.³

The OLS regression model to be estimated is specified as follows:

$$\begin{aligned} \text{LAF} = & b_0 + b_1\text{LTA} + b_2\text{SUBS} + b_3\text{FOREIGN} \\ & + b_4\text{CATA} + b_5\text{QUICK} + b_6\text{DE} \\ & + b_7\text{ROI} + b_8\text{YE} + b_9\text{LOSS} \\ & + b_{10}\text{AUDITOR} + e \end{aligned}$$

where:

LAF = natural log of total audit fees;

LTA = natural log of total assets;

SUBS = square root of the number of subsidiaries;

FOREIGN = proportion of subsidiaries that are foreign;

CATA = current assets divided by total assets;

QUICK = current assets (minus inventories) divided by current liabilities;

² A Big 6 accounting firm's expertise is based on the human capital of its professional staff who operate primarily in city-specific locales. While there is some transfer of expertise across offices through technology and auditor mobility, city-specific offices of Big 6 accounting firms predominantly service clients in the same locale. Thus it seems a reasonable conjecture that a Big 6 firm's reputation within a particular locale will be based more on the local office's professional staff and clientele, than on the firm's "national" ranking or "national" client list.

³ The formal test determines if there is a significant intercept shift in the fitted regression model for different groups of auditors. Because the dependent variable is specified in log form, an intercept shift does not mean there is a constant effect on audit fees (see footnote 13).

DE = long-term debt divided by total assets;

ROI = earnings before interest and taxes divided by total assets;

YE = indicator variable (1 = non-March 31 fiscal year end);

LOSS = indicator variable (1 = loss reported in current or prior three years);

AUDITOR = indicator variable (1 = Big 6 auditor or industry specialist, depending on the test).

The error term, e , is assumed to have the normal OLS regression properties. As explained in the next section, three different samples are used to test for auditor effects.

Sample Selection

The 1992 Pacific-Basin Capital Market Database (PACAP) is used to select firms from the population of all Hong Kong publicly listed companies, excluding the finance industry. As in prior audit-fee research, the finance industry is excluded from the study because many of the financial ratios used to estimate audit fees (e.g., leverage and quick ratio) are not relevant to financial institutions (Simunic 1980; Francis 1984). PACAP is an electronic database commercially distributed by the University of Rhode Island. It contains selected financial and market data of listed companies in seven Asian countries. Data required for the study but not available in PACAP are hand collected from hard copies of annual reports.⁴ PACAP classifies all firms into one of seven industry groups: industrials, consolidated enterprises,⁵ property development, hotels, utilities, finance, and an unclassified category for all remaining firms. These industry classifications are consistent with industry categories used by analysts and the financial press in Hong Kong.⁶

Table 1 presents the industry distribution of the firms used in our analyses. The top row reports that there are 351 nonfinance companies in the PACAP database. After dropping three companies with missing hand-collected data, we have a sample of 348 companies that is used in the initial test for the existence of a Big 6 premium in the Hong Kong audit market. A second sample of 288 companies is created using firms

in the three largest industry groups: industrials, consolidated enterprises, and property.⁷ This second sample is used to test for the existence of both a Big 6 brand-name premium and Big 6 industry-specialist premium, and for additional tests relating to the large local firm Kwan Wong Tan & Fong. Finally, we exclude the 63 companies audited by non-Big 6 auditors in the three largest industry groups to arrive at a third sample of 225 clients, all of which are audited by Big 6 auditors. This third sample is also used to test for the existence of a premium for Big 6 industry specialists in these industries. By restricting the test to only Big 6-audited companies, a potential confounding of Big 6 brand-name and industry specialization is controlled for in the design (see Craswell et al. 1995).

Auditor Industry Specialization

Table 2 presents audit fee and market share data for the sample of 288 companies in the three largest industries. The amount and market share of audit fees, and the number and market share of audit clients, are presented by industry. Information is separately disclosed for each of the Big 6 firms, for the large local firm Kwan Wong Tan & Fong, and for the rest of the non-Big 6 as a group. Market share data is reported for KWTF because it is as large as several of the Big 6 accounting firms.

⁴ Information not available in PACAP includes auditor identity, number of total and foreign subsidiaries, and audit fees that (by law) must be reported in annual reports. Like Australia, Hong Kong requires the disclosure of audit fees in annual reports, but unlike Australia does not require the disclosure of additional fees paid for non-audit services provided by auditors. The absence of nonaudit fee data in Hong Kong is not important as prior studies have demonstrated that nonaudit fees have no effect on the auditor variables in audit fee regression models (e.g., Craswell et al. 1995; Palmrose 1986; Simunic 1980).

⁵ Companies in consolidated enterprises have diversified operations and are old-line Hong Kong companies such as Jardine.

⁶ For example, see *The Stock Exchange Fact Book* (1992).

⁷ We drop the hotel industry (11 firms), the utilities industry (10 firms), and the unclassified industry group (39 firms) because they are deemed too small to create a meaningful measure and test of auditor specialization, and the unclassified industry group is dropped because it is both small and does not represent a definable specialization.

TABLE 1
Data Attrition and Industry Composition of Samples

	Industry Classifications					Totals	
	Industrial	Consolidated Enterprises	Property	Hotels	Utilities		Others (unclassified)
Hong Kong-listed companies in 1992 PACAP database, excluding financial institutions	118	93	80	11	10	39	351
Less: Missing data	1		2				3
Total Sample in PACAP	117	93	78	11	10	39	348
Less: small industries and unclassified firms				11	10	39	60
Sample of three largest industries	117	93	78	0	0	0	288
Less: non-Big 6 clients	17	18	28				63
Sample with Big 6 auditors	100	75	50	0	0	0	225

Table 2 also discloses the auditors we classify as specialists. The goal is to identify audit firms having a sufficiently large and differentiated market share from other auditors in an industry to merit classification as a specialist.⁸ Auditors are classified as industry specialists if their market share of audit fees is among the *top three* in an industry.⁹ The use of audit fees to measure market share is consistent with the industrial organization literature in which market share is defined in terms of industry output.¹⁰ Deloitte & Touche and Price Waterhouse appear as specialists in all three industries; Ernst & Young and KPMG Peat Marwick appear as industry specialists in one industry each; and the local firm KWTF appears as an industry specialist in one industry. Our definition of industry specialization results in 62 percent of the audit clients in these

⁸ We follow prior research by defining "industry specialists" as the market leaders (Craswell et al. 1995). Industry leadership *per se* does not necessarily mean the audit firm provides greater expertise or higher quality services. An auditor may use market leadership to achieve production economies and lower fees. These contrasting interpretations of market leadership are discussed in more detail later in the paper.

⁹ As reported in a later section, we test alternative specifications of our measure of auditor specialization and find results that are consistent with those using the measure described here.

¹⁰ Our threshold differs from Craswell et al. (1995) who classify auditors as specialists if the industry has at least 30 clients and the auditor's market share of fees and/or proportion of clients equals or exceeds 10 percent of the industry. However, the distribution of audit fees and clients in Hong Kong make these criteria impractical. When applied to the Hong Kong audit market, these criteria results in 83 percent of the clients in the three largest industries being audited by specialists. When non-Big 6 clients are excluded, this proportion increases to 97 percent leaving almost no variation in the variable of interest.

TABLE 2
Descriptive Statistics on Share of Fees and Clients for 288 Hong Kong-Listed Companies during 1992
in the Three Largest Industries
(Industrial, Consolidated Enterprises, and Property Companies)

Industry and Auditor	Auditor Type	Industry Specialist Classification	Fees		Clients	
			Total (000 HK\$)	Proportion of Industry	Total	Proportion of Industry
Panel A: Industrial						
Deloitte & Touche	Big 6	Specialist	42,882	34.9%	43	36.7%
Ernst & Young	Big 6	Specialist	33,187	27.1	25	21.3
Price Waterhouse	Big 6	Specialist	16,422	13.4	13	11.1
Kwan Wong Tan & Fong	Non-Big 6		9,800	8.0	12	10.2
KPMG Peat Marwick	Big 6		7,871	6.4	8	6.8
Coopers & Lybrand	Big 6		4,674	3.8	6	5.1
All others	Non-Big 6		4,445	3.6	5	4.5
Arthur Andersen	Big 6		3,471	2.8	5	4.3
Total			122,752	100.0%	117	100.0%
Panel B: Consolidated Enterprises						
Price Waterhouse	Big 6	Specialist	60,958	39.5%	19	20.4%
KPMG Peat Marwick	Big 6	Specialist	31,064	20.1	11	11.8
Deloitte & Touche	Big 6	Specialist	25,097	16.3	19	20.4
Ernst & Young	Big 6		13,331	8.6	16	17.2
Kwan Wong Tan & Fong	Non-Big 6		11,107	7.2	13	14.0
Coopers & Lybrand	Big 6		6,869	4.5	8	8.6
All others	Non-Big 6		4,106	2.7	5	5.4
Arthur Andersen	Big 6		1,701	1.1	2	2.2
Total			154,238	100.0%	93	100.0%
Panel C: Property						
Kwan Wong Tan & Fong	Non-Big 6	Specialist	23,717	24.3%	22	28.2%
Price Waterhouse	Big 6	Specialist	22,921	23.6	9	11.6
Deloitte & Touche	Big 6	Specialist	20,998	21.5	17	21.8
KPMG Peat Marwick	Big 6		15,069	15.4	7	9.0
Ernst & Young	Big 6		10,066	10.3	14	17.9
All others	Non-Big 6		2,812	2.8	6	7.7
Coopers & Lybrand	Big 6		2,045	2.1	3	3.8
Total			97,628	100.0%	78	100.0%

industries being audited by the top three accounting firms. Not surprisingly, the market leader in each industry also has the most clients: Deloitte & Touche in industrials; Price Waterhouse in consolidated enterprises; and KWTF in property.

While industrials and property are well-defined industry categories, consolidated enterprises consist of companies with diversified product and

service lines. Khanna and Palepu (1997) suggest several institutional features that make it efficient for business enterprises to diversify in developing economies. For example, an absence of consumer protection laws may create an environment where brand-name reputation established in one market could create value across very different types of markets. Volatility in the financial and

product markets are other factors that make diversification an optimal strategy. A logical extension of the existence of diversified companies is the evolution of auditor expertise designed to service such clients. In other words, even though the products of firms in the industry *consolidated enterprises* are diversified, the underlying organizational and capital structures, contracting processes, and financial reporting problems are likely to be similar from firm to firm. Therefore, the auditor can develop expertise and special procedures for auditing such firms.

Panel A of Table 2 reports market share data for the industry group *industrials*. Deloitte & Touche, Ernst & Young, and Price Waterhouse are the top three auditors. Based on fees, each has 13 percent or more of the market and the next closest firm has only an 8 percent market share. On a combined basis, the top three firms earn 75 percent of industry fees and have 69 percent of the clients. Panel B of Table 2 reports market share data for the industry group *consolidated enterprises*. Price Waterhouse, KPMG Peat Marwick, and Deloitte & Touche have the three largest market shares. Each of the top three auditors has 16 percent or more of the market share of fees, while the next closest firm has only a 9 percent market share. On a combined basis, the top three firms earn 76 percent of industry fees and have 53 percent of the clients. Finally, Panel C of Table 2 reports market share data for the industry group *property*. KWTF, Price Waterhouse, and Deloitte & Touche have the three largest market shares. Each has 21 percent or more of the market share of fees and the next closest firm has only a 15 percent market share. On a combined basis, the top three firms earn 69 percent of industry fees and have 62 percent of the clients.

Descriptive Statistics

Table 3 presents descriptive data for variables used in the estimation of audit fees for each of the three samples in the study. The variables used to estimate audit fees are the same as those in Craswell et al. (1995) with the exception of a dummy variable for qualified audit opinions. We omit this variable since only one qualified opinion is reported among our sample

firms. Due to outliers with extreme values, two variables—ratio of current assets (minus inventories) to current liabilities and the ratio of earnings before interest and taxes to assets—are winsorized at the top and bottom 1 percent of the distributions. Mean values are relatively comparable across the three samples.

EMPIRICAL RESULTS

Big 6 Premiums for Brand-Name and Industry Specialization

Prior studies (mainly using U.S. and Australian data) have documented a brand-name premium for Big 6 auditors. Simon and Francis (1988) report a premium of 16 percent of total audit fees in a study using U.S. data and calculate that the Big 6 premium averages 18 percent across a number of other studies using either U.S. or Australian data. Craswell et al. (1995) use a much larger sample and a somewhat different research design and estimate a Big 6 premium of 31 percent in Australia.¹¹ We replicate and extend the design used by Craswell et al. (1995). However, the analysis begins with a simple estimation of the Big 6 premium using the full sample of 348 companies. This allows a baseline comparison with other studies and documents whether the Hong Kong audit market pays a premium for Big 6 auditors. This result is reported on the left-hand side of Table 4. The model is significant at $p < 0.01$ and has an adjusted R^2 of 65.9 percent.¹²

The Big 6 indicator variable is positive and statistically significant which means that a premium is paid to Big 6 auditors in Hong Kong. The coefficient of 0.489 in the regression estimation translates to a premium of 63 percent.¹³ This is higher

¹¹ A brand-name premium is consistent with prior research that Big 6 auditors are quality-differentiated from non-Big 6 auditors (Teoh and Wong 1993; DeFond and Jiambalvo 1993).

¹² Diagnostics indicate that heteroskedasticity are not present in any of the models presented in our study.

¹³ A procedure to derive the impact of the auditor intercept shift on the dependent variable (which is the natural log of audit fees) is reported by Simon and Francis (1988, 263). When fees of one auditor class decrease relative to another class, the percentage decrease is defined as $1 - (1/e^z)$, where z is the downward intercept shift for the auditor class being tested. When fees of one auditor class increase relative to another class, the percentage increase is defined as $e^z - 1$, where z is the upward intercept shift for the auditor class being tested.

TABLE 3
Descriptive Statistics of Hong Kong-Listed Companies during 1992

	Total Sample Available from PACAP (n = 348)			Companies in the Three Largest Industries (n = 288)			Companies in the Three Largest Industries with Big 6 Auditors (n = 225)		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
Natural log of audit fees	6.706	6.647	0.852	6.691	6.628	0.900	6.760	6.645	0.896
Natural log of total assets	13.816	13.580	1.423	13.756	13.522	1.442	13.639	13.382	1.375
Square root of the number of subsidiaries	4.373	4.182	1.963	4.483	4.243	2.005	4.363	4.000	1.884
Current assets ÷ total assets	0.447	0.441	0.250	0.470	0.481	0.246	0.490	0.516	0.245
Current assets minus inventories ÷ current liabilities	2.157	1.474	2.793	2.193	1.509	2.757	2.237	1.509	2.914
Long-term debt ÷ total assets	0.063	0.032	0.093	0.059	0.029	0.086	0.060	0.026	0.090
Earnings before interest and taxes ÷ total assets	0.086	0.065	0.084	0.089	0.066	0.084	0.092	0.069	0.087
Proportion of subsidiaries that are foreign	0.332	0.292	0.256	0.336	0.325	0.252	0.360	0.350	0.256
Non-March 31 fiscal year end = 1 (dummy variable)	51%			54%			52%		
Loss reported in any of prior three years = 1 (dummy variable)	14%			13%			14%		
Big 6 auditor = 1 (dummy variable)	79%			78%			100%		
Auditor is industry specialist = 1 (dummy variable)	NA			62%			69%		

TABLE 4
 Audit Fee Estimation of Big 6 Brand-Name Premium and Big 6 Industry-Specialist Premium
 for Hong Kong-Listed Companies during 1992

	Total Sample Available from PACAP (n = 348)		Companies in the Three Largest Industries (n = 288)	
	Coefficient	t-statistic (two-tail)	Coefficient	t-statistic (two-tail)
Intercept	0.758	2.086	0.912	2.225
Natural log of total assets	0.338	12.733	0.318	10.161
Square root of the number of subsidiaries	0.150	8.603	0.166	7.920
Current assets ÷ total assets	0.765	5.585	0.714	4.605
Current assets minus inventories ÷ current liabilities	-0.052	-5.293	-0.053	-4.723
Long-term debt ÷ total assets	-0.384	-1.277	-0.183	-0.506
Earnings before interest and taxes ÷ total assets	-0.616	-1.668	-0.491	-1.170
Proportion of subsidiaries that are foreign	0.237	2.142	0.341	2.633
Non-March 31 balance date = 1 (dummy variable)	0.004	0.074	0.005	0.072
Loss reported in prior three years = 1 (dummy variable)	0.044	0.533	-0.022	-0.229
Experimental Variable				
Big 6 auditor = 1 (dummy variable)	0.489	7.269		
Big 6 nonspecialist = 1 (dummy variable)			0.318	3.549
Big 6 industry specialist = 1 (dummy variable)			0.570	7.197
F-statistic		68.097		57.840
Adjusted R ²		65.9%		68.5%

than the average 16 percent to 18 percent premium in U.S. studies (see Simon and Francis 1988) and almost twice as large as the Big 6 premium of 31 percent in Australia (Craswell et al. 1995). However, when we control for industry specialization the nonspecialist Big 6 premium over non-Big 6 auditors is only 29 percent (see Table 4). There is also some evidence that the Big 6 premium in Hong Kong has been increasing over time. Simon et al. (1992) find a 31 percent Big 6 premium using 1987 Hong Kong data, Lee (1996) finds a 50 percent premium using 1990 Hong Kong data, and we find a 63 percent premium using 1992 data.

The generally larger Big 6 premia found in studies using Hong Kong data may be caused by several factors. First, as already noted above, once industry specialization is controlled for, the nonspecialist Big 6 premium is only 29 percent. This is an important point because a greater percentage of the sample in our study hires one of the industry specialists, 62 percent compared to only 22 percent in Craswell et al. 1995, and Big 6 industry specialists in our sample have a larger premium over non-Big 6 auditors than do Big 6 nonspecialists. Second, there is an absence of larger sized non-Big 6 accounting firms in Hong Kong with the exception for KWTF. This means that the comparison is between Big 6 firms and small local firms, which might explain why the fee premium is greater. By contrast, studies in Australia and the U.S. compare the fees of Big 6 firms with non-Big 6 firms that include larger second-tier firms as well as small local firms. Finally, Hong Kong companies are highly profitable, which could affect their willingness to pay larger audit fee premiums paid to Big 6 auditors. The average ROA in our study is 8.6 percent compared to 1.7 percent for the Australian sample in Craswell et al. (1995).

The next analysis attempts to separate the Big 6 premium into general brand-name and industry-specialist components. The right-hand side of Table 4 estimates an audit fee model using the 288 companies in the three largest industries. In order to separate the Big 6 premium into brand name and industry specialization, two auditor indicator variables are used: one for companies in which the auditor is a Big 6 industry specialist

and another for companies in which the Big 6 auditor is *not* an industry specialist based on the classification in Table 2. The implicit comparison group for both of the Big 6 indicator variables is the 63 companies having non-Big 6 auditors. Again, the audit fee model is significant at $p < 0.01$ and has an adjusted R^2 of 68.5 percent. Both Big 6 variables are significant at $p < 0.01$, and the coefficient is larger for Big 6 industry specialists (0.570) than for Big 6 nonspecialists (0.318). On average, this translates to Big 6 specialists having a premium of 77 percent and Big 6 nonspecialists a premium of 37 percent over non-Big 6 auditors.¹⁴

Further Tests of Big 6 Industry Specialization

The initial test of a Big 6 premium for industry specialization, as noted in Table 4, shows an average premium of 77 percent over non-Big 6 auditors. Table 5 presents an additional test by comparing Big 6 industry specialists with Big 6 nonspecialists for a sample consisting *only* of the 225 companies with Big 6 auditors in the three industry groups (industrials, consolidated enterprises, and property). This analysis controls for the potentially confounding effect of Big 6 brand-name reputation by restricting the test to Big 6 audited companies. Since the Big 6 audit all companies in this sample, only one experimental variable is required, i.e., companies having a Big 6 industry specialist. The model in Table 5 is significant at $p < 0.01$ and has an adjusted R^2 of 66.1 percent. The industry specialization variable indicates that, on average, there is a large and statistically significant premium paid to Big 6 industry specialists in Hong Kong. The variable has a parameter value of 0.257, which translates to an average premium of 29 percent for Big 6 industry specialists over the fees of nonspecialist Big 6 auditors and is comparable to the 34 percent documented for larger-sized auditees in Craswell et al. (1995).

¹⁴ We also estimated the model dropping companies audited by the non-Big 6 firm, KWTF, reducing the sample to 241 companies. Both Big 6 auditor variables were still significant and had comparable coefficients to those in Table 4. The purpose of the analysis was to ascertain that the systematically lower audit fees of KWTF do not drive the Big 6 premia for brand name and industry specialization. See also Table 7.

TABLE 5
Audit Fee Estimation of Big 6 Industry-Specialist Premium for
225 Hong Kong-Listed Companies during 1992 in the Three Largest Industries
(Industrial, Consolidated Enterprises, and Property Companies) with Big 6 Auditors

	Coefficient	t-statistic	Probability (two-tail)
Intercept	1.282	2.679	0.008
Natural log of total assets	0.311	8.506	0.000
Square root of the number of subsidiaries	0.188	7.541	0.000
Current assets + total assets	0.596	3.270	0.001
Current assets minus inventories + current liabilities	-0.051	-4.171	0.000
Long-term debt + total assets	-0.372	-0.915	0.361
Earnings before interest and taxes + total assets	-0.448	-0.950	0.343
Proportion of subsidiaries that are foreign	0.302	2.034	0.043
Non-March 31 balance date = 1 (dummy variable)	0.027	0.365	0.715
Loss reported in prior three years = 1 (dummy variable)	-0.027	-0.248	0.804
Experimental Variable			
Auditor is industry specialist = 1 (dummy variable)	0.257	3.273	0.001
F-statistic		44.694	0.000
Adjusted R ²		66.1%	

Table 6 examines the consistency of the Big 6 specialization premium across industries by estimating separately the premium for each industry group. Audit fee models will be better specified on an industry-specific basis if there are systematic differences in fees across industries. A potential limitation of such an approach is that the sample size in each industry is relatively small (50 to 100 observations) which lowers the power of the tests. However, the regression estimates reported in Table 6 are all significant and the adjusted R²s in each model exceed 65 percent. Coefficients on the industry specialist variables in Table 6 indicate that the specialization premium is significant in both the property and consolidated enterprises industry groups, but is insignificant in the industrials industry group. The coefficient of 0.294 in the property group translates to a 34 percent specialist premium and the coefficient of 0.303 in the consolidated enterprise group translates to a 35 percent specialist premium. Table 6 is important because it demonstrates in a direct industry-by-industry test that an industry-specialization premium exists, at least for two of the

three industry groups in the study. To the extent the audit fee model is misspecified across industry groups, industry-specific tests will be more robust than a pooled-industry design.

Since the Big 6 specialist premium is insignificant in industrials, an additional analysis is made of that industry by coding the auditor with the largest market share based on both fees and clients (Deloitte & Touche) as the only Big 6 specialist. This analysis yields a coefficient of 0.189 on the specialist dummy and is significant at $p < 0.05$ (two-tailed). A coefficient of 0.189 represents an average premium of 21 percent. Thus there is also evidence of a specialist premium in industrials, but only for the market leader Deloitte & Touche which has 37 percent of the clients and 35 percent of the fees.

ANALYSIS OF NON-BIG 6 INDUSTRY SPECIALIZATION IN HONG KONG

A unique feature of the Hong Kong audit market is the presence of a non-Big 6 auditor that is as large as the Big 6 firms and which also has the dominant market share in one of the largest industries in the economy. Kwan

TABLE 6
 Audit Fee Estimation of Big 6 Industry-Specialist Premium by Industry for 225 Hong Kong-Listed Companies during 1992
 in the Three Largest Industries (Industrial, Consolidated Enterprises, and Property Companies) with Big 6 Auditors

	Industrial (n = 100)			Consolidated Enterprises (n = 75)			Property (n = 50)		
	Coefficient	t-statistic	Probability (two-tail)	Coefficient	t-statistic	Probability (two-tail)	Coefficient	t-statistic	Probability (two-tail)
Intercept	0.558	0.715	0.476	1.343	1.681	0.098	1.720	1.792	0.081
Natural log of total assets	0.419	6.968	0.000	0.328	5.601	0.000	0.255	3.378	0.002
Square root of the number of subsidiaries	0.167	4.100	0.000	0.199	4.585	0.000	0.254	5.874	0.000
Current assets ÷ total assets	0.203	0.629	0.531	0.365	1.129	0.263	0.278	0.658	0.515
Current assets minus inventories ÷ current liabilities	-0.058	-1.387	0.169	-0.076	-3.598	0.000	-0.031	-1.557	0.128
Long-term debt ÷ total assets	-1.941	-3.081	0.003	0.737	1.174	0.245	-1.243	-1.227	0.227
Earnings before interest and taxes ÷ total assets	-0.968	-1.813	0.073	0.277	0.317	0.752	-3.253	-1.550	0.129
Proportion of subsidiaries that are foreign	0.288	1.332	0.186	-0.160	-0.600	0.551	0.655	1.583	0.122
Non-March 31 year end = 1 (dummy variable)	0.037	0.366	0.715	-0.058	-0.426	0.672	0.005	0.031	0.975
Loss reported in prior three years = 1 (dummy variable)	-0.196	-1.215	0.228	0.105	0.535	0.594	-0.265	-1.069	0.292
Experimental Variable									
Auditor is industry specialist = 1 (dummy variable)	0.013	0.114	0.909	0.303	2.008	0.049	0.294	1.842	0.073
F-statistic		19.466	0.000		17.972	0.000		18.176	0.000
Adjusted R ²		65.1%			69.6%			77.8%	

Wong Tan & Fong has 28 percent of the clients representing 24 percent of audit fees in the property industry. There are two possible implications of being a non-Big 6 industry specialist. First, if market share arises from greater investment in industry-specific expertise, then we might expect KWTF to mimic Big 6 specialists and charge higher fees than their non-Big 6 competitors who are not specialists. This argument of course assumes there is a clientele willing to pay a premium for this quality-differentiated product. However, there could also be a clientele that simply demands the lowest-priced audit available (irrespective of quality). As noted in Craswell et al. (1995), large clienteles can lead to production economies in which case a non-Big 6 specialist might discount services rather than charge a premium, particularly since it cannot build a claim to industry expertise on top of brand-name reputation like a Big 6 firm can. Thus there are several reasons why a non-

Big 6 industry specialist may not mimic the pricing behavior of its Big 6 competitors.¹⁵

Fee Estimation of Kwan Wong Tan & Fong

We explore these issues by re-estimating the fee model in Table 4 for the sample of 288 companies in the three largest industry groups. Two additional variables are included to capture the effect of KWTF: one variable is an indicator variable for companies audited by KWTF in the property industry where KWTF is one of the three industry specialists; the second indicator variable is for companies audited by KWTF in the other two industries. This regression result is reported in Table 7. The model is significant at $p < 0.01$ and has an adjusted R^2 of 69.5 percent.

¹⁵ It may be difficult for non-Big 6 firms to compete with Big 6 firms as industry experts. For example, non-Big 6 accounting firms may not be able to hire the best industry experts in the labor market if such experts receive utility from the prestige of being employed by an international Big 6 accounting firm.

TABLE 7
Audit Fee Estimation of KWTF Property-Specialist Effect, KWTF Nonproperty Effect, Big 6 Industry-Specialist Premium and Big 6 Nonspecialist Premium for 288 Hong Kong-Listed Companies during 1992 in the Three Largest Industries (Industrial, Consolidated Enterprises, and Property Companies)

	Coefficient	t-statistic	Probability (two-tail)
Intercept	0.948	2.299	0.022
Natural log of total assets	0.321	10.401	0.000
Square root of the number of subsidiaries	0.172	8.285	0.000
Current assets ÷ total assets	0.615	3.909	0.000
Current assets minus inventories ÷ current liabilities	-0.051	-4.619	0.000
Long-term debt ÷ total assets	-0.217	-0.610	0.543
Earnings before interest and taxes ÷ total assets	-0.471	-1.139	0.256
Proportion of subsidiaries that are foreign	0.310	2.356	0.019
Non-March 31 year end = 1 (dummy variable)	0.030	0.474	0.636
Loss reported in any of prior three years = 1 (dummy variable)	-0.006	-0.062	0.951
Experimental Variables			
Big 6 nonspecialist = 1 (dummy variable)	0.254	1.816	0.070
Big 6 industry specialist = 1 (dummy variable)	0.510	3.849	0.001
KWTF property clients = 1 (dummy variable)	-0.370	-2.143	0.033
KWTF nonproperty clients = 1 (dummy variable)	0.126	0.760	0.448
F-statistic		51.306	0.000
Adjusted R^2		69.5%	

The two Big 6 variables in Table 7 are similar to the results reported in Table 4. The coefficients indicate that KWTF fees are not significantly different from other non-Big 6 auditors for nonproperty clients. However, KWTF fees are significantly lower than other non-Big 6 auditors for property clients. The coefficient is -0.370 , which translates to a discount of 31 percent less than the fees of other non-Big 6 accounting firms. The property industry thus has two Big 6 specialists (Deloitte & Touche and Price Waterhouse) that earn premiums averaging 34 percent over nonspecialist Big 6 accounting firms (see Table 6), and the non-Big 6 specialist KWTF which discounts its fees by 31 percent relative to other non-Big 6 accounting firms in the property industry.¹⁶ This latter result is consistent with KWTF achieving production economies that allow them to charge lower fees and increase market share in a market segment primarily concerned with minimizing audit fees.

ANALYSIS OF INCENTIVES TO HIRE SPECIALIST AUDITORS

To better understand the economics of auditor choice in Hong Kong, we examine whether the ownership and debt structure of companies is systematically associated with the use of specialist auditors. DeFond (1992) and Francis and Wilson (1988) demonstrate that the demand for quality-differentiated (Big 6/non-Big 6) audits is an increasing function of firms' agency costs. We extend their analysis by investigating the demand for specialist vs. nonspecialist auditors as a function of four ownership and debt variables that have been argued to affect agency costs: shareholdings of directors (sum of top management and directors), the ownership percentage of the largest individual shareholder, long-term bank debt (scaled by total assets) and publicly issued debt (scaled by total assets).¹⁷ The analysis is qualitative in nature and uses mean values of these four variables.

Property Sector

In property there are two groups of specialist auditors: KWTF and the Big 6 specialist firms (Deloitte & Touche and Price Waterhouse). The specialists are compared to

all other (nonspecialist) auditors. In the property sector there are no meaningful differences in director holdings across the three auditor groups as ownership ranges from 34.0 percent to 35.6 percent.¹⁸ However, there are differences in the size of the largest individual shareholder. Companies with Big 6 specialists have the smallest percentage (13.8 percent), companies with nonspecialists have the largest percentage (20.6 percent), and the KWTF clients are in between (17.0 percent). The agency argument is that a more widely dispersed ownership structure (as reflected by a smaller holding of the largest individual shareholder) results in less internal monitoring by owners, thereby creating a demand for more credible external monitoring. Based on this line of reasoning, one could infer that the ordering of auditor quality (from highest to lowest) is (1) Big 6

¹⁶ As a further analysis of the KWTF effect, the audit fee model in Table 6 was re-estimated separately for all observations in the property industry, including all non-Big 6 audited companies. The sample size was $n = 78$, and the auditor indicator variable was positive and significant for Big 6 specialists, negative and significant for KWTF, and the non-specialist Big 6 variable was insignificantly different from the default group of non-KWTF non-Big 6 audited companies. These results for the two auditor industry-specialist variables are consistent with those in Table 7.

¹⁷ Stock ownership percentages by directors and largest individual shareholders are computed based on the number of common shares owned by directors (or the largest individual shareholder) deflated by the total common shares outstanding.

¹⁸ These levels are quite large relative to the United States. Morck et al. (1988) find that U.S. firms with small shareholdings ($< 5\%$) or large shareholdings ($> 20\%$) by officers and directors have lower market performance than firms with officer-director shareholdings in the 5–20 percent range. Their findings are consistent with a management entrenchment argument, and suggest that agency costs may increase once inside holdings exceed a certain level. In all three industries we investigate in Hong Kong, mean directors' holdings are in the 35–50 percent range suggesting *prima facie* a potential for agency costs from entrenchment. Many Hong Kong public companies are family owned and controlled, which explains the high level of directors' holdings. A related concern is potentially opportunistic behavior by directors with respect to the minority interests. The Hong Kong Society of Accountants issued a report on corporate governance in December 1995, making a number of recommendations to ensure that boards of directors represent the interests of all shareholders, not just that of the controlling shareholders. Similar concerns have been expressed in South Africa about family owned and controlled public companies (Barr et al. 1995).

industry specialists, (2) the specialist firm KWTF, and (3) nonspecialist auditors.

We also examine the levels of long-term bank debt and publicly issued debt, and the association with auditor choice. There are two competing theories with respect to debt. Conventional wisdom is that creditors require audits in order to monitor their loans. The larger the amount of debt, the greater the creditor demand for audit quality. The alternative argument is that creditors do their own monitoring and this substitutes for other forms of external monitoring such as auditing. Long-term bank debt is calculated as a percentage of total assets and companies audited by Big 6 specialists have higher debt levels (9.4 percent) compared to KWTF clients (7.2 percent) and nonspecialist auditors (8.6 percent). Here the implied ordering of audit quality is more dichotomous, specialist Big 6 firms vs. all other auditors. There is virtually no public debt in the property sector so this variable is not analyzed.

Taken as a whole, the evidence from the analysis of ownership and debt is consistent with Big 6 specialists being quality-differentiated auditors that are demanded as an increasing function of agency costs. The evidence with respect to the non-Big 6-specialist firm KWTF is inconclusive. In comparing KWTF with nonspecialist auditors, the KWTF clients have slightly more dispersed ownership than the clients of nonspecialist auditors (17 percent vs. 21 percent), which is consistent with quality-differentiated specialist audits being demanded by KWTF clients due to greater agency costs. On the other hand, the debt analysis indicates that KWTF clients actually have less debt than the clients of nonspecialist auditors. Regardless, it is quite clear that KWTF clients and the clients of nonspecialist auditors are qualitatively different from those of the Big 6 specialists in a manner consistent with Big 6 specialists being quality-differentiated auditors relative to both KWTF and nonspecialist auditors.

Industrials and Consolidated Enterprises

For the other two industry groups (industrials and consolidated enterprises) we compare the ownership/debt structure of companies with Big 6 specialist auditors and those companies with nonspecialist auditors. Industrials are

analyzed first and the Big 6 specialist firm is Deloitte & Touche.¹⁹ Director holdings are greater for the clients of the Big 6 specialist (50 percent vs. 41 percent), which is consistent with management entrenchment and hence the need for a more credible external monitor (Morck et al. 1995; Barr et al. 1995). The largest shareholder variable is also consistent with agency predictions as clients with the Big 6 specialist have smaller holdings (4 percent vs. 16 percent). The evidence from debt is also supportive of agency predictions. While bank debt is similar for both groups (5 percent), companies with the Big 6 specialist have 2.0 percent public debt compared to only 0.4 percent for companies with nonspecialist auditors.

In the consolidated enterprises sector, the Big 6 specialist firms are Deloitte & Touche, KPMG Peat Marwick, and Price Waterhouse. The analysis finds that director holdings are the same for both auditor groups (43 percent), but the largest shareholder variable is greater for companies with Big 6 specialists (18 percent vs. 9 percent), which is contrary to agency predictions. Both debt variables are greater for companies with Big 6 specialists, which is consistent with agency predictions. Bank debt is 7.2 percent and public debt is 3.9 percent for companies with Big 6 specialists, compared to 5.0 percent and 0.8 percent for companies with nonspecialist auditors. Higher debt levels and the presence of public debt in particular, appear to outweigh the largest shareholder dimension in explaining the agency demand for a specialist Big 6 auditor in the consolidated enterprises sector.

In summary, the evidence in the industrials and consolidated enterprises sectors is consistent with clients hiring specialist Big 6 auditors due to higher debt levels. The strong association between public debt and the use of Big 6 specialists may also explain why KWTF has such a large market share in the property sector. There is no public debt in that sector, which may serve to lower agency costs and therefore lessen the total demand for higher-quality Big 6 specialists. Finally, the evidence

¹⁹Recall that our analysis finds that Deloitte & Touche is the only firm in industrials that has a Big 6 firm-specialist fee premium.

on ownership structure is not as consistently supportive of agency predictions, which suggests that debt may be more important than ownership structure in explaining the demand for differential audit quality in Hong Kong.

ESTIMATION ISSUES AND SENSITIVITY ANALYSES

Model Specification and Company Size

Craswell et al. (1995) report that their estimates of Big 6 brand-name and Big 6 industry-specialization premiums are sensitive to client size: the Big 6 brand-name premium is consistently significant only for the *smallest* half of the auditees in their sample, and, conversely, the premium for Big 6 industry specialization is significant only for the *largest* half of the auditees in their sample. We also explore this issue by dividing the sample into the largest and smallest auditees based on median total assets and re-estimating the tests for Big 6 premiums as originally reported in Table 4.

Results of testing for Big 6 premiums among the largest and smallest auditees are presented in Table 8. The sample of 288 firms in the three largest industries is halved based on the median value for total assets of H.K.\$746,424,000.²⁰ Parameter estimates of the two regressions in Table 8 are quite similar, both to each other, and to the regression of the combined sample of 288 presented in Table 4. For our purposes, the most important comparison is the two coefficient estimates representing the Big 6 premia. The Big 6 brand-name parameter is significant in both estimations ($p < 0.03$) and has coefficients of 0.294 and 0.348. The Big 6 industry-specialist variable is also significant in both estimations ($p < 0.01$) and has coefficients of 0.582 and 0.573. Based on the results in Table 8 we conclude that the estimations are robust across the spectrum of company size in Hong Kong and thus are more generalizable than the findings of Craswell et al. (1995).

Individual Firms and Big 6 Specialists

The influential effects of one or a few accounting firms could drive our results on Big 6 industry specialization. To evaluate this, we re-run our test of industry specialization after sequentially dropping (one at a time) each of the Big 6 industry specialists (and their clients) from

the sample. The results are qualitatively the same as those obtained with the full sample of 225 firms reported in Table 5. The Big 6 premium for industry specialization ranges from 18 percent to 29 percent in these estimates, with *t*-statistics from 2.117 to 3.349.

Alternative Definitions of Industry Specialization

Because Big 6 industry specialization is inferred from market share data it could contain either of two errors: (1) specialists may be misclassified as nonspecialists or, (2) nonspecialists may be misclassified as specialists. Because our approach results in a fairly large percentage of companies being audited by designated specialists (62 percent), our greatest concern is that some auditors are classified as specialists who are not really specialists. As a test of the sensitivity to our measure of specialization, we re-estimate the audit fee regression model in Table 5 using the largest Big 6 auditor in each industry as the *only* specialist auditor, and dropping all observations having the second- and third-ranked Big 6 auditors. This approach widens the gap between specialist and nonspecialist market shares in the industry (see Table 2) and therefore increases the likelihood that the classification of specialist auditors does not contain nonspecialists. Results from this regression are qualitatively the same as those in our primary tests (reported in Table 5) and show a premium for industry specialists.²¹

²⁰ The exchange rate is approximately U.S.\$1.00 to H.K.\$7.80, which makes the median value U.S.\$95.7 million.

²¹ For industrials, Deloitte & Touche is the specialist auditor and has leading market share based on both fees and clients, and observations having Ernst & Young and Price Waterhouse as auditors are dropped; for consolidated enterprises, Price Waterhouse is the specialist auditor and has leading market share based on both fees and clients, and observations having KPMG Peat Marwick and Deloitte & Touche as auditors are dropped; for property, Price Waterhouse is the specialist auditor and has leading market share based on fees (but not clients), and observations having Deloitte & Touche are dropped. As a further test in the property sector, Deloitte & Touche is designated the specialist auditor because it has leading market share based on clients, and observations having Price Waterhouse are dropped. In all of these additional tests, the Big 6 specialists have larger fees than the remaining Big 6 nonspecialists.

TABLE 8
Audit Fee Estimation of Big 6 Brand Name and Specialist Premium for 288 Hong Kong-Listed Companies during 1992 in the Three Largest Industries (Industrial, Consolidated Enterprises, and Property Companies), by Upper and Lower Half of Auditee Size

	Observations in the Upper Half of Auditee Size (n = 144)		Observations in the Lower Half of Auditee Size (n = 144)	
	Coefficient	t-statistic (two-tail)	Coefficient	t-statistic (two-tail)
Intercept	-0.022	-0.034	1.823	1.749
Natural log of total assets	0.374	0.045	0.250	2.958
Square root of the number of subsidiaries	0.156	6.310	0.215	5.096
Current assets + total assets	1.028	4.270	0.566	2.650
Current assets minus inventories ÷ current liabilities	-0.102	-3.002	-0.049	-4.041
Long-term debt ÷ total assets	-0.156	-0.278	-0.120	-0.251
Earnings before interest and taxes ÷ total assets	-0.605	-0.806	-0.615	-1.169
Proportion of subsidiaries that are foreign	0.514	2.988	0.022	0.104
Non-March 31 year end = 1 (dummy variable)	0.055	0.624	-0.007	-0.081
Loss reported in any of prior three years = 1 (dummy variable)	0.231	1.626	-0.258	-1.895
Experimental Variable				
Big 6 nonspecialist = 1 (dummy variable)	0.294	2.564	0.348	2.322
Big 6 industry specialist = 1 (dummy variable)	0.582	5.838	0.573	4.271
F-statistic		27.722		12.993
Adjusted R ²		67.3%		48.0%

In addition, while we use market share of audit fees to classify auditors as specialists, an alternative measure is market share of clients. To test the sensitivity of our results to our measure of specialist, we rerun our tests in Table 7 after classifying audit firms as specialists if their market share of clients is one of the top three in the industry. The results are qualitatively identical to the results we find using market share of audit fees to measure specialization. Specifically, the *p*-values on our experimental variables that are significant at the 1 percent, 5 percent and 10 percent levels using market share of fees remain significant at those levels when we use market share of clients to classify specialists.

DISCUSSION AND CONCLUSIONS

The Big 6 market share of publicly listed companies in Hong Kong is approximately 80 percent, which is similar to the U.S. market. Our analysis of the Hong Kong audit market confirms the general finding from other countries of a Big 6 premium. Tests indicate that nonspecialist Big 6 auditors have a 37 percent premium over non-Big 6 firms, and Big 6 industry specialists have an average premium of 29 percent over nonspecialist Big 6 auditors for the three primary industries examined (industrials, consolidated enterprises, and property).

If generalized audit fee models are not well specified in a cross-section of industry groups, then industry-specific regressions may be a more powerful research design. Palmrose (1986) is the only study to use such an approach. She estimated fee models separately for utilities and a broad sample of nonutilities, but failed to detect significant specialist premia in either sample. The only study to find specialist premia is Craswell et al. (1995), who pool industry groups in a cross-sectional research design. By contrast we find evidence of Big 6 industry-specialist premia using *both* industry-specific and pooled-industry designs which increases our confidence in the results. Finally, Big 6 premia in Hong Kong are consistent for both large and small clients and thus the findings are more generalizable than those reported by Craswell et al. (1995).

Craswell et al. (1995) argue that Big 6 premia for industry specialization provide evidence

of positive returns to investment in industry-specific expertise. A premium implies both higher quality audits and economic demand by some firms within industry groups for a putatively higher quality (and more expensive) specialist auditor. Additional analysis of the industry groups in our study bear this out and indicate that firms hiring Big 6 specialists generally have ownership and debt structures indicative of higher agency costs. An alternative scenario is that the development of industry clienteles leads to production efficiencies vis-à-vis other auditors, in which case industry leaders could simply be lower-cost producers (Craswell et al. 1995, 301). While this is not what we observe in Hong Kong with respect to Big 6 specialists, it is consistent with what we observe for the non-Big 6 specialist accounting firm KWTF. The fees of KWTF are significantly less (31 percent) than the fees of other non-Big 6 auditors in the property sector where it is the market leader.

Industry specialization thus appears to result in two quite different outcomes depending on the auditor class. For Big 6 specialists it leads to audit fee premia and for non-Big 6 specialists it leads to audit fee discounts, suggesting there is a more subtle interplay between Big 6 brand-name reputation and industry specialization than has been articulated in prior studies. It appears that an accounting firm requires brand-name (Big 6) stature in order to earn a further premium as a quality-differentiated industry specialist; that is, a non-Big 6 firm cannot earn a premium through industry specialization without the Big 6 brand-name imprimatur. Our results also suggest an additional segmentation of the audit market by accounting firms that has not been identified in prior studies: the development of production economies by non-Big 6 auditors as a means of reducing audit fees, and securing market share through lower-priced audits.

A postscript to this study is that Kwon Wong Tan & Fong merged with Deloitte & Touche in mid-1997. This development is interesting because these firms were the top two market leaders in the property industry. Based on 1992 data, the combined firm would have had 46 percent of audit fees and 50 percent of clients

in the industry. However, Deloitte & Touche earned a fee premium for specialization, while KWTF had a significant fee discount. The unanswered questions are whether Deloitte & Touche will significantly raise prices on former

KWTF clients, and whether these clients are prepared to pay a premium for a Big 6 industry specialist when they have been accustomed to paying substantially lower fees to KWTF.

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