FINANCIAL PERFORMANCE OF AUDIT FIRMS IN DIFFERENT LIFE CYCLE STAGES: EVIDENCE FROM TAIWAN

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ABSTRACT

This study is the first to compare the financial performance of audit firms at different life cycle stages in distinct market segments. In terms of market segmentation, total samples are categorized into three subsamples: large, medium, and small audit firms. Based on the Taiwanese auditing industry data set, this study validates that organizational life cycles exist in audit firms, which includes young, adult, and old stages. Further, this study documents that financial performance of the three sub-samples is different at each life cycle stage. Finally, financial performance of the three sub-samples varies at the same life cycle stage. With results, this study contributes knowledge to the business-related literatures.

JEL: M41

KEYWORDS: Audit Firms, Organizational Life Cycles, Market Segmentation, Financial Performance

INTRODUCTION

In recent decades, audit market has been increasingly competitive around the world. For example, the Taiwanese Financial Supervisory Commission indicates that the number of practicing accountants increases approximately 140% from 726 in 1989 to 1,738 in 2007, and the number of audit firms increases approximately 97% from 433 in 1989 to 854 in 2007. A highly competitive market environment makes an organization to grow and expand (Child 1972). To respond to the changing market, audit firms adjust their business structures and operating strategies to survive and sustain competitiveness. Prior studies indicate that the development of an organization can be explained from the viewpoint of life cycle and it follows a predictable pattern that can be characterized by a variety of stages.

These stages are sequences of event that describes how things change over time, a hierarchical progression that is not easily reversed, and various organizational activities and structures (Quinn and Cameron 1983; Kleiner and Corrigan 1989; Van De Ven 1992; Dodge, Fullerton, and Robbins 1994). Every organization has a natural life cycle similar to a living organism (Adizes 1979). Organizations face a unique set of challenges at each new stage of life cycle and adjust their business strategies and organizational structure to adapt to the new life cycle stage (Dodge, Fullerton, and Robbins 1994). The organizational life cycle concept has been applied to management and capital market-related studies (Quinn and Cameron 1983; Anthony and Ramesh 1992; Ritter and Welch 2002; Cohen, Mashruwala, and Zach 2010). However, the concept rarely applies to the service industry such as audit firms.

This motivates us to answer the first question in our analysis. Whether audit firms have an organizational life cycle?Audit firms are typically a professional service organization and provide services by auditors with expertise (Morris and Empson 1998; Gibbins and Wright 1999). Audit firms are often grouped by size and then result in various service provisions. In terms of market segmentation and based on prior studies (Ghosh and Lustgarten 2006; Chen, Chang, and Lee 2008), this study partitions total samples into three categories: large, medium, and small firms. Given the existence of life cycles in the audit firms, this study further examines whether financial performance differs among the life cycles of the three subsample audit firms and whether financial performance differs among the three subsample audit firms

at the same life cycle. Following Smith, Mitchell, and Summer (1985), and Anthony and Ramesh (1992), this study employs total revenues to subdivide the life cycle of audit firms into three stages, including young, adult, and old stages. Based on a 16-year auditing industry data set, empirical results validate that organizational life cycle exists in the audit firms. Next, for audit firms in the same market segment, financial performance differs between life cycle stages. Further, financial performance differs between different subsample firms at the same life cycle stage. To the best of our knowledge, we are the first to examine the organizational life cycles and their financial performance effects for audit firms under different market segments. Our empirical results contribute knowledge to the business-related literatures and provide managerial implications to the practitioners.The remainder of this paper is organized as follows. Section 2 presents the literature review and the hypothesis development. Data and Methodology appear in Section 3. Section 4 reports the empirical results. We conclude and discuss in Section 5.

LITERATURE REVIEW

Haire (1959) originally described the concept of organizational life cycle and Chandler (1962) introduced a life cycle stage concept that indicates that organizational business strategies and structures change at different life cycle stages. Researchers employ the biological analogy to explain the growth, change of an organization, and indicate that the evolution of the organization follows a consistent and predictable pattern (Hanks, Watson, Jasen, and Chandler 1993). Because the organizational changes and developments at different life cycle stages are predictable (Adizes 1979), managers utilize the implicative information to make proper decisions for future market competition, difficulties and challenges to be encountered. The concept of market segmentation comes from the incomplete competition market theory in the 1930's, which states that consumers in a market are assumed to be heterogeneous and have varied preferences. In this situation, firms differentiate consumers with homogeneous preferences and group them into a smaller unit to market their products. When consumers are multitudinous and are of varying characteristics and buying requirements, single product mix offered by the firms is unable to satisfy all consumers. It is thus natural that many separate segments formed within a market (Kotler and Keller 2012) and firms adjust their products and marketing activities precisely by market segmentation to meet the consumer or user needs (Smith 1956). Consumers within the same market segment are assumed to have a set of common characteristics, including demographic factors, geography, the buyer's industry, and size of the purchasing firm (Besanko, Dranove, Schaefer, and Shanley 2012).

In practice, large public companies are more complicated in organization structure and have higher internal agency cost. These companies thus engage larger audit firms to audit their financial statements to mitigate their agency cost (Francis, Maydew, and Sparks 1999). In contrast, small and medium-sized companies are simpler in organization structure and are served by smaller audit firms to seek low-priced audit services. The practical phenomenon makes the audit firms offering and not offering services to large public companies are quite different in size, which leads to the market segmentation in the auditing industry documented by prior studies (Defond, Francis, and Wong 2000; Ghosh and Lustgaten 2006; Chen, Chang, and Lee 2008). Organizational forms of audit firms include proprietorship, partnership, or a professional corporation such as a limited liability partnership or a limited liability company (Elder, Beasley, and Arens 2008). While Taiwanese laws and regulations allowed auditors to practice as a professional corporation a few years ago, no audit firm is formed as this organizational structure. As a result, this study categorizes audit firms into three subsamples: large, medium and small audit firms. This study defines large audit firms as partnership firms with three or more partners.

If the number of partners is fewer than three, the partnership audit firms are medium audit firms. Small audit firms are proprietorship firms. Sole proprietors are the owners of small audit firms. Both operating and administrative responsibilities fall on the sole proprietors in the small audit firms. In contrast, two or more partners share the management functions and are personally responsible for all actions and liabilities in either medium or large audit firms. Each partner specializes in a different area of the firms' practices.

One partner, for example, may be an expert in tax matters and heads the firm's tax department; another may specialize in consulting services; and a third may devote full time to the design and installation of a computer information system (Whittington and Pany 2010). Audit firms are a professional service organization that accumulates their expertise and experience over time. Age of audit firms positively affects efficiency (Cheng, Wang, and Weng 2000) and positively associates with performance (Fasci and Valdez 1998; Brocheler, Maijoor, and Witteloostuijn 2004; Chen, Chang, and Lee 2008). This implies that senior audit firms that enjoy learning curve effects are more efficient in resource deployment and utilization, and thereby improve their performance. Hence, this study expects that life cycles exist in auditing industry and establishes the following hypotheses.

H1a: Organizational life cycles exist in large audit firms.

H1b: Organizational life cycles exist in medium audit firms.

H1c: Organizational life cycles exist in small audit firms.

Audit firms may practically offer a variety of businesses, including audit of financial statements of public companies, audit of financial statements of nonpublic companies, audit of financial statements for granting a bank loan, audit of an income tax return, tax planning and consultation, tax appeal and tax litigations, other tax operations, management consultation, registration filing and bookkeeping services. For long, audit firms have provided the preceding four audit services, which are a long-standing service and are offered with standardized procedures to relatively stable clients (Rescho 1987; Banker, Chang, and Natarajan 2005). In Taiwan, related laws and regulations require companies' financial statements to be audited by audit firms, resulting in the audit services a law-protected and statutory traditional practice. Because audit services are a general requirement by various governmental agencies, some accounting educators and accounting practitioners view them as services that clients need but do not necessarily want (Istvan 1984). Early entrants gain competitive advantage more easily than subsequent ones.

Facing recent worldwide competition and business globalization, companies consult with a professional management advisor concerning business administration to advance their international competitiveness. Management consultation practices are often referred to as non-audit services which range from a simple suggestion for improving the clients' accounting system to advising in risk management, information technology and an e-commerce system design, mergers and acquisitions, and actuarial benefit consulting (Elder, Beasley, and Arens 2008). Auditors have provided audit services to the same clients for years and are familiar with the clients' daily operation and financial condition. Under the situation of long-term partnership and close client relations, audit firms gain a more favorable position in providing management consultation services than an ordinary professional consulting firm, such as McKinsey and Company. Further, joint provisions of audit and non-audit services theoretically create synergy and knowledge spillover effects for audit firms (Simunic 1984; Becker, DeFond, Jiambalvo, and Subramanyam 1988).

When new partners join the audit firms or sole proprietors accumulate experience over time, the types of service provisions change and adapt to meet the human resources and capabilities of audit firms. Consequently, if organizational life cycles exist in audit firms, this study expects that financial performance differ at different life cycle stages because of varied practice renderings. Furthermore, this study expects that financial performance differ between audit firms in different market segments at the same life cycle stages. Since no prior research relates to the above expectations, this study establishes the following non-directional hypotheses.

H2a: Financial performance of large audit firms differs at different life cycle stages.

H2b: Financial performance of medium audit firms differs at different life cycle stages

H2c: Financial performance of small audit firms differs at different life cycle stages

H3a: At the young life cycle stage, financial performance differs in different sub-sample audit firms.

H3b: At the adult life cycle stage, financial performance differs in different sub-sample audit firms.

H3c: At the old life cycle stage, financial performance differs in different sub-sample audit firms**.**

DATA AND METHODOLOGY

Data

Empirical data of this study comes from the 1992-2007 Census Report of Audit Firms in Taiwan, published by the Financial Supervisory Commission (FSC). The survey includes quantitative information of total revenues and their compositions, total expenses and their compositions, demographics of various levels of employees, and ending amounts and changes in fixed assets. An open questionnaire collects qualitative information by asking audit firms about operating difficulties encountered and their future business orientation. Because FSC administers the survey pursuant to the Statistics Act, it requires audit firms surveyed to fill out the questionnaire correctly within the due time.

Thus, the Census Report reveals an annual response rate of over eighty percent. Because the sample period of this study is 16 years, this study deflates all monetary variables by the yearly Consumer Price Index to account for inflation. Total number of observations is 11,839 for the sample period. This study reaches 11,144 final observations after deleting 109 observations for incomplete information, 234 observations with dependent variables having values more or less than 3 standard deviations away from their means, 352 observations for unreasonable or missing data. Table 1 reports the sample distribution by audit firm ages. As shown, most sample are small audit firms with number of observations 7,605, accounting for 68.243% of total samples. Medium and large audit firms have number of observation 2,559 and 980, respectively. The weighted average ages of large, medium, and small audit firms are 16.535, 10.331, and 10.555. The oldest audit firms are 43 years for large firms, 54 years for medium firm, and 55 years for small firms. Figure 1 shows that most small and medium firms are considerably younger than large firms are.

Figure 1: Trend of Audit Firm Age Distribution (1992 - 2007)
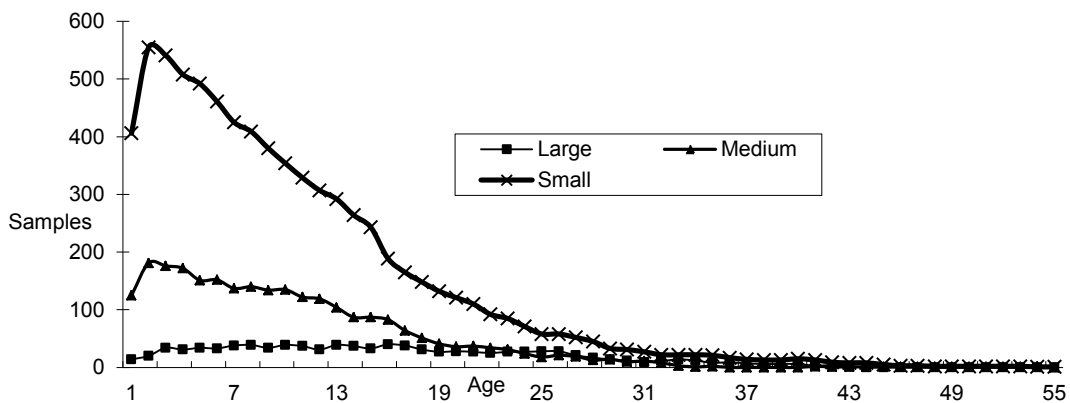
This figure depicts the trend of sample distribution by audit firm age. Most small and medium firms are younger than large firms are. The number of small and medium audit firms reduces substantially with increased age, while the age distribution of large audit firms is much more even.

The number of small and medium audit firms reduces substantially with increased age, while the age distribution of large audit firms is much more even. The large audit firms, on average, start their business earlier and last longer than the other two categories of audit firms.

Table 1: Sample Distribution by Age of Audit Firms

Age	Total Samples	Large Audit Firms		Medium Audit Firms		Small Audit Firms	
		N	%	N	%	N	%
1	545	14	2.569%	125	22.936%	406	74.495%
2	756	20	2.646%	181	23.942%	555	73.413%
3	751	34	4.527%	176	23.435%	541	72.037%
4	711	31	4.360%	172	24.191%	508	71.449%
5	677	34	5.022%	151	22.304%	492	72.674%
6	646	33	5.108%	152	23.529%	461	71.362%
7	600	38	6.333%	137	22.833%	425	70.833%
8	588	39	6.633%	140	23.810%	409	69.558%
9	548	34	6.204%	134	24.453%	380	69.343%
10	528	39	7.386%	135	25.568%	354	67.045%
11	488	37	7.582%	122	25.000%	329	67.418%
12	457	31	6.783%	119	26.039%	307	67.177%
13	435	39	8.966%	104	23.908%	292	67.126%
14	388	37	9.536%	87	22.423%	264	68.041%
15	363	33	9.091%	87	23.967%	243	66.942%
16	312	40	12.821%	83	26.603%	189	60.577%
17	267	38	14.232%	64	23.970%	165	61.798%
18	230	31	13.478%	51	22.174%	148	64.348%
19	200	27	13.500%	41	20.500%	132	66.000%
20	185	28	15.135%	36	19.459%	121	65.405%
21	174	27	15.517%	37	21.264%	110	63.218%
22	151	25	16.556%	34	22.517%	92	60.927%
23	143	27	18.881%	31	21.678%	85	59.441%
24	122	27	22.131%	24	19.672%	71	58.197%
25	104	28	26.923%	18	17.308%	58	55.769%
26	107	28	26.168%	21	19.626%	58	54.206%
27	92	21	22.826%	19	20.652%	52	56.522%
28	75	17	22.667%	13	17.333%	45	60.000%
29	61	14	22.951%	14	22.951%	33	54.098%
30	53	12	22.642%	10	18.868%	31	58.491%
31	47	9	19.149%	11	23.404%	27	57.447%
32	41	11	26.829%	8	19.512%	22	53.659%
33	39	14	35.897%	3	7.692%	22	56.410%
34	35	12	34.286%	1	2.857%	22	62.857%
35	31	8	25.806%	2	6.452%	21	67.742%
36	26	9	34.615%	0	0.000%	17	65.385%
37	21	7	33.333%	0	0.000%	14	66.667%
38	19	6	31.579%	0	0.000%	13	68.421%
39	19	6	31.579%	0	0.000%	13	68.421%
40	21	6	28.571%	0	0.000%	15	71.429%
41	18	3	16.667%	2	11.111%	13	72.222%
42	14	4	28.571%	1	7.143%	9	64.286%
43	11	2	18.182%	1	9.091%	8	72.727%
44	9	0	0.000%	1	11.111%	8	88.889%
45	6	0	0.000%	1	16.667%	5	83.333%
46	4	0	0.000%	1	25.000%	3	75.000%
47	4	0	0.000%	1	25.000%	3	75.000%
48	3	0	0.000%	1	33.333%	2	66.667%
49	3	0	0.000%	1	33.333%	2	66.667%
50	3	0	0.000%	1	33.333%	2	66.667%
51	3	0	0.000%	1	33.333%	2	66.667%
52	3	0	0.000%	1	33.333%	2	66.667%
53	3	0	0.000%	1	33.333%	2	66.667%
54	3	0	0.000%	2	66.667%	1	33.333%
55	1	0	0.000%	0	0.000%	1	100.000%
Total	11,144	980	8.794%	2,559	22.963%	7,605	68.243%

Note: N =number of observations. This table shows the sample distribution of large, medium and small audit firms by age. Most samples are small audit firms, followed by medium audit firms. The oldest audit firms are 43 years for large firms, 54 years for medium firms and 55 years for small firms.

RESULTS AND DISCUSSION

Partitioning Life Cycle Stages of Audit Firms

Large Audit Firms: Prior studies partition the life cycle stage of an organization by a variety of dimensions. Smith, Mitchell, and Summer (1985) classified the life cycle of 27 electronic manufacturing firms into three stages: inception, high growth, and maturity by 15 stage-model indicators. Kazanjian and Drazin (1989) subdivided the life cycle of technology-based new ventures into four stages including conception and development, commercialization, growth, and stability in terms of sales revenues, number of employees and sales growth rate. Anthony and Ramesh (1992) used dividend payout rate, sales growth rate and capital expenditure rate as indicators to divide the life cycle of sample firms into growth, mature and stagnant stages. As the indicators used to define life cycle stages differ, varied life cycle classifications appear in prior studies. Kazanjian and Drazin (1989) indicated that the three-stage and four-stage life cycles support better predictive power than other stages.

Since our target samples are professional service organization, audit firms, their life cycles are embodied in their annual revenues. This study employs total revenues to partition the life cycle of audit firms. Figure 2 depicts the tendency of average revenues of large audit firms at each age. By the tendency and fluctuation shown, we define the ages of 1-6 as young stage, 7-25 as adult stage, and 26-43 as old stage. Instead, we define the age of 1-6 as the young stage, 7-26 as the adult stage, and 27-43 as the old stage. Both ANOVA and Tamhane test indicate that the life cycle stage partitions are feasible. However, the F-statistic (13.154) is smaller compared to that reported in Table 2. Average age of the large audit firms at young, adult, and old stage is 3.9, 15.322, and 31.64 years.

Figure 2: Revenue Tendencies of Large Audit Firms at Each Age
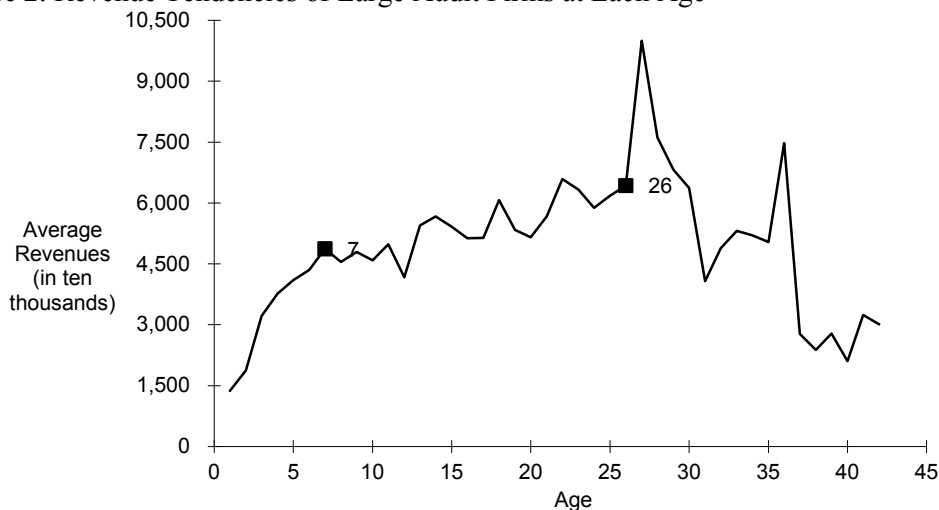
This figure depicts the tendency of average revenues of large audit firms at each age. By the tendency and fluctuation shown, we define the ages of 1-6 as young stage, 7-25 as adult stage, and 26-43 as old stage.

To test the feasibility of life cycle stage partitions, this study conducts a one-way analysis of variance (ANOVA) and a Tamhane test with results shown in Table 2. As shown in Panel A, mean revenues at the old stage ($494,896,262) are higher than that at the young stage ($206,813,426) and the adult stage ($62,873,064). After the Enron accounting scandal and the dissolution of the late Arthur Andersen, the world largest audit firm then, Taiwanese affiliate firm of Arthur Andersen combined with that of Deloitte & Touche in 2003. This merger creates the largest Taiwanese audit firm, Deloitte Touche Tohmatsu. During the sampling period of this study, age of the Deloitte Touche Tohmatsu is from 1 to 5 years and the largest audit firm sample falls at the young stage of large audit firms. As a result, the mean revenues

of large audit firms at the young stage ($206,813,426) are significantly higher than that at the adult stage ($62,873,064). Further, both ANOVA and the Levene homogeneity test results indicate significant differences in mean revenues between different life cycle stages. Next, this study employs Tamhane test to identify which stages differ in the mean revenues and lists the test results in Panel B of Table 2. As shown, the differences in revenues between young and adult stages ($143,940,361) are significant ($p < .10$). Further, the differences in revenues between adult and old stages (-$432,023,198), and between old and young stages ($288,082,836) are significant ($p < .01$). The above testing results validate that life cycles exist in the large audit firms and support H1a.

Table 2: Life Cycle Testing Results for Large Audit Firms

Panel A:				
Life Cycle Stage	Age	N	Mean Revenues	S.D.
Young	1~6	166	206,813,426	831,508,700
Adult	7~25	625	62,873,064	84,40 \8,199
Old	26~43	189	494,896,262	766,660,010
F-statistic	58.105***			
Levene Test	161.728***			
Panel B: Tamhane Test				
Life Cycle Stage	Differences in Mean Revenues		p-value	
Young vs. Adult	143,940,361		.077*	
Adult vs. Old	-432,023,198		.000***	
Old vs. Young	288,082,836		.002***	

*Note: N = number of observations. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively, in two-tailed tests. Panel A is the definition of life cycle stage and one-way ANOVA testing results for large audit firms.   Panel B shows the Tamhane testing result to identify which stages differ in the mean revenues.*

Medium Audit Firms: Figure 3 depicts the tendency of average revenues for medium audit firms at each age. According to the tendency and fluctuation shown, this study defines the age of 1-14 as young stage, 15-28 as adult stage, and 29-54 as old stage.   This study also defines the age of 1-14 as the young stage, 15-30 as the adult stage, and 31-54 as the old stage. Although the ANOVA and Tamhane test indicate feasible life cycle stage partitions, the F-statistic (30.858) is slightly smaller than that reported in Table 3 (31.223).   Average age of the medium audit firms at young, adult, and old stage is 6.897, 19.365, and 34.862 years, respectively.

Figure 3: Revenue Tendencies of Medium Audit Firms at Each Age
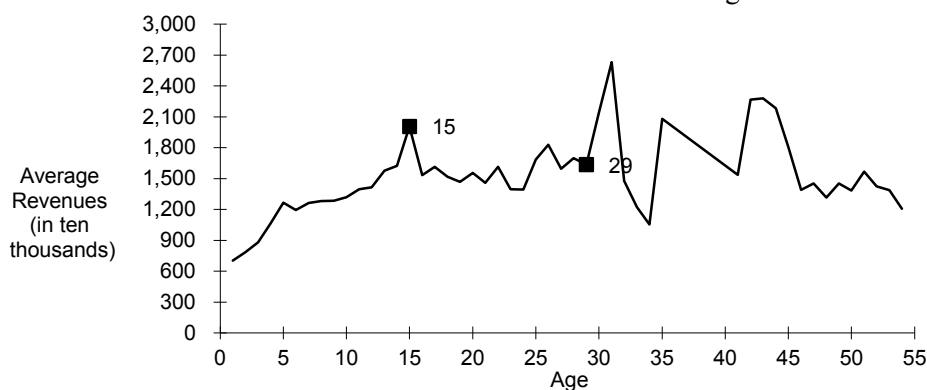
This figure depicts the tendency of average revenues of medium audit firms at each age. By the tendency and fluctuation shown, we define the ages of 1-14 as young stage, 15-28 as adult stage, and 29-54 as old stage.

Table 3 lists the testing results for the feasibility of life cycle stage partitions by the ANOVA and Tamhane tests. As shown in Panel A, mean revenues of medium audit firms at the old stage ($18,357,069) are higher than that at the adult stage ($16,194,449) and the young stage ($11,822,803). Both the ANOVA and Levene homogeneity test results indicate significant differences in mean revenues between

different life cycle stages, implying appropriate partitions of life cycle for medium audit firms. Furthermore, Panel B of Table 3 lists the Tamhane test results. The differences in revenues between young and adult stages (-$4,371,645) and between old and young stages ($6,534,266) are statistically significant. However, the differences in revenues between adult and old stages (-$2,162,621) are not significant. The above testing results confirm the existence of life cycles in the medium audit firms and lend a support to H1b.

Table 3: Life Cycle Testing Results for Medium Audit Firms

Panel A:				
Life Cycle Stage	Age	N	Mean Revenues	S.D.
Young	1~14	1,935	11,822,803	11,136,735
Adult	15~28	559	16,194,449	16,890,118
Old	29~54	65	18,357,069	17,770,388
F-statistic	31.223***			
Levene Test	12.007***			
Panel B：Tamhane's Test				
Life Cycle Stage	Differences in Mean Revenues		p-value	
Young vs. Adult	-4,371,645		.000***	
Adult vs. Old	-2,162,621		.730	
Old vs. Young	6,534,266		.013**	

*Note: N = number of observations. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively, in two-tailed tests. Panel A is the definition of life cycle stage and one-way ANOVA testing results for medium audit firms.   Panel B shows the Tamhane testing result to identify which stages differ in the mean revenues.*

Small Audit Firms: This study depicts the average tendency of revenues for small audit firms at each age in Figure 4. Based on the tendency and fluctuation, this study defines the age of 1-11 as young stage, 12-27 as adult stage, and 28-55 as old stage.   We also define the age of 1-11 as the young stage, 12-33 as the adult stage, and 34-55 as the old stage. Although the ANOVA and Tamhane test indicate feasible life cycle stage partitions, the F-statistic (134.504) is smaller than that reported in Table 4 (136.27). On average, age of the small audit firms at young, adult, and old stage is 5.601, 17.008, and 34.788 years.

Figure 4: Revenue Tendencies of Small Audit Firms at Each Age
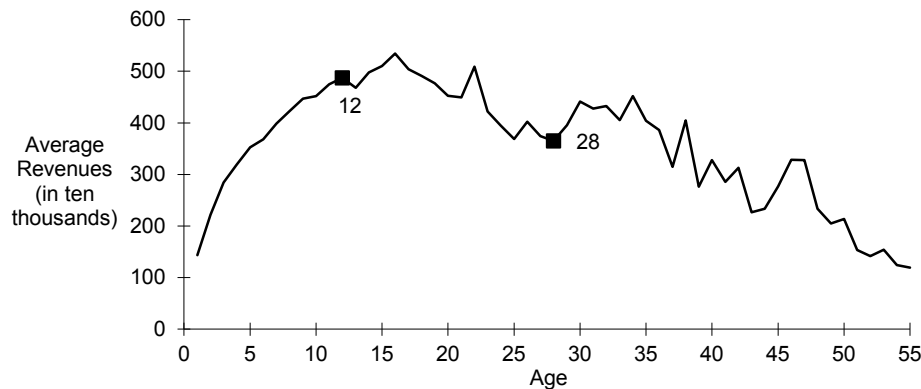
This figure depicts the tendency of average revenues of small audit firms at each age. By the tendency and fluctuation shown, we define the ages of 1-11 as young stage, 12-27 as adult stage, and 28-55 as old stage.

Table 4 reports the testing results for the feasibility of life cycle stage partitions by the ANOVA and Tamhane tests. As shown in Panel A, mean revenues of small audit firms at the adult stage ($4,777,935) are higher than at the old stage ($3,696,292) and the young stage ($3,432,674). Both the ANOVA and Levene homogeneity test results indicate significant differences in mean revenues between different life cycle stages, which implying appropriate partitions of life cycle for small audit firms. Further, the Tamhane test results, shown in Panel B of Table 4, indicate that the differences in revenues between young and adult stages ($1,345,261) and between adult and old stages ($1,081,643) are significant but the

differences in revenues between old and young stages ($263,618) are not significant. Taking Figure 4 and Table 4 together, the above results reveal the existence of life cycles in the small audit firms and H1c receives a support.

Table 4: Life Cycle Testing Results for Small Audit Firms

Panel A				
Life Cycle Stage	Age	N	Mean Revenues	S.D.
Young	1~11	4,860	3,432,674	2,930,257
Adult	12~27	2,387	4,777,935	3,871,684
Old	28~55	358	3,696,292	3,207,698
F-statistic	136.27***			
Levene Test	84.159***			
Panel B：Tamhane's Test				
Life Cycle Stage	Differences in Mean Revenues		p-value	
Young vs. Adult	1,345,261		.000***	
Adult vs. Old	1,081,643		.000***	
Old vs. Young	263,618		.346	

Note: N = number of observations. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively, in two-tailed tests. Panel A is the definition of life cycle stage and one-way ANOVA testing results for small audit firms. Panel B shows the Tamhane testing result to identify which stages differ in the mean revenues.

Empirical Model

Given the evidence showing the existence of life cycles in auditing industry, this study investigates the financial performance effects for audit firms at different life cycle stages in different market segments. Empirical data of this study are from the Census Report of Audit Firms in Taiwan, an industrial dataset. Based on the Structure-Conduct-Performance model developed in industrial economics (Cowling and Waterson 1976) and following prior studies (Chen, Chen, and Lee 2002; Chen, Chang, and Lee 2008), this study establishes the following linear regression model to test our hypotheses.

$$PERFORM = \beta_0 + \beta_1 LICYCLE + \beta_2 SCALE + \beta_3 EDU + \beta_4 EXP + \beta_5 DIV + \beta_6 MKS + \beta_7 TAIEX + \varepsilon \quad (1)$$

Where:

PERFORM	=	financial performance of audit firms;
LICYCLE	=	dummy variable of life cycles;
SCALE	=	dummy variable of audit firm market segments;
EDU	=	education level of employees;
EXP	=	work experience of employees;
DIV	=	degree of business diversification;
MKS	=	size of audit firms; and
TAIEX	=	economic indicator.

In H2a, 2b, and 2c, this study expects that financial performance differ at different life cycles for large, medium, and small audit firms. The coefficient on the dummy variable of life cycle (*LICYCLE*), β_1, is used to capture the effects. Next, this study forms H3a, 3b, and 3c to predict that financial performance of large, medium and small audit firms differs at the same life cycle stage. This study utilizes the dummy variable of audit firm market segments (*SCALE*), β_2, to capture the effects.

Variable Definitions

Dependent Variable: Accounting usually defines financial performance as net income, total revenues minus total expenses. Partners are the owner and residual interest claimant of an audit firm. Their annual

income comprises salaries and share of operating profits of the firm. The salaries of partners, weekly or monthly, are a part of total expenses of the firm. The more the salaries of the partners, the less the operating profit of the firm. It makes no difference to the partners whether they receive salaries or not in terms of their total annual income. In addition, the criteria for salary payments to partners vary across firms. Based on prior studies (Chen, Chang, and Lee 2008), the partners' salaries are added back to net income to reduce such an artificial noise. According to related laws and regulations in Taiwan, the operating profits of audit firms should be allocated to the owners annually and cannot be kept as retained earnings. This study thus defines financial performance (*PERFORM*) as net income plus salaries of partners and then divided by the number of partners, that is, net income per partner.

*Research Variables:*The first variable of interest is the dummy variables of life cycle (*LICYCLE).* In conducting comparisons of financial performance differences between the young and adult stages, *LICYCLE* is set to be 1 if the life cycle is at the adult stage and 0 otherwise. When comparing the financial performance differences between adult and old stages, the variable is set to be 1 if the life cycle is at the old stage and 0 otherwise.

Next, this study establishes the second variable of interest, dummy variable of audit firm market segment (*SCALE)*, to distinguish audit firms among large, medium, and small firms. When comparing the financial performance differences between large and medium firms, the variable is set to be 1 if the firms are the large firms and 0 otherwise. Similar settings apply to the comparisons between medium and small firms.

Control Variables: Apart from the research variables, this study includes other influences on financial performance as control variables. Education, experience, and innate personal characteristics are considered the main elements of expertise in audit firms (Bonner and Lewis 1990). Employees who receive a higher academic degree are assumed to have more and better knowledge and higher intellectual potential to learn and accumulate skills and expertise. Prior studies note that the association between education degree of professional employees and performance of audit firms is positive (Bröcheler, Maijoor, and Witteloostuijn 2004). Thus, this study defines education level of employees (*EDU*) as the average number of years that employees take to obtain an academic degree and expects a positive effect on financial performance. In terms of average number of years which employees take to obtain an academic degree, this study defines *EDU* as follows: 〔(number of employees with a PhD. degree*23)+(number of employees with a master degree*18)+(number of employees with a bachelor degree*16)+(number of employees with junior college degree*14)+(number of employees with a senior high school diploma*12)+(others*9)〕/ total number of employees.

After receiving academic degrees in accounting, most professionals enter their careers as assistants in an audit firm. They continue to learn and gain expertise through learning by doing. The average years of experience for partners, managers, seniors or in-charge auditors, and assistants are over 10 years, 5-10 years, 2-5 years and 0-2 years (Arens, Elder, and Beasley 2012). Prior studies indicate a positive association between employee experience and job performance (Schmidt, Hunter, and Outerbridge 1986). In the auditing literature, some find a positive relationship between work experience and performance of proprietorship audit firms (Fasci and Valdez 1998; Chen, Chang, and Lee 2008). However, some report that experience is negatively related to performance of female-owned proprietorship audit firms (Collins-Dodd, Gordon, and Smart 2004). Therefore, this study does not specify a directional prediction on the relationship between experience and performance. Practitioners state that auditors older than 35 years have worked in firms for more than five years and have accumulated much practical experience. Thus, work experience (*EXP*) is defined as the number of employees older than 35 years old as a percentage of total auditors. To meet the increasingly competitive operating environment and the growing need for non-audit services, audit firms diversify their range of services to reduce risk and increase profits. Diversity in service lines will enhance the firms' efficiencies due to the existence of economies of scope

arising from the sharing or joint utilization of inputs (Baumol, Panzar, and Willig 1982). Prior researches obtain mixed results in the relationship between business diversification and audit firm performance (Rumelt, 1974; Servaes 1996; Khanna and Palepu 1997; Singh, Mathur, Gleason, and Etebari 2001; Chen, Chang, and Lee 2008). This study therefore does not specify a directional prediction on the relationship between business diversification and performance. The degree of business diversification (*DIV*) is measured by the following entropy index.

$$DIV = \sum_{i=1}^{10} S_i LOG\left(\frac{1}{S_i}\right) \qquad (2)$$

where S_i denotes revenues from practice i as a percentage of revenues in an audit firm. Previously stated, an audit firm may offer ten practices and hence the maximum value of i is 10. In theory, the larger value of entropy index, the higher the degree of diversification. Size of a company might substitute for many omitted variables and its inclusion as a control variable enhances the accuracy of model specification (Becker, DeFond, Jiambalvo, and Subramanyam 1998). Prior studies estimate audit firm size by either the number of full-time employees (Collins-Dodd, Gordon, and Smart 2004) or market share (Chen, Chen, and Lee 2002; Chen, Chang, and Lee 2008), and report a positive relationship between audit firm size and performance (Rescho 1987; Chen, Chen, and Lee 2002; Collins-Dodd, Gordon, and Smart 2004; Chen, Lin, Fu 2008). This study defines audit firm size (*MKS*) as market share of individual audit firms. As a professional organization, audit firms are affected by local economy or environmental factors (Reynolds and Francis, 2000). Economic indicator, defined as the Taiwan Stock Exchange Capitalization Weighted Stock Index (*TAIEX*), is included to control for local economy effects. However, auditors provide services to the same clients for years and most of their practices are statutory. This limits the effects of environment factors on financial performance of audit firms. As a result, this study does not specify a directional prediction on the relationship between economic indicator and financial performance.

Descriptive Statistics

Large Audit Firms: Table 5 shows the descriptive statistics for large audit firms at different life cycles. Young stage includes 166 (16.939%) audit firms; adult stage includes 625 (63.776%) and old stage has 189 (19.287%) audit firms. Mean financial performance of large audit firms (*PERFORM*) at the old stage ($3,989,785) is higher compared to the adult stage ($1,948,584) and the young stage ($1,868,895). Education level of employees (*EDU*), on average, is 15.429, 15.275, and 15.606 years at the young, adult, and old stages, respectively. This implies that the average education level of employees lies between junior college degree and bachelor degree. Mean work experience of employees (*EXP*) at the old stage (2.533) is higher than at the adult stage (2.182) and the young stage (1.439). Mean degree of business diversification (*DIV*) at the old stage is 0.661 and higher than at the adult stage (0.595) and at the young stage (0.586). Mean market share (MKS) is 3.2256% at the old stage, higher than that of at the adult stage (0.5072%) and the young stage (1.0947%)

Medium Audit Firms: Table 6 shows the descriptive statistics for the medium audit firms at different life cycle stages. There are 1,935 (75.615%) audit firms at the young stage, 559 (21.844%) medium firms at the adult stage and 65 (2.540%) medium firms at the old stage. Mean financial performance (*PERFORM*) at the old stage ($1,084,337) is higher than that of at the adult stage ($1,073,182) and the young stage ($924,086). Mean education level of employees (*EDU*) is 15.014, 15.177, and 15.143 years at the young, adult, and old stages, respectively. Average work experience of employees (*EXP*) at the old stage (2.801) is higher compared to the adult stage (2.376) and the young stage (1.669). Mean degree of business diversification (*DIV*) at the old stage is 0.54, higher than at the adult stage (0.454) and at the young stage (0.448). On average, market share (MKS) at the old stage is 0.1035%, higher than that of at the adult stage (0.1003%) and the young stage (0.0889%).

Table 5: Descriptive Statistics for Large Audit Firms by Life Cycle Stages

Life Cycle		PERFORM	EDU	EXP	DIV	MKS
	Mean	1,868,895	15.429	1.439	0.586	1.0947%
	Median	1,502,404	15.395	1.200	0.598	0.2257%
Young Stage (N=166)	Max	13,657,342	18.185	5.100	0.850	25.8013%
	Min	-116,095	13.104	0.000	0.000	0.0058%
	Std. Dev.	1,821,217	0.620	0.921	0.137	4.1953%
	Mean	1,948,584	15.275	2.182	0.595	0.5072%
	Median	1,764,341	15.321	1.750	0.612	0.2869%
Adult Stage (N=625)	Max	9,855,492	18.409	14.556	0.856	8.6610%
	Min	-1,544,269	12.104	0.000	0.047	0.0236%
	Std. Dev.	1,347,634	0.605	1.666	0.127	0.9147%
	Mean	3,989,785	15.606	2.533	0.661	3.2256%
	Median	3,028,672	15.636	2.250	0.635	0.4313%
Old Stage (N=189)	Max	13,317,386	16.738	11.000	0.888	15.4528%
	Min	119,546	14.222	0.333	0.329	0.0418%
	Std. Dev.	3,055,499	0.544	1.318	0.115	4.5422%

This table shows the descriptive statistics for large audit firms by each life cycle stages. Note: N = number of observations. Variable definitions

PERFORM	=	*financial performance of audit firms;*
EDU	=	*education level of auditors;*
EXP	=	*work experience of auditors;*
DIV	=	*degree of business diversification; and*
MKS	=	*market share of audit firms.*

Table 6: Descriptive Statistics for Medium Audit Firms by Life Cycle Stages

Life Cycle		PERFORM	EDU	EXP	DIV	MKS
	Mean	924,086	15.014	1.669	0.448	0.0889%
Young Stage	Median	775,968	14.909	1.500	0.467	0.0653%
(N=1,935)	Max	9,937,905	20.500	8.000	0.814	1.1040%
	Min	-1,519,701	11.824	0.000	0.000	0.000005%
	Std. Dev.	804,346	0.925	1.225	0.145	0.0941%
	Mean	1,073,182	15.177	2.376	0.454	0.1003%
	Median	950,108	15.158	2.000	0.475	0.0731%
Adult Stage (N=559)	Max	5,049,960	17.583	9.300	0.875	1.4629%
	Min	-819,322	11.852	0.333	0.000	0.0001%
	Std. Dev.	878,260	0.771	1.335	0.132	0.1057%
	Mean	1,084,337	15.143	2.801	0.540	0.1035%
	Median	1,023,899	15.200	2.333	0.546	0.0749%
Old Stage (N=65)	Max	4,055,469	16.710	7.000	0.698	0.6651%
	Min	75,503	13.000	0.800	0.357	0.0226%
	Std. Dev.	805,125	0.844	1.438	0.087	0.0953%

Note: N = number of observations. See Table5 for variable definitions. This table shows the descriptive statistics for medium audit firms by each life cycle stages.

Small Audit Firms: Descriptive statistics for the small audit firms at different life cycle stages appear in Table 7. The number (percent) of small firms at young, adult and old stages are 4,860 (63.905%), 2,387(31.387%) and 358 (4.707%). Mean financial performance (*PERFORM*) at the old stage ($661,127) is less than that of at the adult stage ($923,169) and the young stage ($714,502). Mean education level of employees (*EDU*) is 14.813, 14.73, and 14.589 years at the young, adult, and old stages. Average work experience of employees (*EXP*) at the old stage (3.749) is higher than at the adult stage (3.262) and the young stage (2.143). Mean degree of business diversification (*DIV*) at the old stage is 0.424, higher than at the adult stage (0.409) and at the young stage (0.392). Average market share (*MKS*) at the young, adult and old stage is 0.0266%, 0.0334% and 0.0268%, respectively.

RESULTS

Financial Performance Effects of Audit Firms in the Same Market Segment at Different Life Cycles (Testing Results of H2a, H2b, and H2c)

Large Audit Firms: Table 8 reports the regression results for audit firms between different life cycles in the same market segment. The regression equation is:

$$PERFORM = \beta_0 + \beta_1 LICYCLE + \beta_2 EDU + \beta_3 EXP + \beta_4 DIV + \beta_5 MKS + \beta_6 TAIEX + \varepsilon \qquad (3)$$

Panel A displays the comparisons between different life cycle stages for large audit firms. The explanatory power of models (adjusted R^2) ranges from 0.368 to 0.691 (F-statistic = 77.734, 203.237, and 133.245; p < 0.01), implying good model specification. All t-statistics of variable coefficients are calculated using White (1980) robust standard errors to correct for heteroscedasticity. As a check on the multi-collinearity among independent variables, we estimate the variance inflation factors (VIF). In the regression models of Panel A, the variable VIFs are all less than 1.552, implying that no serious multi-collinearity exists among the independent variables. In addition, we estimate the standardized regression coefficients, Beta, for each independent variable to ease comparisons between variables. As shown, the coefficients on the life cycle dummy variable (*LICYCLE*) are all significantly positive at the young-adult, adult-old and young-old stages. This indicates that financial performance of large audit firms at the old stage is better than that of at the adult stage and that of at the adult stage is better than that of at the young stage. Therefore, H2a is supported.

Table 7: Descriptive Statistics for Small Audit Firms by Life Cycle Stages

Life Cycle		PERFORM	EDU	EXP	DIV	MKS
Young Stage (N=4,860)	Mean	714,502	14.813	2.143	0.392	0.0266%
	Median	526,823	14.667	2.000	0.416	0.0196%
	Max	9,521,717	23.000	20.000	0.813	0.2939%
	Min	-2,807,806	9.000	0.000	0.000	0.000003%
	Std. Dev.	882,727	1.219	1.808	0.164	0.0261%
Adult Stage (N=2,387)	Mean	923,169	14.730	3.262	0.409	0.0334%
	Median	670,027	14.667	3.000	0.425	0.0243%
	Max	16,961,154	19.500	24.000	0.760	0.5012%
	Min	-3,051,601	9.000	0.000	0.000	0.000002%
	Std. Dev.	1,077,162	1.141	2.176	0.145	0.0328%
Old Stage (N=358)	Mean	661,127	14.589	3.749	0.424	0.0268%
	Median	363,956	14.456	3.000	0.456	0.0183%
	Max	4,645,988	23.000	13.000	0.780	0.1767%
	Min	-1,245,979	11.500	1.000	0.000	0.0002%
	Std. Dev.	904,102	1.268	2.196	0.173	0.0264%

Note: N = number of observations. See Table5 for variable definitions. *This table shows the descriptive statistics for small audit firms by each life cycle stages.*

Medium Adult Firms: Panel B reports the comparing results among three life cycle stages for medium audit firms. The explanatory power of models (adjusted R^2) ranges from 0.313 to 0.345 (F-statistic =190.268, 55.752, and 157.805; p < 0.01), indicates a moderate model specification. As the variable VIFs are all less than 1.097, no serious multi-collinearity exists among the independent variables. As shown, coefficients on the life cycle dummy variable (*LICYCLE*) are significantly positive at young-adult stage, but insignificantly at adult-old stage and young-old stage. This indicates that financial performance of medium audit firms at the adult stage is better than that of at the young stage. Differences in the financial performance between adult and old stage and between young and old stage are insignificant. This lends a support to H2b.

Small Adult Firms: Empirical results of comparisons between different life cycle stages for small audit firms appear in Panel C. The explanatory power of models (adjusted R^2) ranges from 0.471 to 0.477 (F-statistic =1,078.031, 418.571, and 790.008; p < 0.01), indicates a moderate model specification. As the variable VIFs are all less than 1.195, no serious multi-collinearity exists among the independent variables. As can be seen, the coefficients on the life cycle dummy variable (*LICYCLE*) are significantly positive at the young-adult stage, but significantly negative at the adult-old and young-old stages. This indicates that financial performance of small audit firms at the adult stage is better than that of at the young and old stages, and that of at the young stage is better than that of at the old stage. As a result, H2c is supported.

Table 8: Regression Results for Audit Firms at Different Life Cycles in the Same Market Segment

$$PERFORM = \beta_0 + \beta_1 LICYCLE + \beta_2 EDU + \beta_3 EXP + \beta_4 DIV + \beta_5 MKS + \beta_6 TAIEX + \varepsilon \qquad (3)$$

Variables	Pred. Sign	Young-Adult Stage Std. Coe.	Adult-Old Stage Std. Coe.	Young-Old Stage Std. Coe.
Panel A: Large audit firms				
Research Variables				
LICYCLE	?	0.082***	0.086***	0.160***
		(3.043)	(3.113)	(5.370)
Control Variables				
EDU	+	0.104***	0.071***	0.081***
		(3.936)	(3.450)	(3.018)
EXP	?	0.038	0.021	0.058*
		(1.146)	(0.878)	(1.687)
DIV	?	0.151***	0.131***	0.100***
		(5.497)	(5.508)	(2.977)
MKS	+	0.539***	0.637***	0.660***
		(9.870)	(16.709)	(12.012)
TAIEX	?	0.008	0.027	0.017
		(0.246)	(1.200)	(0.529)
N		791	814	355
Adjusted R^2		0.368	0.599	0.691
F-statistic		77.734***	203.237***	133.245***
Panel B: Medium adult firms				
Research Variables				
LICYCLE	?	0.041**	-0.010	0.002
		(2.270)	(-0.405)	(0.142)
Control Variables				
EDU	+	0.003	0.037	-0.001
		(0.173)	(0.976)	(-0.068)
EXP	?	-0.024	-0.141***	0.006
		(-1.140)	(-2.647)	(0.294)
DIV	?	0.098***	0.104***	0.099***
		(6.319)	(3.046)	(5.730)
MKS	+	0.537***	0.552***	0.548***
		(9.909)	(4.594)	(10.282)
TAIEX	?	0.086***	0.109***	0.082***
		(4.568)	(3.323)	(3.845)
N		2,494	624	2,000
Adjusted R^2		0.313	0.345	0.320
F-statistic		190.268***	55.752***	157.805***
Panel C: Small audit firms				
Research Variables				
LICYCLE	?	0.028***	-0.031***	-0.018*
		(2.973)	(-2.769)	(-1.860)
Control Variables				
EDU	+	0.060***	0.043***	0.061***
		(6.066)	(2.869)	(5.148)
EXP	?	-0.040***	-0.067***	-0.004
		(-3.746)	(-4.282)	(-0.34)
DIV	?	0.045***	0.067***	0.032**
		(3.518)	(2.778)	(2.365)
MKS	+	0.691***	0.690***	0.697***
		(29.602)	(18.662)	(25.426)
TAIEX	?	0.086***	0.098***	0.08***
		(9.728)	(6.654)	(7.909)
N		7,247	2,745	5,218
Adjusted R^2		0.471	0.477	0.476
F-statistic		1,078.031***	418.571***	790.008***

Notes: N=number of observations. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively, in one-tailed tests where sign is predicted. See Table 5 for variable definitions. This table reports the regression results for audit firms between different life cycle stages in the same market segment.

Financial Performance of Audit Firms in Different Market Segments at the Same Life Cycle (testing results of H3a, H3b and H3c)

The results of audit firms by market segments and life cycle are presented in Table 9. The estimated regression equations is:

$$PERFORM = \beta_0 + \beta_1 SCALE + \beta_2 EDU + \beta_3 EXP + \beta_4 DIV + \beta_5 MKS + \beta_6 TAIEX + \varepsilon \quad (4)$$

Young Stage: As shown in Panel A of Table 9, the explanatory power of models (adjusted R^2) ranges from 0.174 to 0.294 (F-statistic = 404.187, 147.084, and 177.996; $p < 0.01$), indicates a moderate model specification. As the variable VIFs are all less than 1.322, no serious multi-collinearity exists among the independent variables. The coefficients on dummy variable of audit firm market segment (*SCALE*) are significantly positive in the medium-large and small-large subsamples, but significantly negative in the small-medium subsample. This indicates that financial performance of large audit firms is better than that of small audit firms, and that of small audit firms is better than that of medium audit firms at the young stage. H3a is supported.

Adult Stage: Panel B displays the comparison results between different market segments of audit firms at the adult stage. Three empirical models have a moderate specification with explanatory power ranging from 0.245 to 0.333. The variable VIFs are all less than 1.541, which indicating no serious multi-collinearity among the independent variables. Coefficients on dummy variable of audit firm market segments (*SCALE*) are significantly negative in the small-medium subsample and significantly positive in the medium-large and small-large subsamples. This denotes that the financial performance of both large and small audit firms are better than that of medium audit firms and that of large audit firms is better that of small audit firms at the adult stage. This lends a support to H3b.

Old Stage: Regression results for audit firms at the old stage appear in Panel C. The explanatory power of regression models indicates a moderate model specification and the variable VIFs (less than 9.065) show no serious multi-collinearity exists among the independent variables. The coefficients on dummy variable of audit firm market segment (*SCALE*) are significantly positive in the medium-large and small-large subsamples, but the coefficient in the small-medium subsample is significantly negative. This denotes that large audit firms have the best financial performance followed sequentially by the small audit firm and medium audit firms at the old stage. As a result, H3c is supported.

Empirical Results of Control Variables

In Tables 8 and Table 9, the association between education level of employees *(EDU)* and financial performance is significantly positive in large and small audit firms but insignificant in medium audit firms, and the coefficients at the young stage are consistently significantly negative. Likewise, the empirical results of work experience of employees (*EXP*) are mixed, significantly positive at the young-old stage of large audit firms, significantly negative at the adult-old stage of medium audit firms and significantly negative in small audit firms.

The degree of business diversification (*DIV*) positively associates with performance in all of our subsamples. Similarly, the coefficients of market share of audit firms (*MKS*) are significantly positive in all the life cycles of our subsamples. Finally, the economic indicator variable (*TAIEX*) positively relates to performance in medium and small audit firms; but the associations with performance in large audit firms and at the old stage are both insignificant.

Table 9: Regression Results for Audit Firms in Different Market Segments at the Same Life Cycle

Variables	Pred. Sign	Small-Medium firms Std. Coe. (*t*-statistics)	Medium-Large firms Std. Coe. (*t*-statistics)	Small-Large firms Std. Coe. (*t*-statistics)
Panel A: Young Stage				
Research Variables				
SCALE	?	-0.142***	0.142***	0.120***
		(-7.065)	(5.846)	(7.423)
Control Variables				
EDU	+	-0.007	-0.040***	-0.044***
		(-0.571)	(-2.588)	(-3.444)
EXP	?	0.050***	0.039**	0.088***
		(3.857)	(2.310)	(6.135)
DIV	?	0.121***	0.118***	0.166***
		(9.826)	(6.681)	(11.295)
MKS	+	0.522***	0.461***	0.299***
		(11.540)	(9.592)	(9.453)
TAIEX	?	0.050***	0.042**	0.013
		(4.756)	(2.014)	(1.075)
N		6,795	2,101	5,026
Adjusted R²		0.263	0.294	0.174
F-statistic		404.187***	147.084***	177.996***
Panel B: Adult Stage				
Research Variables				
SCALE	?	-0.200***	0.149***	0.120***
		(-4.506)	(5.767)	(5.470)
Control Variables				
EDU	+	0.004	0.055**	-0.012
		(0.191)	(2.463)	(-0.753)
EXP	?	-0.024	-0.015	0.034**
		(-1.491)	(-0.543)	(2.075)
DIV	?	0.144***	0.190***	0.238***
		(5.102)	(7.430)	(9.996)
MKS	+	0.530***	0.403***	0.291***
		(4.600)	(7.030)	(6.946)
TAIEX	?	0.062***	0.035	0.012
		(3.484)	(1.461)	(0.700)
N		2,946	1,184	3,012
Adjusted R²		0.275	0.333	0.245
F-statistic		187.024***	99.623***	163.522***
Panel C: Old Stage				
Research Variables				
SCALE	?	-0.201***	0.137***	0.259***
		(-2.654)	(5.414)	(9.052)
Control Variables				
EDU	+	-0.095**	0.074**	-0.035**
		(-2.412)	(2.390)	(-1.967)
EXP	?	0.040	0.017	0.030*
		(1.184)	(0.513)	(1.735)
DIV	?	0.144***	0.142***	0.140***
		(2.718)	(2.607)	(5.405)
MKS	+	0.663***	0.655***	0.638***
		(3.387)	(10.657)	(16.567)
TAIEX	?	0.059	0.040	0.023
		(1.624)	(1.218)	(1.094)
N		423	254	547
Adjusted R²		0.435	0.721	0.755
F-statistic		55.184***	109.762***	281.335***

*Notes: N=number of observations. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively, in one-tailed tests where sign is predicted. See Table 5 for variable definitions. This table reports the regression results for audit firms between different market segments at the same different life cycle stage.*

CONCLUDING COMMENTS

This study uses the theoretical structure of organizational life cycle to investigate the financial performance of audit firms in Taiwan. In terms of market segment, audit firms are classified into three subsamples including large, medium, and small firms. Further, life cycles of each subsample are partitioned into young, adult, and old stages. In the first step analysis, this study validates that three organizational life cycles exist in audit firms, including young, adult, and old stages. Given the life cycles, financial performance of large audit firms at the old stage is significant better than that at the adult stage, and that at the adult stage is better than that at the young stage. For medium audit firms, financial performance at the adult stage is significantly better than that at the young stage. However, no significant difference in financial performance exists between adult and old stages, and between young and old

stages. Small audit firms have the best financial performance at the adult stage and least financial performance at the old stage. The large audit firms usually have better quality in services and employees.

Empirical result shows that their financial performance continues to increase as they grow, resulting in best performance at the old stage. The small audit firms that operated as a sole proprietorship perform like a human life cycle in which financial performance grows from the young stage to the adult stage and then go to a decay old stage.Next, financial performance differs in the three subsamples at the same life cycle stages. At the young stage, the financial performance of large audit firms is significantly better than that of small audit firms and that of small audit firms is better than that of medium audit firms. At the adult stage, the financial performance of large audit firms also is better than that of small audit firms and the financial performance of small audit firms is better than that of medium audit firms. At the old stage, large audit firms have the best financial performance, followed by small audit firms and then medium audit firms. The result shows that the large and small audit firms are at the two extremes of market segmentation and have the better performance.This study documents that organizational life cycles exist in the audit firms, a service industry. The audit firms adjust their business structures and strategies at different life cycle stage to meet the very competitive environment. Many audit firms expand their services from traditional audit services to non-traditional services, such as management advisory service (MAS). Future study may examine the effects of MAS on financial performance for audit firms at the three life cycles stages in different market segments.

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