AN EMPIRICAL INVESTIGATION OF AUDIT MARKET OF PUBLICLY-TRADED COMPANIES IN TAIWAN

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ABSTRACT

With the growing economy, the capital market in Taiwan is expanding at a greater pace. An important institution that facilitates the functioning of the market is the public accounting profession. This profession provides independent audit on the financial statements used by many different participants in the market to make their economic decisions. While regulatory agencies of capital market are taking steps to improve the quality of financial information, the market for audit service is also undergoing structural change.

This paper examines the change in audit market of publicly-traded companies in Taiwan from 1982 to 1989 and explores plausible explanations for such a change. The analyses from collected data suggest large accounting firms are expanding both in the markets of new publicly-traded companies and of companies already traded in Taiwan Stock Exchange. In the meantime, the audit market of publicly-traded companies is shrinking for small accounting firms. The results suggest that the needs for credibility of financial statements and organizational controls due to the changing environment contribute to the change in audit market.

Key Words: Audit market, Auditor switch, Publicly-traded companies, Reputation.

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I. INTRODUCTION

With the growing economy, the capital market in Taiwan is expanding at a greater pace. An important institution that facilitates the functioning of the market is the public accounting profession. This profession provides independent audit on the financial statements used by many different participants in the market to make their economic decisions. Therefore, the quality of aud it has been a major concern for regulatory agencies in the capital market. Many regulatory requirements are added recently to improve the audit quality.

In a capital market, an investor needs the financial information to evaluate the returns and risks of potential investments. Since the financial information is provided by the companies offering these investment opportunities, it is lack of credibility. As a result, two possible errors could occur. Firstly, a conservative investor may decide not to invest for fear of being misled to invest in an unprofitable business, when the financial statements present truly the financial conditions of the companies. Secondly, a naive investor may proceed to make an investment based on financial statements containing material misrepresentation. In order to reduce this likelihood, financial information has to be audited by independent public accountant (or auditor) to enhance its credibility.

A unique characteristic of the public accountant in providing audit service is that, while he is paid by the company whose financial information is under audit, the auditor is not only responsible for the company but also for other users of the financial information (Mautz and Sharaf, 1961). Other users include potential investors, taxation authorities, Securities and Exchange Commission (SEC), banks, etc.. Since the auditor is responsible for many parties but is only paid by one party under present system, he has to withstand the pressure from his client, who has direct influence on the future cash flow of the independent auditor. A company may engage in opinion shopping tactic to exert undue pressure for the auditor to comply with the company's request for more favorable accounting treatment and issue an unqualified opinion. The SEC has taken actions to discourage such practice by requiring the company to disclose the change of auditor and the reasons for the change (SEC, 1988).

As the audit market in Taiwan is changing with the development of its economy, it is important to have a knowledge of the audit market structure in order to adopt policies that are more consistent with the economic behavior of the market participants, including auditors, public companies, investors etc.. This paper examines the changing behavior of audit market for publicly-traded companies (i.e., listed companies) in Taiwan Stock Exchange and explores the underlying factors that contribute to such changes. The remaining of the paper is organized as follows: the second section provides theoretical

discussion on the nature of demand for audit market; the third section provides a description of accounting firms in Taiwan; the fourth section provides empirical data analyses for the audit market; and the last section concludes this paper with implications and suggestions for further study.

II. NATURE OF DEMAND FOR AUDIT SERVICE

Although the audit market is created by the demand for the credibility of financial information, it is not a static market. Several studies were done to investigate the characteristics of audit market (Dopuch and Simunic, 1980; Simunic, 1980; De Angelo, 1981; Palmrose, 1986; Wilson and Grimlund, 1990), the selection of auditors (Johnson and Lys, 1990; Simunic and Stein, 1987) and the switch of auditors (Nichols and Smith, 1983; Schwartz and Menon, 1985). These studies suggest that audit market in the United States is a competitive one despite the fact that the audits of public companies are concentrated in a very few large accounting firms. They also indicate that the choices of auditors by completely new purchasers of audit service or those switching from other auditors are rational economic decisions. Such choices affect the outcomes of competition in audit market. Among these studies, Dopuch and Simunic (1980) provides a theoretical model for the study of demand for audit service. This model renders several plausible explanations for the nature of demand for audit service and provides important insights into the examination of audit market.

Traditionally, it is assumed that the management of the company are acting on the best interest of the shareholders. However, in agency theory (Jensen and Meckling, 1976), it is suggested that the management, as an agent for the shareholders, would indeed maximize its own utility in operating the company. Since the top management has the authority in the selection of independent auditor and decides on the amount of audit service, it would utilize this opportunity to its best interest, which, in turn, may alter the nature of competition in the audit market.

In this agency frame work, the contracting of external auditor is to reduce the agency costs by using the auditor as a monitoring device. Dopuch and Simunic (1982) indicated that a rational top management could have self-serving behavior as it may be motivated to take and conceal actions that do not serve the interests of the present and potential investors. The requirement by the regulatory agencies to use external auditor is to reduce the probability of such behaviors. The ex ante value of an audit is, thus, dependent on the perceived joint probability of the auditor to discover errors or

irregularities of the financial statements and to disclose these events truthfully (De Angelo, 1981).

In addition, Dopuch and Simunic (1980; 1982) indicated that the choice of auditor may provide a signal to the market for the desired effect intended by the management of the company. They suggested that the top management values two important functions provided by an audit, including the strengthening of controls over its organization and the enhancement of credibility to external financial statement users. Credibility simply means the truthfulness or lack of intentional misrepresentation of financial statements. The need for credibility is the result of information asymmetry.

In the situation of information asymmetry, moral hazard may occur (Marshall, 1976). Since the management of publicly-traded companies have more information than the current and potential investors, it may take the advantage of the investors who are less informed and cause moral hazard. To reduce potential investors' uncertainty about the honesty of the company's top management, the company can contract a reputable auditor for a costly audit and use this as a signal to convince the market of the credibility of the financial statements.

Dopuch and Simunic (1980) condenses the demand for audit service in the following model. That is, in this model, the purchase decision of audit service by the top management is to maximize its expected compensation with the following function:

$$\max E(Comp) = a[E(I(s,q)-rs-p_1q)] + a[E(I(c)-p_2cq)] + E(V(c))$$

where

Comp = compensation for top management

s	=	the units of all inputs for organizational control except independent audit
q	=	the units of independent audit for organizational control
c	=	the units of auditor credibility
r	=	the price for s
p_1	=	the price for q
p_2	=	the price for c
a	=	a fraction, $0 < a < 1$
I	=	the income of the firm, which is a function of s,q, and c.
V	=	the value of top management's self-serving behavior, which is an inverse function of auditor credibility

In this model, top management is assumed to be risk neutral and to receive its compensation as a fraction of the change in the market value of the firm, which is considered as the income, I, of the firm. The compensation for top management

consists of three parts. The first part is the expected income derived from all organizational controls including independent audit over the costs for these controls. The second part is the expected income derived from engaging credible auditor over its associated cost. Use of a credible auditor is more likely to lead the shareholders (or potential shareholders) to expect top management is not engaging in "self serving behavior" and thus, increase the market value of the firm. The third part is the expected value of management's "self-serving behavior", which may add certain amount of income to top management. The value of "self-serving behavior" is inversely related to the auditor's credibility since a credible auditor will be motivated to reduce the likelihood of such a behavior by top management. This model suggests that management's choice of independent auditor depends on the total compensation he can expect from these three sources.

In a market where the top management has little incentive for all forms of organizational controls, the compensation it can expect would be from the self-serving behavior. Since the value of self-serving behavior is inversely related to the credibility of the auditor, the top management is more likely to select an auditor with little reputation at minimum cost. When the demand for audit of financial statements of publicly-traded companies is mainly due to the requirement of the securities exchange regulations, these companies have the incentive only to comply with the regulations. In this situation, the audit cost would be the major consideration in the selection of auditors. As a result, accounting firms that offer audit service at lower cost would be the primary suppliers of audit services for publicly-traded companies, regardless of their quality and reputation.

However, with the growth of stock market, the nature of demand for audit service may change. When regulations on stock market become more stringent and the preparation and disclosure of financial information more complicated, the need for credibility of financial statements and the associated audit would increase. As the user of the financial statements is not able to fully comprehend the substance of the audit, he would have to rely more on the auditor's reputation to judge the fairness of the financial statements. Therefore, the use of auditor to provide a positive signal to the market becomes more important and the selection of auditors by publicly-traded companies cannot entirely depend on audit cost. In addition, when the size of a publicly-traded company is expanding, it creates more complexity for organizational controls. A competent and reputable auditor is more likely to provide the needed control and the utility of using quality auditor for control purpose is increased. In both situations, the expected income for top management from quality audit may exceed the expected income from self-serving behavior. As a result, top management may purchase audit service from auditors with good credibility for higher prices.

   Simunic and Stein (1987) indicated that auditor's credibility is not a free good. It requires extensive investment in audit technology and training to maintain the desired level of competence for the discovery of material errors in financial statements. It also requires the auditor to report his findings truthfully without the fear of losing his financial well-being. DeAngelo (1981) argued that audit quality is not independent from auditor size because larger accounting firms have more to lose if their quality or credibility are being challenged. Therefore, ceteris paribus, the auditor's firm size can be used as a surrogate for auditor's reputation or credibility, i.e., large accounting firms are more likely to offer quality audit.

III. ACCOUNTING FIRMS IN TAIWAN

   In Taiwan, many large public accounting firms are affiliated with major U. S. accounting firms, such as Big-Eight accounting firms[1]. The affiliation adds to the reputation of domestic accounting firms since the affiliation generally provides technical support, training and quality control for the domestic firms. Therefore, the affiliation with major U.S. accounting firms is used as a basis for grouping of accounting firms.

Table 1   Time of Affiliations Established by Domestic Firms with the U.S. Big-Eight Accounting Firms

Big Eight Firm	Domestic Firm	Year of New Affiliation
Arthur Andersen	T. N. Soong & Co.	1964
Price Waterhouse	Chen, Chu & Co.	1970
KPMG	Peat,Marwick, Mitchell	1971
Touche Ross	Chiang, Lia & Lin	1983
Arthur Young	Diwan & Co.	1986
Deloitte Haskins & Sells	Der Ching & Co.	1987
Coopers & Lybrand	Prosperity United	1987
Ernst & Whinney	Solomon & Chang	1988

[1]The Big-Eight U. S. accounting firms become the Big-Six now. It is the result of the merger between Deloitte Haskins & Sells and Touche Ross in 1989, which becomes Deloitte and Touche. In addition, Arthur Young and Ernst & Whinney merged in 1989 and become Ernst and Young. As the data used in this study is up to 1989, the paper still uses the term Big-Eight for discussion purpose.

. In order to empirically study the structure of audit market and its change, data about the auditors for the publicly-traded companies are collected from 1982 to 1989.[2] Since the accounting firms that have affiliation with U. S. Big-Eight accounting firms established their relationships at different time periods (See Table 1), these firms are categorized into two groups, B1 and B2 groups. B1 group consists of the first three firms that have longer relationships with their corresponding U. S. Big-Eight firms. B2 group is the remaining firms that established their relationships with U. S. Big-Eight firms in a relative shorter period. Other accounting firms form the S3 group. The characteristics of the Big-Eight affiliated firms and non-Big-Eight firms are very much different in several respects. Table 2 provides a descriptive statistics for the accounting firms as of 1989. It can be seen that there is a huge number of small firms with a very few number of larger firms. The average revenue for B1 group is about 2.5 times of the B2 group, and about 58 times of the S3 group. The salary structure is also very different, with the B1 group paying about 1.3 times of B2 group and 2.4 times of the S3 group. As training cost represents the major cost in maintaining audit quality, its amount is of special significance. The average training hour for B1 group is about the same as the B2 group, but about 4.8 times of the S3 group. The average training expense for B1 group is about 2.9 times of the B2 group and 7.4 times of the S3 group. It is apparent that large accounting firms are able to spend much larger resources in training to maintain the service quality while the smaller firms are less able to do so. Due to higher salary scale and training expenses which are also indicators of quality, large accounting firms would have higher audit costs for their clients. This appears to be consistent with DeAngelo finding (1981) that audit quality is positively associated with the size of the firm.

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[2] Since 1982, there have been several legislative and regulatory changes that affect the underlying structure of audit market. For example, in 1982, the Ministry of Economic Affairs and Ministry of Finance jointly issued "The Rules of Financial Audit by Certified Public Accountants", which explicitly stipulate the procedures for auditing financial statements. In 1983, a revision on "Certified Public Accountants' Act" which changes the regulatory agency on the CPAs from the Ministry of Economic Affairs to the Ministry of Finance. This change places more striangent control on the CPAs. Also, in 1983, the Securities & Exchange Commission issued "The Rules for Approving the Financial Audit on Publicly Traded Companies by Certified Public Accountants", which requires audit on publicly-traded companies should be performed by CPA firms with at least three CPAs. These regulations altered the nature of competition audit market more dramatically in comparison with previous years. As a result, this study only examines the data from 1982.

Table 2 Some Descriptive Statistics of Accounting Firms in 1989

FIRM GROUP	NO.OF FIRMS	AVG. NO.OF PART.	AVG. NO.OF STAFF	AVG NO.OF PROF.	AVG. REVENUES PER FIRM (000)	AVG. SALARY PER PROF (000)	AVG. TRAIN. HOURS PEP PROF.	AVG. TRAIN. EXPENSE PER PROF.
B1	3	19.3	289	309	$247,607	$435	67	$13,180
B2*	5	9.2	126	135	100,463	338	62	4,494
S3*	425	1.5	9	10	4,226	184	14	1,789
OVERALL	433	1.7	12	14	$ 7,023	$241	25	$3,886

* Adapted from original data.

Source: Survey on Certified Public Accounting Firms, as of December 1989, Ministry of Finance, ROC, November 1990.

IV. DATA ANALYSES

In analyzing the collected data, it should be noted that the change of audit market could be the result of changing underlying regulatory or institutional environments. Such a change is due to the increased demand for credibility of financial statements and independent audit induced by the changing economy.

For example, the regulatory requirement of financial audit to be performed by CPA firms with at least three licensed practitioners (SEC, 1983) was aiming at improving audit quality. This, nevertheless, introduces an incentive for the small accounting firms to realign their partnership to avoid the loss of clients. In addition, the increase in the issuance of financial and auditing standards since early 1980's is to strengthen the overall quality of financial statements and associated audits. It adds to the complexity and cost of performing audit for the publicly-traded companies and creates an environment that introduces more incentives for changing auditors. As there are many other regulatory changes since early 1980, their impact on the accounting profession and audit market should not be ignored. These regulatory and environmental changes are reflected in the changing pattern of audit market, which is the primary emphasis of the following analyses.

A. Audit Market for Publicly-Traded Companies

In order to understand the audit market for publicly-traded companies in Taiwan Stock Exchange, an analysis of auditors for publicly-traded companies is done in Table 3. Table 3 provides the data on the numbers of publicly-traded companies audited by Big-Eight affiliated accounting firms and non-Big-Eight affiliates from 1982 through 1989. Within each group of accounting firms, the first line indicates the number of publicly-traded companies audited, denoted as NUM. The second line indicates the percentage of publicly-traded companies audited by that group, denoted as PER. The third line refers to the changing directions of market shares, denoted as SIGN, which is used in Cox-Stuart test as explained in footnote 3. From the available data, the number of publicly-traded companies audited by Big-Eight affiliated group (i.e., B1+B2 group) increased from 43 in 1982 to 113 in 1989. The percentage of their market share in terms of the number of clients is also increasing. By using Cox-Stuart statistics for nonparametric test (Yen, 1986), the p-value is 0.125 for one-tailed test.[3] On the other hand, the client number of non-Big-Eight affiliated group does not appear to have an increasing pattern. Its client number was 55 in 1982, reached to 74 in 1984 and became 56 in 1989. Its market share by percentage indicated a decreasing trend from 56% in 1982 to 33% in 1989. The p-value for Cox-Stuart statistic is also 0.125. As the minimum level of p-value that can be achieved for this sample size (8 years) is 0.0625, the result provides a weak support for the increasing market share by Big-Eight affiliated firms.

To examine the changing structure of market in more detail, the Big-Eight affiliated group is further divided into two groups, B1 and B2 groups. For B1 group, its clients increased from 14 in 1982 to 58 in 1989. The percentage of its market share is also

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[3] Cox-Stuart statistic is to test the directional property of series of observations. N independent observation $x_1, x_2, \ldots, x_n$ are paired to form: $(x_1, x_{1+c}), (x_2, x_{2+c}), \ldots, (x_{n-c}, x_n), c = n / 2$ when n is even and c = (n + 1) / 2 when n is even and c = (n + 1) / 2 when n is odd. the directions of these pairs are recorded and form a new series. In Exhibit 5, there are only eight observations and the directions are represented by "+" for increase, "-" for decrease and "#" for no change. Therefore, the new series for directions are "+#++" for Big-Eight affilliates and "-#--" for non-Bit-Eight affiliates. The minimum level of p-value for a sample of 8 is 0.0625, which is computed for the situations of "++++" or "----". If three decimal points are used in Exhibit 5, the changing patterns for B1 + B2 group would be "++++", and for S3 group be "----". This would indicate a moderate support for an increasing pattern for B1 + B2 group and a decreasing trend for S3 group.

increasing from 14% to 34% during this period. This indicates the expansion of market share of these firms. From the Cox-Stuart statistic, the p-value for the increasing trend of B1 group is 0.0625, which is the minimum value achievable in this sample. This result appears to support the increasing market share of B1 group.

Table 3 Auditors for Publicly-Traded Companies During 1982-1989

Group		1982	1983	1984	1985	1986	1987	1988	1989	p-value
	NUM	14	16	13	16	25	31	48	58	
B1	PER	0.14	0.16	0.12	0.15	0.21	0.24	0.32	0.34	
	SIGN					+	+	+	+	0.0625
	NUM	29	31	24	29	29	29	47	55	
B2	PER	0.30	0.30	0.22	0.27	0.25	0.22	0.31	0.33	
	SIGN					-	-	+	+	0.6875
	NUM	43	47	37	45	54	60	95	113	
B1+B2	PER	0.44	0.46	0.34	0.41	0.46	0.46	0.63	0.67	
	SIGN					+	#	+	+	0.1250
	NUM	55	56	71	64	63	70	57	56	
S3	PER	0.56	0.54	0.66	0.59	0.54	0.54	0.38	0.33	
	SIGN					-	#	-	-	0.1250
TOTAL		98	103	108	109	117	130	152	169	

*Due to the availability of data, the numbers of the firms in this Exhibit represents from 87% to 95% of total publicly-traded companies in the respective years.

**Notations: NUM = Number of Publicly-Traded Companies Audited; PER = Percentage (or Market Share) of Publicly-Traded Companies Audited; SIGN = Signs for Change of PER as Used in Cox-Stuart Test: "+" for increase, "-" for decrease and "#" for no change. These notations also apply to other tables.

B2 group consists of the Big-Eight affiliated firms that established their relationship after 1980. This group of auditors does not have a clear pattern in terms of their market

share percentage. Its market share was about 30% in 1982 and decreased to 22% in 1987. From 1988, its market share increased again to 31% and 33% in 1988 and 1989, respectively. Nonetheless, the p-value under Cox-Stuart statistic is 0.6875 and suggests no significant trend for the market share of B2 group.

S3 group, consisting of non-Big-Eight affiliated firms, appears to lose their market shares gradually. Its market share decreased from 56% in 1982 to 33% in 1989. Although the number of their clients does not show significant loss, their market share is decreasing. The signs for the computation of Cox-Stuart statistic are all negative and the p-value is 0.125, providing a moderate support for the losing market share by S3 group.

To understand the characteristics of changing audit market, the market shares are further broken down according to the size of publicly-traded companies by their revenues. These companies are first ranked by their revenue sizes and classified into three segments by using 1/3 and 2/3 of their total revenue as benchmarks: the upper one-third, middle one-third and lower one-third segments. Table 4 provides the details of the analyses. Due to the limited sample size, the Cox-Stuart statistics for the data in each group may not be significant. However, the p-values and the signs for change still contain some information for the analyses.

For the upper segment of publicly-traded companies, B1 and B2 groups appear to have an increasing share of the market with a p-value of 0.6875. Their signs changed from "-" to "+". On the contrary, S3 group appears to lose its market share in this segment of the market. Its sign changes from "+" to "-" with a p-value of 0.6875. However, due to the limited sample size, this is only a very weak evidence for the changing market in this segment.

For the middle segment of publicly-traded companies, B1 group has a moderate support for the increase of its market share with all "+" signs in computing Cox-Stuart statistic. Its p-value is 0.0625, which is the minimum value achievable with this size of sample. S3 group, on the contrary, is losing market share with all "-" signs for Cox-Stuart statistic and a p-value of .0625. While B2 group appears to increase its market share in this segment, the support is rather weak with a p-value of .3125. This result suggests that during this period, the largest accounting firms (B1 group) are increasingly retained by the middle-size companies as their auditors more than the second largest group of accounting firms (B2 gorup).

On the lower segment of the market, B1 group also has an increased market share with all "+" signs for Cox-Stuart test. Its p-value is 0.0625. Again, S3 group is losing its market share with all "-" signs and p-value of 0.0625. Although B2 group appears to have a very weak support for gaining market, it is not significant. Thus, it is the B1 group that expands in this segment of the market.

Table 4 Auditors of Publicly-Traded Companies by Revenue Size

REVENUE SIZE		1982	1983	1984	1985	1986	1987	1988	1989	p-value
UPPER	1/3									
	NUM	9	10	8	9	9	11	20	22	
B1	PER	0.30	0.31	0.21	0.26	0.24	0.28	0.43	0.40	
	SIGN					-	-	+	+	0.6875
	NUM	11	9	8	10	11	10	13	17	
B2	PER	0.37	0.28	0.21	0.29	0.30	0.25	0.28	0.31	
	SIGN					-	-	+	+	0.6875
	NUM	10	13	23	16	17	19	14	16	
S3	PER	0.33	0.41	0.59	0.46	0.46	0.48	0.30	0.29	
	SIGN					+	+	-	-	0.6875
SUBTOTAL		30	32	39	35	37	40	47	55	
MID.	1/3									
	NUM	3	3	4	3	9	10	15	18	
B1	PER	0.09	0.09	0.11	0.08	0.23	0.23	0.28	0.32	
	SIGN					+	+	+	+	0.0625
	NUM	9	12	9	12	11	11	20	20	
B2	PER	0.26	0.34	0.26	0.32	0.28	0.26	0.38	0.35	
	SIGN					+	-	+	+	0.3125
	NUM	22	20	22	22	19	22	18	19	
S3	PER	0.65	0.57	0.63	0.59	0.49	0.51	0.34	0.33	
	SIGN					-	-	-	-	0.0625
SUBTOTAL		34	35	35	37	39	43	53	57	
LOWER	1/3									
	NUM	2	3	1	4	7	10	13	18	
B1	PER	0.06	0.08	0.03	0.11	0.17	0.21	0.25	0.32	
	SIGN					+	+	+	+	0.0625
	NUM	9	10	7	7	7	8	14	18	
B2	PER	0.26	0.28	0.21	0.19	0.17	0.17	0.27	0.32	
	SIGN					-	-	+	+	0.6875
	NUM	23	23	26	26	27	29	25	21	
S3	PER	0.68	0.64	0.76	0.70	0.66	0.62	0.48	0.37	
	SIGN					-	-	-	-	0.0625
SUBTOTAL		34	36	34	37	41	47	52	57	
TOTAL		98	103	108	109	117	130	152	169	

The above analyses suggest that the largest three accounting firms are increasingly accepted by the companies in the middle or lower segments of the market despite the higher audit costs. This result suggests the growing recognition of the importance of auditor's quality in the market. At the same time, although B2 group appears to have a slight increase in market share, the potential growth of audit market for this group of accounting firms is still not clear.

The change in audit market can be examined more critically in two submarkets, the market for new publicly-traded companies and the market in existing publicly-traded companies. The first one is due to the growth of the securities market. When more companies become publicly-traded in the stock exchange, it is expected that the total client number for accounting firms will increase. With the growing market, the selection of auditor will reveal the preference of the market. The second market comes from the switch of auditors among different groups of auditors. The publicly-traded companies may switch auditors by various reasons as described in previous sections. Further analyses are done to investigate the market change in these two areas.

B. Audit Market for New Publicly-Traded Companies

From Table 5, it can be seen that Big-Eight affiliated firms are increasing their market shares for new publicly-traded companies. Their client numbers are increasing from 2 in 1982 to 11 in 1989, with their shares from 29% to 65% in the same period. For non-Big-Eight affiliated firms, their number increased from 5 in 1982 to 6 in 1989, but with decreasing market shares from 71% to 35% during this period. By using Cox-Stuart statistic, the p-value of one-tailed test is 0.0625 for both the Big-Eight affiliated companies and non-Big-Eight affiliates. This indicates the trend for increasing market share by Big-Eight affiliated firms as well as the decreasing trend for non-Big-Eight affiliated firms. However, in order to understand whether the trend is true for all Big-Eight affiliated firms, further analysis is done with the breakdown of B1 and B2 groups. In Table 5, B1 group shows a more significant trend for increased market share, while B2 group does not have an increasing trend. From Cox-Stuart statistic, B1 group demonstrates an increasing trend in the market share with a p-value of 0.0625 while B2 group reveals a decreasing trend with the same p-value.

This result suggests although Big-Eight affiliates are increasing their clients for new publicly-traded companies market, it is the B1 group that has more gain in this market. It could be that the management of new publicly-traded companies consider the benefits by engaging largest accounting firms exceed the higher audit costs they have to afford. Therefore, the credibility of B1 group that enhances its competitiveness in the market. When the number of accounting firms in each group is taken into consideration, the

chance for a small firm in getting a new client is much smaller than that of the large accounting firms.

Table 5 Auditors for New Publicly-Traded Companies

Group		1982	1983	1984	1985	1986	1987	1988	1989	p-value
	NUM	1	0	0	1	2	4	10	8	
B1	PER	0.14	0.00	0.00	0.20	0.67	0.31	0.48	0.47	
	SIGN					+	+	+	+	0.0625
	NUM	1	2	1	1	0	3	4	3	
B2	PER	0.14	0.40	0.25	0.20	0.00	0.23	0.19	0.18	
	SIGN					-	-	-	-	0.0625
	NUM	2	2	1	2	2	7	14	11	
B1+B2	PER	0.29	0.40	0.25	0.40	0.67	0.54	0.67	0.65	
	SIGN					+	+	+	+	0.0625
	NUM	5	3	3	3	1	6	7	6	
S3	PER	0.71	0.60	0.75	0.60	0.33	0.46	0.33	0.35	
	SIGN					-	-	-	-	0.0625
TOTAL		7	5	4	5	3	13	21	17	

C. The Switch of Auditors in Existing Publicly-Traded Companies

In addition to the selection of auditors in the audit market for new publicly-traded companies, the switch of auditors by existing publicly-traded companies also affects the market structure for audit service. Therefore, this study also investigates the switch of auditors among publicly-traded companies.

Table 6 indicates the switch of auditors between Big-Eight affiliates and non-Big-Eight affiliates during the period from 1982 through 1989. A χ^2 test on the total number of auditor switch between Big-Eight affiliates and non-Big-Eight affiliates shows a p-value less than 0.005, suggesting the direction of switching auditors is significantly different between the two groups. It indicates that more companies audited by non-Big-Eight affiliates switch to Big-Eight affiliates than the other way around. Table 7 provides more details on the switch of auditors during this period.

Table 7 indicates the switch of auditor is most significant from non-Big-Eight (denoted as S) affiliates to Big-Eight affiliates (denoted as B), with a p-value of 0.0625. The switch may come from the change of auditors or the merge of accounting firms between non-Big-Eight auditors and Big-Eight auditors.[4] There is a weak support for the

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[4] Due to the unavailability of data, this study is not able to make a distinction between these two types of switch. Thus, the inference from this result should take into consideration of this difficulty.

Table 6 Switch of Auditors between Big-Eight Affiliates and Non Big-Eight Firms

PRECEDING AUDITOR	SUCCESSIVE AUDITOR		
	B	S	TOTAL
B	14	15	29
S	41	30	71
TOTAL	55	45	100

$$\chi^2 = 1.16071$$
$$p\text{-value} < 0.005$$

* B denotes large accounting firms, i.e., B1+B2 group, and S denotes small accounting firms, i.e., S3 group.

Table 7 Details of Auditor Switch between Big-Eight Affiliates and Non Big-Eight Firms

Group		TOTAL	1983	1984	1985	1986	1987	1988	1989	p-value
B->B	NUM	14	1	1	1	0	1	8	2	
	PER		0.06	0.07	0.11	0.00	0.14	0.27	0.18	
	SIGN					-	+	+	+	0.3125
S->B	NUM	41	3	0	5	3	3	19	8	
	PER		0.17	0.00	0.56	0.30	0.43	0.63	0.73	
	SIGN					+	+	+	+	0.0625
B->S	NUM	15	5	6	0	2	2	0	0	
	PER		0.28	0.40	0.00	0.20	0.29	0.00	0.00	
	SIGN					-	-	#	-	0.1250
S->S	NUM	30	9	8	3	5	1	3	1	
	PER		0.50	0.53	0.33	0.50	0.14	0.10	0.09	
	SIGN					#	-	-	-	0.1250
TOTAL		100	18	15	9	10	7	30	11	

switch of auditors among Big-Eight affiliates with a p-value of 0.3125. On the other hand, the switch of auditors from Big-Eight affiliates to non-Big-Eight firms appears to be decreasing with a moderate p-value of 0.125. Also, the switch from non-Big-Eight to non-Big-Eight affiliates is also decreasing with a p-value of 0.125. The results suggest that Big-Eight affiliates are gaining more clients from non-Big-Eight accounting firms, while non-Big-Eight affiliates are losing their existing market share. In order to examine the switch of auditors between different groups of Big-Eight affiliates and non-Big-Eight affiliates, the Big-Eight group is further broken down to B1 and B2 groups. Table 8 shows the switch of auditors at this level. Due to the limited sample size, most of the change among these groups are not significant. Nonetheless, it should be noted that there is no switch of auditor from B1 group to S3 group. In addition, the switch from B2 to S3 and from S3 to S3 are decreasing with a p-value of 0.1250. It is clear that non-Big-Eight accounting firms are losing their client share to Big-Eight affiliates. The change of auditors between B1 and B2 groups does not have a clear pattern for reaching a definite conclusion.

V. CONCLUSIONS

The public accounting firms constitute an important institution in the operation of capital market. It is expected that, with the growth of capital market, the accounting profession will be able to provide better audit service to facilitate the functioning and regulation of the market.

The demand for auditing comes from the regulatory requirement, the signalling effect, as well as the need for organizational controls. These demands affect the market structure of audit service and can be used to explain the changing pattern of audit market in Taiwan.

From the analyses, it is seen that large accounting firms in Taiwan are gaining more market over years while the smaller firms are losing their market share. Large accounting firms acquire more clients in new publicly-traded companies. More publicly-traded companies also switch from small accounting firms to large accounting firms than from large firms to small firms. However, the switch of auditors among large accounting firms are less severe and there is no clear trend. The switch of clients between small accounting firms has a weak sign of decreasing pattern. This also suggests the clients are switching more toward large accounting firms.

The results suggest the expanding market of large accounting firms. If large accounting firms are able to provide better audit service and maintain their independence, this trend would indicate a positive development of audit for capital market. However, if

Table 8 Details of Autidor Switch among Auditors

Group		1983	1984	1985	1986	1987	1988	1989	p-value
	NUM	0	0	0	0	1	0	1	
B1->B1	PER	0.00	0.00	0.00	0.00	0.14	0.00	0.09	
	SIGN				#	+	#	+	0.2500
	NUM	0	0	0	0	0	0	1	
B2->B1	PER	0.00	0.00	0.00	0.00	0.00	0.00	0.09	
	SIGN				#	#	#	+	0.5000
	NUM	2	0	2	3	2	5	2	
S3->B1	PER	0.11	0.00	0.22	0.30	0.29	0.17	0.18	
	SIGN				+	+	-	-	0.6875
	NUM	0	0	1	0	0	4	0	
B1->B2	PER	0.00	0.00	0.11	0.00	0.00	0.13	0.00	
	SIGN				#	#	+	#	0.5000
	NUM	1	1	0	0	0	4	0	
B2->B2	PER	0.06	0.07	0.00	0.00	0.00	0.13	0.00	
	SIGN				-	-	+	#	0.5000
	NUM	1	0	3	0	1	14	6	
S3->B2	PER	0.06	0.00	0.33	0.00	0.14	0.47	0.55	
	SIGN				-	+	+	+	0.3125
	NUM	0	0	0	0	0	0	0	
B1->S3	PER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	SIGN				#	#	#	#	1.0000
	NUM	5	6	0	2	2	0	0	
B2->S3	PER	0.28	0.40	0.00	0.20	0.29	0.00	0.00	
	SIGN				-	-	#	-	0.1250
	NUM	9	8	3	5	1	3	1	
S3->S3	PER	0.50	0.53	0.33	0.50	0.14	0.10	0.09	
	SIGN				#	-	-	-	0.1250
TOTAL		18	15	9	10	7	30	11	

large accounting firms are not able to maintain their quality and yield to the unreasonable demand from their clients, it would pose a serious consequence. As publicly-traded companies are increasingly using large accounting firms for their audit, they are also signalling to the market on the credibility of their financial statements. The audit quality of large accounting firms has to be assured in order to avoid the misinformation contained in the signal. With the audit market moving more favorable toward large accounting firms, the regulatory agencies would need to adopt policies that will reinforce their audit qualities.

The result of this study is limited by the availability of data and the sample size. The result would need to be further validated when more data are available. In addition, although the audit market for publicly-traded companies in Taiwan Stock Exchange constitutes a major part of audit market, the audit for financing purpose is also an important segment of total audit market in Taiwan. Future study on this segment would provide more insights into total audit market in Taiwan and a fruitful ground to test the theory in auditing behavior.

REFERENCES

Arnett, H., and P. Danos, *CPA Firm Viability*. Paton AccountingResearch Center, University of Michigan, 1979.

De Angelo, L. E., Auditor size and audit quality. *Journal of Accounting and Economics*.1981: 183-199.

Dopuch, N., and D. Simunic. The nature of competition in theauditing profession: a descriptive and normative view. In *Regulation and the Accounting Profession*, edited by J. Buckley and F. Weston, 77-94, Belmont, California: Lifetime Learning Publications, 1980.

_____. Competition in auditing: an assessment, *Fourth Symposium on Auditing Research*. University of Illinois, 1982: 401-450.

Fried, D. and A. Schiff. CPA switch and associated market reactions. *The Accounting Review*, April 1981: 326-341.

Holmstrom, B., Moral hazard and observability. *The Bell Journal of Economics*. 1979: 74-91.

Jensen, M. C., and W. H. Meckling. Theory of the firm: Managerial behavior , agency costs and ownership structure. *Journal of Financial Economics*. 1976: 305-60.

Johnson, W. B., and T. Lys. The market for audit services: Evidence from voluntary auditor changes. *Journal of Accounting and Economics*. 1990.

Marshall, J. M. Moral hazard. *American Economic Review.* 1976: 880-890.

Mautz, R. K., and H. A. Sharaf. *The Philosophy of Auditing.* Sarasota: American Accounting Association. 1961.

Ministry of Economic Affairs and Ministry of Finance. *The Rules of Financial Audit by Certified Public Accountants.* 1982.

Nichols, D. R., and D. B. Smith. Auditor credibility and auditor changes. *Journal of Accounting Research.* Autumn 1983: 534-544.

Palmrose, Z. Audit fees and auditor size: Further evidence. *Journal of Accounting Research.* Spring 1986: 97-110.

Schwartz, K. B. and K. Menon. Auditor switches by failing firms. *The Accounting Review.* April 1985: 248- 261.

Securities & Exchange Commission. *The Rules for Approving the Financial Audit on Publicly-Traded Companies by Certified Public Accountants.* 1983.

_____. *Rules for the Implementation of Securities Exchange Act.*1988.

Simunic, D. A. The pricing of audit service:Theory and evidence. *Journal of Accounting Research.* Spring 1980: 161-90.

Simunic, D. A., and M. T. Stein. *Product Differentiation in Auditing: Auditor Choice in the Market for Unseasoned New Issues.* The Canadian Certified General Accountants' Research Foundation, 1987.

Smith, L. H., and D. R. Williams. *Statistical Analysis for Business: A Conceptual Approach.* Belmont, California: Wadsworth Publishing, Inc.,1976.

Titman, S., and B. Trueman. Information quality and the valuation of new issues. *Journal of Accounting and Economics.* 1986: 159-172.

Wilson, T. E., and R. A. Grimlund. An examination of the importance of an auditor's reputation. *Auditing: A Journal of Practice and Theory.* Spring 1990: 43-59.

Yen, C., *Applied Nonparametric Statistics.* 1986, Taipei, Taiwan.