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Analysis on the strategy of improving management consulting business performance: Evidence on a management consulting company established by an accounting firm☆

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ABSTRACT

Based on the viewpoint of the establishment of an additional management consulting company in an accounting firm, as well as the allied management consulting business and operations between the two accounting firms and management consulting companies, this paper discusses the key factors affecting management consulting business performance and then develops and empirically analyzes three regression models of management consulting business performance to conduct empirical analysis. It is found that the two models of the annual revenues and operating profits of management consulting companies show consistent results. When an accounting firm has the behavior of engaging in work in China and applying e-commerce in operation, and when the salary percentage of senior employees, percentage of management consultants, percentage of CPA-qualified employees, professionalism of employees, and concentration of business markets are all higher, positive benefits can arise for the management consulting companies, which can also help the allied management consulting business performance of the accounting firm and management consulting company. In addition, when the percentages of management consultants and CPA-qualified employees in the accounting firm are higher, a positive influence on the allied management consulting business performance of the accounting firm and management consulting company can be achieved. In terms of the control variables, there is no significant influence on the firm scale of the operating profits of management consulting companies, and the other control variables based on the three management consulting business models have a significant positive influence; i.e., the longer the history of the management consulting company, the bigger the scale of the accounting firm, and the better the management consulting business performance. It is expected that the results can provide a reference for the operational management of the consulting market, as well as the planning of future development strategies for managers of accounting firms. The results could help enable accounting firms to break through operational bottlenecks, strengthen competitive advantages, and improve the operational performance of accounting firms and management consulting companies in a highly competitive traditional auditing and tax business market.

1. Introduction

For a long time, accounting firms have focused on traditional auditing and taxation services. They have played a pivotal role as gatekeepers of the faithful representation of company financials for the general public. The most important function of accounting firms is auditing services, and the independence of auditors is a key characteristic of an efficient capital market (DeFond et al., 2002). According to the 2015 Accounting Firm Service Industry Survey, the number of accounting firms in Taiwan increased from 1012 in 2010 to 1048 in 2014, and from 1139 to 1203 during the period if head offices and branches are accounted separately. As far as incorporations are concerned, the number of sole practitioners (one-

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accountant shops) rose from 769 in 2010 to 796 in 2014. The number of partnership firms with two or more accountants grew from 243 in 2010 to 252 in 2014. A total of 166 new firms were established from 2010 to 2014, contributing to 15.8% of the total. This translates to an increase of about 42 firms per year. In fact, 48 new firms were set up in 2014 (vs. 42 new firms in 2013). The increase in 2014 was the highest since 2011. In sum, the competition has intensified each year. This has created a business challenge for accounting firms regarding how to maintain competitive advantage and seek operational breakthroughs.

According to the 2015 Accounting Firm Service Industry Survey, most of the 2014 annual revenues came from services: NT$6.80 billion for the auditing of publicly issued companies (23.8%); NT$5.72 billion for income tax auditing (20.0%); NT$4.33 billion for other financial auditing (15.1%); and NT$3.13 billion for other taxation services (11.0%). Other businesses accounted for NT$8.39 billion (29.3%). In other words, accounting firms still rely on traditional services such as auditing and tax reporting for their bread and butter. The revenue contribution from management consulting services is limited. Chang and Lin (2000) indicate that 50.5% of companies have sought management consulting services from accounting firms. Chen and Chen (2014) suggest that companies need to constantly update their management knowledge and enhance their IT competences. As a result, they seek management consulting services. This is how accounting firms start off their non-audit businesses.

Miles and Snow (1978) argue that there are four competitive strategies: prospectors, defenders, analyzers and reactors. This is a good framework to illustrate the challenge faced by accounting firms and the operational strategies they should adopt going forward to overcome difficulties and enhance competitiveness in a tough market. Shortell et al. (1990) posit that no single strategy is suitable forever. In other words, an organization needs to develop a diversity of products/services in order to compete in evolving markets and ensure sustainable businesses. Instead of passive resistance, multiple and proactive responding strategies are advised. Shortell et al. (1990) indicate that the strategies adopted by prospectors and analyzers are superior to those adopted by defenders and reactors. In fact, the type of strategies in use affects the level of performances. Chen and Chen (2014) apply the business-level strategies of Miles and Snow (1978) and define the accounting firms specializing in traditional services as “defenders”, the firms actively developing business consulting services as “prospectors”, and the firms balancing between traditional and management consulting services as “analyzers”. As most accounting firms adopt a defensive strategy by focusing on auditing and tax services, this paper seeks to explore whether the repivoting towards the strategies adopted by prospectors and analyzers, i.e., the development of management consulting services, is a good idea to increase revenues and recruit new clients. Given the over-competition and market saturation for auditing and tax services, this may help accounting firms discover a promising and practical market. This paper attempts to conduct an empirical analysis on the performance of management consulting services, in order to pinpoint the key strategic and human resource factors that underpin performances. It is hoped that the research findings can help managers in the formation of business strategies for management consulting services.

In addition to in-house management consulting services, some accounting firms establish management consulting companies to offer a complete suite of services (Chen & Chen, 2014; Chen & Lee, 2006). Tsai (1998) suggests that 62% of the listed companies in Taiwan do not think the rendering of both auditing and non-auditing services compromises the independence of accounting firms. This is particularly the case for accounting firms with management consulting arms that offer non-auditing services. Chen and Lee (2006) indicate that competition in the traditional auditing market is intensifying, and there is a growing demand for management consulting services as corporates become increasingly international. Accounting firms have been actively developing non-auditing services, such as management consulting. One of the methods they use is to form strategic alliances with management consulting companies. Strategic alliances are a long-term, formal and contractual relation between corporates based on strategic considerations. The purpose is to maintain or enhance each other’s competitive advantages through synergies and complementary resources (Chen & Lee, 2006). Chen and Lee (2006) contend that accounting firms and management consulting companies can cooperate by leveraging their own specialties and expanding each other’s clientele in order to boost revenues. Chen and Chen (2014) explore the strategic alliances for accounting firms to provide management consulting services and the effects on the operating performance of accounting firms. The results suggest that national, regional and local accounting firms allied with management consulting companies all outperform those without management consulting business partners. Given the vibrant development of management consulting services, one way for accounting firms to respond is to set up their own management consulting arms and leverage their business relations (Chen & Chen, 2014). In contrast to most literature that emphasizes the operating performance of accounting firms, this paper seeks to examine the operating performance of accounting firms that have established strategic alliances with consulting companies by benchmarking the performance of management consulting companies. This paper refers to Chen and Lee (2006) regarding the strategic alliances between accounting firms and management consulting companies and applies relevant concepts to the benchmarking of operating performances of accounting firms and management consulting companies in the context of strategic alliances. The objective is to strengthen the academic research on the operating performance of accounting firms with management consulting arms.

The improvement of operating performances for both accounting firms and management consulting companies requires a planned approach and strategic thinking. Hofer and Schendel (1978) divide organizational strategies into three levels: corporate strategies, business strategies, and functional area strategies. They believe that strategies across different levels and in proximity of the neighboring levels should work in sync. Accounting firms are a service organization and hence human capital is the most important input (Milgrom & Roberts, 1992). The human capital of accounting firms is demonstrated in the professional knowledge and capability of auditors (Chen et al, 2011). Lee and Chen (2016) point out that accounting firms are a service business built on cumulated professionalism and experience. The success of accounting firms depends on the allocation of human capital and the quality of management strategies. As they provide services and consultations, human resources are the most important input factor. Human resource management is a functional area strategy used to ensure the effective allocation and utilization of human resources. This paper also intends to examine corporate strategies such as whether practicing in China boosts the operating performance of management consulting services and whether e-commerce helps accounting firms in the broadcasting and rendering of management consulting services. This paper reviews the key factors that influence the business performances of management consulting services from the perspective of corporate strategies and functional area strategies. It is hoped that the research findings can assist accounting firms in the planning of appropriate corporate strategies and human resource strategies in the management consulting market, so that they can boost the operating performance of

auditing and management consulting businesses and achieve the sustainability of their operations.

2. Literature review and hypothesis development

2.1. Literature on offering auditing services in China

Lin and Lin (2009) indicate that China has been the fastest growing capital market in recent years. The role of auditors has also become increasingly important. As Taiwanese companies move to China, accountants from Taiwan are also assisting their clients in China by providing auditing and bookkeeping services (Lee & Chen, 2016). Lee and Tung (2017) analyze the factors affecting decision-making on the provision of business services by Taiwanese accounting firms in Mainland China, in order to provide suggestions and managerial implications to accounting firms on decision-making concerning business operations. The results indicate that when an accounting firm establishes a management consulting company, has a higher percentage of employees with high educational levels, has a higher percentage of young employees, has a higher percentage of management consulting personnel, and has a higher percentage of financial auditing business revenue, the probability of providing business services in Mainland China will be higher.

According to the 2015 Accounting Firm Service Industry Survey, accounting firms in Taiwan have started their China practices to meet customers' needs, develop new markets and keep up with the competition. Meanwhile, the services in China include auditing the investees of Taiwanese companies, auditing the financials of the companies, the valuation and consultation of investment projects, the conducting of statutory audits, assistance to the local personnel of the accounting firms in the auditing of local companies, support to local auditing practices, and other relevant services to Chinese companies. All the services on the menu require expertise in auditing and accounting, as well as professional knowhow in other domains. The growing demand for management consulting services may be a positive contributor to the operating performance of management consulting companies and the accounting firms allied with management consulting companies. This paper thus develops the following hypotheses:

H1. All else being equal, accounting firms with a China practice enjoy better performances in management consulting business than those firms without a China practice.

H1-1. All else being equal, accounting firms with a China practice enjoy higher annual revenues in management consulting companies than those firms without a China practice.

H1-2. All else being equal, accounting firms with a China practice enjoy higher operating profits in management consulting companies than those firms without a China practice.

H1-3. All else being equal, accounting firms with a China practice enjoy higher total revenues of management consulting business via strategic alliances than those firms without a China practice.

2.2. Literature on the application of information technology or e-commerce

Information management is a key part of the knowledge-intensive auditing industry (Greenwood et al, 2005). Investment in information technology (IT) is considered a tool to enhance the efficiency of a diversity of strategies for an organization (Dewan et al., 1998; Chari et al., 2008). Chen and Huang (2011) indicate that the interaction between IT investments and a balanced and diversified set of strategies have a positive influence on the operating performance of partnerships (compared with sole proprietorships) in the auditing market. In other words, IT investment is a positive moderator of the relation between the pursuit of non-correlated, balanced and diversified businesses and the performance of partnership firms. A balanced and diversified business means each service contributes a meaningful portion of revenues and the capability to ensure the professionalism of all the services (Chen & Huang, 2011).

Kotler (1994) emphasizes that websites need to be reliable, credible and trustworthy in order to entice consumers into spending. Kalakota and Whinston (1997) suggest that the Internet has changed and reorganized corporates whose main business is information sharing online between companies and customers. Examples are financial services, retailers, e-publishers, and education and entertainment providers. Huizingh (2000) divides website content into information, transactional content, and entertainment, and argues that all the indicators can be objectively measured. Kalakota and Robinson (1999) define e-commerce as the commercial activities conducted over digital media for the transaction of merchandize, advertisements, services, information offerings, foreign exchanges, market information, telecom services and the sale of event tickets (Lu et al, 2006). According to DeLone and McLean (2003), searches, browsing, data changes and transaction frequencies are important metrics for the users of e-commerce sites. Most e-commerce studies focus on the understanding of online customer behaviour, mainly adoption and purchase behaviours (Tam et al., 2019). Tam, Loureiro, & Oliveira, 2019 examine the relationship between e-commerce and individual performance. The empirical approach is based on an online survey questionnaire of 437 individuals from Portugal. The results reveal that overall quality and overall trust are important in explaining use and user satisfaction in the context of e-commerce, which further leads to individual performance. Li et al. (2020) investigate the impact of e-commerce capabilities on agricultural firms' performance gains through organizational agility. The results indicate that organizational agility plays a mediating role in conveying the positive influences of e-commerce capabilities on agricultural firms' performance gains.

In terms of information quality, Lynch and Ariely (2000) suggest that high-quality information reduces search costs but increases the price sensitivity of consumers. It will, however, lead to purchase decisions with a higher sense of satisfaction. Novak, Hoffman, and Yung (2000) contend that the offering of comprehensive information creates higher benefits for purchase decisions by consumers. In today's globalizing world, also known as the information age, information and IT are becoming increasingly important for businesses and have become an indispensable part of economic and social life (Şahin & Topal, 2018). In addition, it is important to find information that is highly accessible and reliable. The important thing is to use IT effectively and efficiently. Therefore, it is expected that the effective usage of IT will have significant positive effects on business performance (Şahin & Topal, 2018).

Big Data and cloud technology during recent years have altered business models and transaction processing procedures for accounting firms. These are all in the domain of e-commerce. This is particularly the case given the convenience and advantage brought about by cloud technology. These advantages include rapid deployment of systems and software, easy online access, cost reductions via cloud programs, reduction of the space, equipment and IT manpower required, swift responses to customer needs, lowering of maintenance fees and IT related costs, strengthening of software integration and regular software upgrades (DeFelice, 2010; Allen, 2011; Awad, 2011; Johnson, 2011). In brief, cloud technology can help accounting firms boost efficiency, productivity

and profitability, as well as data access anytime and anywhere (Allen, 2011).

Currently, accounting firms use e-commerce in the presentation of business information, the transfer of electronic transactions, and other items. This helps the offering of real-time information and the rendering of management consulting services. It also improves the efficiency and quality of services, the speed of responses and processing, and the satisfaction of clients. As a result, it has a positive influence on the business performance of management consulting businesses and the strategic alliances of accounting firms and management consulting companies. This paper thus develops the following hypotheses:

H2. All else being equal, accounting firms that utilize e-commerce enjoy better performance for management consulting business than those firms not utilizing e-commerce.

H2-1. All else being equal, accounting firms that utilize e-commerce enjoy higher annual revenues for management consulting companies than those firms not utilizing e-commerce.

H2-2. All else being equal, accounting firms that utilize e-commerce enjoy higher operating profits for management consulting companies than those firms not utilizing e-commerce.

H2-3. All else being equal, accounting firms that utilize e-commerce enjoy higher total revenues of management consulting business via strategic alliances than those firms not utilizing e-commerce.

2.3. Literature on employee salaries

Behavioral psychology and economics suggest that performance-contingent rewards improve performance (Hendijani, Bischak, Arvai, & Dugar, 2016). The generosity of salaries to employees is an important incentive for the workforce of accounting firms (Lee & Chen, 2016), Rahman et al. (2012) indicate that good benefits enhance job satisfaction. Regarding the literature on the correlation between wages, employee engagement and service quality, Danish and Usman (2010) argue that regular raises and increases in benefits and bonuses can boost morale and work motivation. Küster and Canales (2011) contend that the higher the fixed compensation, the more willing employees will be to work for the organization. Yen and Huang (2011) find that the higher the satisfaction with their own salaries, the more engaged employees are with their organization. Zhu and Tsai (2012) posit that salary raises help to enhance service quality.

Literature shows that a higher transparency of compensation to senior executives strengthens the correlation between management compensation and corporate performances (Park et al., 2001; Perry & Zenner, 2001). Studies indicate that fair and appropriate salaries and incentives boost firm values (Anderson & Bizjak, 2003; Landsberg, 2007; Sun & Cahan, 2012). Mehran (1995) mentions that the higher the percentage of performance-linked remuneration, the better the firm performance. Mishra et al. (2000) suggest that the stronger the link between performance and compensation, the greater the incentives. This not only mitigates the agency problem but also benefits the future performance of companies. Bouwens and Lent (2006) posit a positive correlation between the intensity of incentives and the contribution from employees to firm performance.

Lee and Cheng (2018) point out that, the higher the proportion of human resource costs are, the higher the accounting firms' operating profits will be. Lee and Lin (2019) define accounting firms' human costs as including salaries, board expenses, employee benefits, pension reserve funds, retirement funds and overtime pay. Accounting firms divide their workforce into four levels, i.e., partners, supervisors, managers and associates. Typically, the first meetings with clients are handled by partners and supervisors, who are at the top level of the hierarchy. They are usually responsible for the direction of operations and businesses and the development of human resources and clientele. If these professionals receive higher salaries and greater benefits, it will enhance the productivity of the accounting firms and the engagement of the employees (Lee & Chen, 2016). These seasoned professionals have the experience and gravitas to assist or refer clients in need of management consulting services to the management consulting arm or management consulting companies established by the accounting firms. This will have a positive influence on the business performance of management consulting companies and the strategic alliances between accounting firms and management consulting companies. This paper thus develops the following hypotheses:

H3. All else being equal, the higher the salary percentages of senior employees of accounting firms, the better the performance of management consulting business.

H3-1. All else being equal, the higher the salary percentages of senior employees of accounting firms, the higher the annual revenues of management consulting companies.

H3-2. All else being equal, the higher the salary percentages of senior employees of accounting firms, the higher the operating profits of management consulting companies.

H3-3. All else being equal, the higher the salary percentages of senior employees of accounting firms, the higher the total revenues of management consulting business via strategic alliances.

2.4. Literature on management consulting employees

In response to intensifying competition, a global economic slowdown and industry's exodus, the demand for auditing services in Taiwan has shrunk. It is suggested that accounting firms may adopt strategies in pursuit of balanced and diversified services by extending their footprint from the increasingly saturated market for audit services to the market for non-audit services, particularly the highly promising market for management consulting services (Chen & Huang, 2011; Chen & Lee, 2006; Zhuang, 2008). Chang et al. (2015) explore the professional services for accounting firms to create revenues with the most effective use of human resources. The results indicate that given the existing scale of human resources, management consulting services make the biggest contribution to the top line of accounting firms. This phenomenon persists even after the Sarbanes-Oxley Act imposes restrictions on the offering of management consulting services by accounting firms. Lee and Tung (2017) find that, the more management consultants there are, the higher the probability that accounting firms will conduct their business in mainland China.

As previously mentioned, accounting firms may go to China to assist local practices as an effort to meet customer needs. According to the 2015 Accounting Firm Service Industry Survey in Taiwan, there are different approaches to China practice: sending personnel from Taiwan, working with Chinese firms, training local talents, and setting up joint ventures with Chinese firms or management consulting arms in China. In fact, the issues associated with cross-border operations by clients create the demand for management consulting services. If accounting firms can recruit professionals in different domains and build a talent pipeline, they will be able to meet this need by leveraging their experience and familiarity with client businesses. Such actions will have positive influence on the

operating performance of management consulting companies and the management consulting businesses via strategic alliances. This paper thus develops the following hypotheses:

H4. All else being equal, the higher the percentage of management consultants in an accounting firm, the better the performance of management consulting business.

H4-1. All else being equal, the higher the percentage of management consultants in an accounting firm, the higher the annual revenues of management consulting companies.

H4-2. All else being equal, the higher the percentage of management consultants in an accounting firm, the higher the operating profits of management consulting companies.

H4-3. All else being equal, the higher the percentage of management consultants in an accounting firm, the higher the total revenues of management consulting business via strategic alliances.

2.5. Literature on CPA-qualified employees

Chang et al. (2015) indicate that the promulgation of the Sarbanes-Oxley Act is a productivity driver for qualified CPAs (certified public accountants) in accounting firms, as a result of the need to enhance auditing and internal control assessment. Lee and Cheng (2018) indicate that, the higher the relative proportion of certified accountants, the higher the accounting firms' operating profits will be. CPA licenses are deemed a gold plate for high-caliber, professional, and quality human resources. The higher the number of CPA-qualified employees, the better the reputation and service quality and hence the more trustworthy to clients. In these circumstances, clients in need of management consulting services are more willing to seek assistance from accounting firms. This will have positive influence on the operating performance of management consulting companies and the management consulting businesses via strategic alliances. This paper thus develops the following hypotheses:

H5. All else being equal, the higher the percentage of CPA-qualified employees of an accounting firm, the better the performance of management consulting business.

H5-1. All else being equal, the higher the percentage of CPA-qualified employees of an accounting firm, the higher the annual revenues of management consulting companies.

H5-2. All else being equal, the higher the percentage of CPA-qualified employees of an accounting firm, the higher the operating profits of management consulting companies.

H5-3. All else being equal, the higher the percentage of CPA-qualified employees of an accounting firm, the higher the total revenues of management consulting business via strategic alliances.

2.6. Literature on professionalism of employees

Industrial specialization is also a proxy variable for the audit quality of accounting firms (Craswell et al., 1995; Ferguson et al., 2003) Dopuch and Simunic (1982) indicate that compared to generalists, accountants with industry specialization will spend more resources on recruitment and training, IT and audit technology. Johnson et al. (1991) argue that industry experience enhances the capability to detect frauds. Craswell et al. (1995) divide large accounting firms into those with industry specialization and those without. The results show that clients are willing to pay more than a 34% premium to large accounting firms with industry specialization. In other words, the industry specialization of large firms enhances audit quality. Solomon et al. (1999) suggest that accountants with industry specialization have more accurate industry knowledge. Jiang and Yang (2005) highlight an increasing focus on the training of auditors with industry specialization and the trend to organize accounting firms by industry practice. Jiang and Yang (2005) indicate that the industry specialization of accounting firms mitigates earnings management via accruals of current assets/liabilities of companies. It also helps to reduce the strategic or random estimate errors of managers in the recognition of accruals. Accounting firms without industry specialization report shorter audit tenures, and the audited accounts have poorer earnings quality. In sum, auditors and other professionals with industry specialization help to improve audit and work performance.

Accounting firms have four lines of business: auditing, taxation, management consulting, business registration and other services. As shown in the literature review, industry specialization and experience will lead to the better work performance and service quality of accounting firms. Most of employees in accounting firms are dedicated to audits and tax services given their university training and education, and their exposure to knowhow in management consulting is relatively limited. The higher the concentration in a specific service, and the less exposure or experience to other services, and the more likely the accounting firms will be to refer customers with other professional requirements to the management consulting companies they have established. In other words, the higher the concentration of specialization, the more likely the management consulting arm can expand its clientele and increase revenue. This will have positive influence on the operating performance of management consulting companies and the management consulting businesses via strategic alliances. This paper thus develops the following hypotheses:

H6. All else being equal, the greater the professionalism of employees in an accounting firm, the better the performance of management consulting business.

H6-1. All else being equal, the greater the professionalism of employees in an accounting firm, the higher the annual revenues of management consulting companies.

H6-2. All else being equal, the greater the professionalism of employees in an accounting firm, the higher the operating profits of management consulting companies.

H6-3. All else being equal, the greater the professionalism of employees in an accounting firm, the higher the total revenues of management consulting business via strategic alliances.

2.7. Literature on business diversification vs. concentration

Morris and Empson (1998) gather evidence that large accounting firms start to offer management consulting services after offering audit services. Clients find the purchase of multiple services from the same accounting firm streamlines information costs and makes communication easy and smooth (Greenwood et al., 2005). Chen and Huang (2011) indicate that a balanced strategy for diversification helps to improve the performance of partnerships and sole proprietorships. The pursuit of balanced diversification for correlated and non-correlated services can also boost the performance of accounting firms. A suite of services in the audit industry enjoy the benefits of knowledge spillover (Simunic, 1984; Blokdijk et al., 2003; Chen & Huang, 2011; Chen & Lee, 2006; Joe & Vandervelde, 2007). It helps the sharing of knowledge and experience between business lines such as audit, taxation, management consulting and business registrations. This betters the service

quality and enhances the efficiency and depth of services to clients. Lee and Tung (2017) indicate that when an accounting firm has a higher percentage of financial auditing business revenue, the probability of providing business services in Mainland China will be higher.

Greenwood et al. (2005) sample the top 100 accounting firms in the U.S. and classify their services into auditing, accounting, taxation, management consulting, outsourcing and other services. Their research shows that the relation between business diversification and productivity is a U curve that trends downward before climbing up. Chiang (2010) studies the computer software industry and indicates that product line diversification boosts prices to book multiples. However, excess R&D expenditures lower the price to book values. Kang and Lee (2014) examine the hotel industry in the U.S. The research indicates an entry barrier for new brands entering the market. Therefore, brand diversification reduces return on assets and Tobin's q. Horta et al. (2016) investigate the impact of internationalization and diversification strategies on the financial performance of construction industry companies. The results show that internationalization has a positive impact on financial performance and that diversification has a nonlinear relationship with performance, benefiting companies with either a small number of core activities or companies with a broad scope of activities. Pan et al. (2018) examine how exploitative technological diversification (ETD) affects firm performance and what factors may moderate this relationship. The findings indicate that the relationship between ETD and firm performance is inversely U-shaped. In today's dynamic and turbulent business environment, diversification has become a catalyst for achieving competitive advantages and the creation of synergy in market operations (Oladimeji & Udosen, 2019). Oladimeji and Udosen (2019) examine the effect of a diversification strategy on an organization's performance in the manufacturing sector. Their study reveals that diversified organizations outperform undiversified ones in terms of ROA and ROI. The study also concludes that diversification is a strategic tool for achieving strategic relevance and spontaneous performance.

In sum, business diversification or operational diversification may not necessarily benefit an organization. It is necessary to take into account human capital and professional capability, costs and R&D expenses, and industry characteristics. According to the discussion of employees' professionalism in Section 2.6, this paper argues that accounting firms have been perceived by the public as specialists in auditing and may not be considered high-profile management consulting service providers. However, a good reputation in the auditing market attracts confidence in service quality. In this case, clients will naturally seek assistance in management consulting by turning to their accounting firms who are familiar with client operations. This will have a positive influence on the business performance of management consulting companies and the strategic alliances between accounting firms and management consulting companies. This paper thus develops the following hypotheses:

H7. All else being equal, the higher the business market concentration, the better the performance of management consulting business.

H7-1. All else being equal, the higher the business market concentration, the higher the annual revenues of management consulting companies.

H7-2. All else being equal, the higher the business market concentration, the higher the operating profits of management consulting companies.

H7-3. All else being equal, the higher the business market concentration, the higher the total revenues of management consulting business via strategic alliances.

3. Research design

3.1. Data sources and sample selection

This paper samples data from the 2014 Accounting Firm Service Industry Survey published by the Financial Supervisory Commission (FSC). The sampling pool comprises 1048 firms. A total of 900 firms are sampled after the elimination 148 firms with missing values and unreasonable numbers. The valid sample includes 232 partnership firms and 668 sole proprietorship firms. According to Article 20 of the Certified Public Accountant Act, accountants may establish individual accounting firms alone, or two or more accountants may establish partnership accounting firms by merging together or establishing united accounting firms to carry out their business. Table 1 summarizes the sampling process of the empirical subjects.

3.2. Variable definitions

This paper refers to the annual revenues of management consulting companies (MR), operating profits of management consulting companies (MP) and total revenue of management consulting businesses via strategic alliances (TMR) as proxy variables for the operating performance of management consulting business. Employee professionalism (EMP) and business market concentration (BMC) for different business lines are treated as independent variables and are calculated using the Herfindahl-Hirschman Index (HHI). Some studies use HHI to measure the level of competition in the audit industry (Lee, 2012) and the degree of business diversification for accounting firms (Lee, 2013). HHI is a measurement of concentration degree, i.e., the distribution of firms of different sizes. Hirschman (1964) indicates that HHI as a metric of concentration is the sum of the squared market shares of individual companies. $\mathrm{HHI} = \sum_{i=1}^{n} s_i^2$, $1/\mathrm{n} \leqq \mathrm{HHI} \leqq 1$, s_i = market share of the $i-th$ firm, and n = the number of firms in the market. The HHI value is between 0 and 1. The closer the HHI value is to 1/n, the lower the market concentration and the closer to complete competition (where each firm has an almost identical market share). In contrast, the closer the HHI value is to 1, the higher the market concentration and the closer to incomplete competition (i.e. a few large firms dominate the market) (Lee & Chen, 2016).

Lee and Chen (2016) use HHI to calculate the concentration of employees' educational backgrounds, the concentration of professional task allocations, the concentration of age groups in the workforce, and the concentration of clientele. This paper refers to Lee and Chen (2016) by using HHI to estimate the concentration of employee professionalism (EMP) and the concentration of business markets (BMC) as the two independent variables. It is hoped that the HHI, as a concentration indicator, can shed light on the degree

Table 1
Sample screening process.

	Screening process
Sampling pool	1048
Elimination:	
Total annual salary = 0	(138)
Total number of employees = 0	(4)
Total business revenues = 0	(3)
Firm history >90 years	(3)
Effective samples	900

of specialization by employees and the focus on specific business markets. The purpose is to understand whether high concentration is beneficial to the operating performance of management consulting business. This is the unique research design by this paper in the measurement of research variables.

In terms of control variables, DeAngelo (1981) points out that the larger an accounting firm is, the higher its audit independence. The size of an accounting firm may also benefit the auditing clients because of the economies of scale large accounting firms enjoy in training and information technology (Beresford, 1998). Lin and Lin (2009) indicate that scales, brands or market shares of accounting firms are significantly and positively correlated with audit fees. Lee and Cheng (2018) point out that accounting firms' establishment time has significantly positive influences on their operating profits and business diversification. Lee and Lin (2019) show that the operating performance is better for firms with a longer business age and more management consulting companies. Meanwhile, most studies on accounting firms use age (Chen et al., 2011; Lee, 2013; Lee & Chen, 2016; Lee & Cheng, 2018; Lee & Lin, 2019) and size (Chen et al., 2011; Lee, 2012, 2013, 2014; Lee & Chen, 2016) as control variables. This paper refers to the above literature and anchors to the research topics by replacing the ages of the accounting firms with the operating history of the management consulting companies (MCP) in the model. Both MCP and SIZE (scale of accounting firms) are incorporated into the regression model as control variables.

Table 2 summarizes the operational definitions of the dependent variables, independent variables and control variables.

3.3. Multiple regression models

This paper establishes multiple regression models using Eq. (1), Eq. (2) and Eq. (3) and the research hypotheses in Section 2. It is hoped that the research findings can serve as a reference to accounting firms in the formation of operational strategies for management consulting business.

(1) Regression model with MR as the dependent variable

$$MR = \alpha_0+\alpha_1 CHINA+\alpha_2 EC+\alpha_3 HESR+\alpha_4 MER+\alpha_5 CPAR+\alpha_6 EMP+\alpha_7 BMC+\alpha_8 MCP+\alpha_9 SIZE + e_i \quad (1)$$

where MR denotes the annual revenues of management consulting companies; CHINA denotes the presence of China practice; EC refers to the use of e-commerce; HESR is the salary percentage of senior employees; MER is the percentage of management consultants in the workforce; CPAR is the percentage of CPA-qualified employees; EMP is the professionalism of employees; BMC is the concentration of business markets; MCP is the operating history of management consulting companies; and SIZE the scale of accounting firms. The symbol α_0 denotes the intercept, α_1, α_2, α_3, α_4, α_5, α_6, α_7, α_8 and α_9 are the parameters of the regression model, and e_i is the error term.

(2) Regression model with MP as the dependent variable

$$MP = \beta_0+\beta_1 CHINA+\beta_2 EC+\beta_3 HESR+\beta_4 MER+\beta_5 CPAR+\beta_6 EMP+\beta_7 BMC+\beta_8 MCP+\beta_9 SIZE + u_i \quad (2)$$

where MP denotes the operating profits of management consulting companies. All the independent variables and control variables are the same as in Eq. (1). The symbol β_0 denotes the intercept, β_1, β_2, β_3, β_4, β_5, β_6, β_7, β_8 and β_9 are the parameters of the regression model, and u_i is the error term.

Table 2
Summary of variable definitions.

Variable type	Variable name	Operational definition
Dependent variables	Annual revenues of management consulting companies (MR)	Natural logarithm of annual revenues of management consulting companies. (original unit: NT$)
	Operating profits of management consulting companies (MP)	Natural logarithm of annual revenues minus annual expenses of management consulting companies. (original unit: NT$)
	Total revenues of management consulting business via strategic alliances (TMR)	Natural logarithm of revenues of management consulting business of accounting firms and annual revenues of management consulting companies. (original unit: NT$)
Independent variables	Presence of China practice (CHINA)	Dummy variable 1 if there is a China practice and 0 if not.
	Use of e-commerce (EC)	Dummy variable 1 for the use of e-commerce and 0 if otherwise.
	Salary percentage of senior employees (HESR)	(Compensations for partners + compensations for supervisors) ÷ Total number of annual compensations (original unit: %)
	Percentage of management consultants in the workforce (MER)	No. of management consultants ÷ No. of total employees (original unit: %)
	Percentage of CPA-qualified employees (CPAR)	No. of CPA-qualified employees ÷ No. of total employees (original unit: %)
	Professionalism of employees (EMP)	HHI equation to calculate the concentration of employees' professionalism: (No. of auditors ÷ No. of total employees for all the four business lines)^2+(No. of tax service employees ÷ No. of total employees for all the four business lines)^2+(No. of management consultants ÷ No. of total employees for all the four business lines)^2+(No. of accounting service providers ÷ No. of total employees for all the four business lines)^2 **Note:** The total number of employees from four business lines, i.e. audit, taxation, management consulting and accounting services.
	Concentration of business markets (BMC)	HHI equation to calculate the concentration of business markets: (revenues from auditing of publicly issued companies ÷ total revenues from all the four business markets)^2+(revenues from taxation services ÷ total revenues from all the four business markets)^2+(revenues from management consulting services ÷ total revenues from all the four business markets)^2+(revenues from business registrations and other services ÷ total revenues from all the four business markets)^2 **Note:** The total revenues from four business markets, i.e. audit, taxation, management consulting, business registrations and other services.
Control variables	Operating history of management consulting companies (MCP)	Survey year − inception year +1 (original unit: No. of years)
	Scale of accounting firms (SIZE)	Natural logarithms of total number of employees (original unit: No. of persons)

(3) Regression model with TMR as the dependent variable

$$TMR = \gamma_0+\gamma_1 CHINA+\gamma_2 EC+\gamma_3 HESR+\gamma_4 MER+\gamma_5 CPAR+\gamma_6 EMP+\gamma_7 BMC+\gamma_8 MCP+\gamma_9 SIZE + v_i \quad (3)$$

where TMR denotes the total revenues of management consulting business via strategic alliances. All the independent variables and control variables are the same as in Eq. (1). The symbol γ_0 denotes the intercept, γ_1, γ_2, γ_3, γ_4, γ_5, γ_6, γ_7, γ_8 and γ_9 are the parameters of the regression model, and v_i is the error term.

4. Empirical results

This section explains the empirical results of the three regression models on MR, MP and TMR and analyzes the operations of management consulting companies, accounting firms and management consulting companies via strategic alliances before presenting management implications. According to Neter et al. (1990), a Variance Inflation Factor (VIF) lower than 10 indicates no serious collinearity between independent variables and control variables. As shown in Tables 3–5, the VIFs of all independent variables and control variables are lower than 10, indicating there is no serious collinearity between the independent variables and the control variables.

4.1. Regression results on MR

Table 3 summarizes the regression results on MR. The influence of the salary percentage of senior employees (HESR), the percentage of management consultants (MER) and the professionalism of employees (EMP) is not significant. However, the other independent variables all exhibit a significant and positive influence on annual revenue of management consulting companies (MR). This is in line with expectations. Whilst H3-1, H4-1 and H6-1 are rejected, H1-1, H2-1, H5-1 and H7-1 are supported. The model explanatory power expressed with the Adjusted R^2 is 0.724, and the F value of 263.030 reaches a 1% statistical significance. The D-W value is 2.088, which is between 1.5 and 2.5, indicating no autocorrelation between error terms.

The presence of China practice (CHINA) has a significant and positive influence on annual revenue of management consulting companies (MR), with a coefficient of 2.276, $p < 0.01$. This result indicates that the annual revenue of management consulting companies are higher for the accounting firms with a China practice (compared to those without a China presence). It is consistent with the expectation and hence H1-1 is supported. The development of operations in China expands clientele. Many companies have been increasing cross-border businesses in recent years and China is the biggest market in the world. Many corporates need to work with local companies in China. Given the operational requirements from clients in Taiwan and China, accounting firms should provide management consulting services. Alternatively, they can refer clients in need of such services to the management consulting companies they have set up. This will boost the revenues of management consulting companies.

The use of e-commerce (EC) exhibits a significant and positive influence on annual revenue of management consulting companies (MR), with a coefficient of 0.359, $p < 0.05$. Put differently, accounting firms that use e-commerce enjoy significantly higher annual revenue from management consulting companies than accounting firms that do not use e-commerce. This result is consistent with expectations and hence H2-1 is accepted. Accounting firms can use e-commerce to deliver real-time business information via the Internet to corporate clients. The digitalization of accounting firms' operations, interactions with clients and billing procedures can enable the fastest services. It can also assist management consulting companies to render services to clients, which is a tremendous help for the improvement of the top line in management consulting business.

The salary percentage of senior employees (HESR) has no significant influence on the annual revenue of management consulting companies (MR), with a coefficient of 0.058, $p > 0.1$; therefore, H3-1 is rejected. Also, the percentage of management consultants in the workforce (MER) reports no significant influence on the annual revenue of management consulting companies (MR), with a coefficient of 0.480, $p > 0.1$; therefore, H4-1 is rejected. The percentage of CPA-qualified employees (CPAR) shows a significant and positive influence on the annual revenue of management consulting companies (MR), with a coefficient of 1.148, $p < 0.05$. In other words, the larger the percentage of qualified CPAs in the accounting firms, the higher the annual revenues of the management consulting companies. This is in line with expectations and hence H5-1 is accepted. Accounting qualifications are a testimony of professional training and knowledge. It is an indicator of the high caliber of human resources. The greater the number of qualified CPAs, the better the reputation and professionalism of the accounting firms.

Table 3
Regression results of annual revenues of management consulting companies.

$$MR = \alpha_0+\alpha_1 CHINA+\alpha_2 EC+\alpha_3 HESR+\alpha_4 MER+\alpha_5 CPAR+\alpha_6 EMP+\alpha_7 BMC+\alpha_8 MCP+\alpha_9 SIZE + e_i \quad (1)$$

Variable type	Variable name	Expected sign	Coefficient	Standard error	t value	Significance (one-tail)	VIF	Hypothesis No.	Hypothesis acceptance
	Constant		−1.050	0.430	−2.441	0.007***			
Independent variables	CHINA	+	2.276	0.455	4.999	<0.000***	1.165	H1-1	Yes
	EC	+	0.359	0.198	1.807	0.036**	1.020	H2-1	Yes
	HESR	+	0.058	0.322	0.179	0.429	1.124	H3-1	No
	MER	+	0.480	0.982	0.490	0.312	1.084	H4-1	No
	CPAR	+	1.148	0.521	2.204	0.014**	1.452	H5-1	Yes
	EMP	+	0.150	0.353	0.425	0.335	1.110	H6-1	No
	BMC	+	0.656	0.447	1.468	0.071*	1.069	H7-1	Yes
Control variables	MCP	+	0.572	0.013	45.144	<0.000***	1.074		
	SIZE	+	0.239	0.098	2.440	0.007***	1.701		
	R^2				0.727				
	Adjusted R^2				0.724				
	F value				263.030	<0.000***			
	D-W value				2.088				

Note: 1. MR: the annual revenues of management consulting companies; CHINA: the presence of China practice; EC: the use of e-commerce; HESR: the salary percentage of senior employees; MER: the percentage of management consultants in the workforce; CPAR: the percentage of CPA-qualified employees; EMP: the professionalism of employees; BMC: the concentration of business markets; MCP: the operating history of management consulting companies; SIZE: the scale of accounting firms. 2. One-tail tests, the symbol ***, ** and * represent 1%, 5% and 10% statistical significance. 3. Yes: hypothesis accepted; No: hypothesis rejected.

Table 4
Regression results of operating profits of management consulting companies.

$MP = \beta_0+\beta_1 CHINA+\beta_2 EC+\beta_3 HESR+\beta_4 MER+\beta_5 CPAR+\beta_6 EMP+\beta_7 BMC+\beta_8 MCP+\beta_9 SIZE + u_i$ (2)

Variable type	Variable name	Expected sign	Coefficient	Standard error	t value	Significance (one-tail)	VIF	Hypothesis No.	Hypothesis acceptance
	Constant		−0.468	0.422	−1.108	0.134			
Independent variables	CHINA	+	1.318	0.447	2.948	0.002***	1.165	H1-2	Yes
	EC	+	0.290	0.195	1.487	0.069*	1.020	H2-2	Yes
	HESR	+	−0.003	0.317	−0.011	0.496	1.124	H3-2	No
	MER	+	0.830	0.964	0.862	0.195	1.084	H4-2	No
	CPAR	+	0.743	0.512	1.453	0.073*	1.452	H5-2	Yes
	EMP	+	0.043	0.346	0.124	0.450	1.110	H6-2	No
	BMC	+	0.656	0.439	1.497	0.067*	1.069	H7-2	Yes
Control variables	MCP	+	0.632	0.012	50.818	<0.000***	1.074		
	SIZE	+	0.086	0.096	0.895	0.185	1.701		
	R^2				0.762				
	Adjusted R^2				0.760				
	F value				317.212	<0.000***			
	D-W value				2.119				

Note: 1. MP: the operating profits of management consulting companies; CHINA: the presence of China practice; EC: the use of e-commerce; HESR: the salary percentage of senior employees; MER: the percentage of management consultants in the workforce; CPAR: the percentage of CPA-qualified employees; EMP: the professionalism of employees; BMC: the concentration of business markets; MCP: the operating history of management consulting companies; SIZE: the scale of accounting firms. 2. One-tail tests, the symbol ***, ** and * represent 1%, 5% and 10% statistical significance. 3. Yes: hypothesis accepted; No: hypothesis rejected.

If an accounting firm has a management consulting arm, clients will be more willing to seek management consulting services. This will increase the revenue of the management consulting companies. The professionalism of employees (EMP) shows no significant influence on the annual revenue of management consulting companies (MR), with a coefficient of 0.150, $p > 0.1$; therefore, H6-1 is rejected. The concentration of business markets (BMC) exhibits a positive and significant influence on the annual revenue of management consulting companies (MR), with a coefficient of 0.656, $p < 0.1$. In other words, the more focus accounting firms dedicate to a specific market segment, the more beneficial it is for the annual revenue of management consulting companies. It is consistent with expectations and hence H7-1 is accepted. Accounting firms offer four professional services: auditing, taxation, management consulting, business registrations and other services. The more dedicated accounting firms are to a specific market segment, the less exposure or experience they will have in other businesses. If clients have other requirements, accounting firms (with limited professional resources outside their core domains) will transfer such clients to the management consulting companies they have set up. The higher the concentration of business markets, the greater the chance for management consulting companies to expand clientele and boost revenue.

In terms of the control variables, the operating history of management consulting companies (MCP) boasts a significant and positive influence on the annual revenue of management consulting companies (MR), with a coefficient of 0.572, $p < 0.01$. Put differently, the longer the operating history of a management consulting company, the higher its annual revenue. The scale of accounting firms (SIZE) exhibits a significant and positive influence on the annual revenue of management consulting companies (MR), with a coefficient of 0.239, $p < 0.01$. This implies that the larger the accounting firms, the better their reputation and service quality and the more beneficial to the increase of annual revenue for management consulting companies.

4.2. Regression results on MP

Table 4 shows the regression results on MP. The same as that shown in Table 3, the influence of the salary percentage of senior employees (HESR), the percentage of management consultants (MER) and the professionalism of employees (EMP) are insignificant. However, all other independent variables exhibit a significant and positive influence on operating profits of management consulting companies (MR). This is consistent with expectations. Whilst H3-2, H4-2 and H6-2 are rejected, H1-2, H2-2, H5-2 and H7-2 are accepted. The model explanatory power expressed with the Adjusted R^2 is 0.760, and the F value of 317.212 reaches a 1% statistical significance. The D-W value is 2.119, which is between 1.5 and 2.5, indicating no autocorrelation between error terms. The explanatory power is similar to the model shown in Table 3.

The presence of China practice (CHINA) has a significant and positive influence on the operating profits of management consulting companies (MP), with a coefficient of 1.318, $p < 0.01$. This shows that the operating profits of management consulting companies are higher for accounting firms with a China practice (compared to those without a China presence). The use of e-commerce (EC) demonstrates a significant and positive influence on the operating profits of management consulting companies (MP), with a coefficient of 0.290, $p < 0.1$. In other words, accounting firms utilizing e-commerce report significantly higher operating profits for their management consulting companies than accounting firms that do not use e-commerce. The salary percentage of senior employees (HESR) has no significant influence on the operating profits of management consulting companies (MP), with a coefficient of −0.003, $p > 0.1$. The percentage of management consultants in the workforce (MER) has no significant influence on the operating profits of management consulting companies (MR) either, with a coefficient of 0.830, $p > 0.1$. The percentage of CPA-qualified employees (CPAR) shows a significant and positive influence on the operating profits of management consulting companies (MP), with a coefficient of 0.743, $p < 0.1$. Stated differently, a higher percentage of CPA-qualified employees is helpful to boost the operating profits of management consulting companies. The professionalism of employees (EMP) exhibits no significant influence on the operating profits of management consulting companies (MP), with a coefficient of 0.043, $p > 0.1$. The concentration of business markets (BMC) reports a significant and positive influence on the operating profits of management consulting companies (MP), with a coefficient of 0.656, $p < 0.1$. This implies that the more focused the accounting firms are to a specific market segment, the greater the operating profits of management consulting companies.

Regarding the control variables, the operating history of management consulting companies (MCP) boasts a significant and positive influence on the operating profits of management consulting companies (MP), with a coefficient of 0.632, $p < 0.01$. Put

Table 5
Regression results of total revenues of management consulting business via strategic alliances.

$TMR = \gamma_0+\gamma_1 CHINA+\gamma_2 EC+\gamma_3 HESR+\gamma_4 MER+\gamma_5 CPAR+\gamma_6 EMP+\gamma_7 BMC+\gamma_8 MCP+\gamma_9 SIZE + \nu_i$ (3)

Variable type	Variable name	Expected sign	Coefficient	Standard error	t value	Significance (one-tail)	VIF	Hypothesis No.	Hypothesis acceptance
	Constant		5.385	1.070	5.032	<0.000***			
Independent variables	CHINA	+	0.730	1.133	0.645	0.260	1.165	H1-3	No
	EC	+	0.103	0.494	0.209	0.417	1.020	H2-3	No
	HESR	+	0.480	0.802	0.598	0.275	1.124	H3-3	No
	MER	+	10.949	2.442	4.484	<0.000***	1.084	H4-3	Yes
	CPAR	+	3.550	1.297	2.738	0.003***	1.452	H5-3	Yes
	EMP	+	0.844	0.878	0.961	0.168	1.110	H6-3	No
	BMC	+	−10.805	1.111	−9.723	<0.000***	1.069	H7-3	Yes
Control variables	MCP	+	0.364	0.032	11.552	<0.000***	1.074		
	SIZE	+	1.516	0.244	6.209	<0.000***	1.701		
	R^2				0.313				
	Adjusted R^2				0.306				
	F value				44.976	<0.000***			
	D-W value				1.833				

Note: 1. TMR: the total revenues of management consulting business via strategic alliances; CHINA: the presence of China practice; EC: the use of e-commerce; HESR: the salary percentage of senior employees; MER: the percentage of management consultants in the workforce; CPAR: the percentage of CPA-qualified employees; EMP: the professionalism of employees; BMC: the concentration of business markets; MCP: the operating history of management consulting companies; SIZE: the scale of accounting firms. 2. One-tail tests, the symbol ***, ** and * represent 1%, 5% and 10% statistical significance. 3. Yes: hypothesis accepted; No: hypothesis rejected.

differently, the longer the operating history of management consulting companies, the higher their operating profits. The scale of accounting firms (SIZE) shows no significant influence on the operating profits of management consulting companies (MP), with a coefficient of 0.086, $p > 0.1$.

4.3. Regression results on TMR

Table 5 presents the regression results on TMR. The influence of the presence of China practice (CHINA), the use of e-commerce (EC), the salary percentage of senior employees (HESR) and the professionalism of employees (EMP) is insignificant. The concentration of business markets (BMC) reports a significant and negative influence on TMR. The remaining independent variables, i.e. the percentage of management consultants (MER) and the percentage of CPA-qualified employees (CPAR), have a significant and positive influence on TMR. This is consistent with expectations. Whilst H1-3, H2-3, H3-3, H6-3 and H7-3 are rejected, H4-3 and H5-3 are accepted. The model explanatory power expressed with the Adjusted R^2 is 0.306, and the F value of 44.976 reaches a 1% statistical significance. The D-W value is 1.833, which is between 1.5 and 2.5, indicating no autocorrelation between error terms. The explanatory power is slightly different from the empirical results shown in Tables 3 and 4.

The presence of China practice (CHINA) has no significant influence on the total revenue of management consulting business via strategic alliances (TMR), with a coefficient of 0.730, $p > 0.1$. The use of e-commerce (EC) has no significant influence on the total revenue of management consulting business via strategic alliances (TMR) either, with a coefficient of 0.103, $p > 0.1$. The salary percentage of senior employees (HESR) also has no significant influence on the total revenue of management consulting business via strategic alliances (TMR), with a coefficient of 0.480, $p > 0.1$. The percentage of management consultants in the workforce (MER) shows a significant and positive influence on the total revenue of management consulting business via strategic alliances (TMR), with a coefficient of 10.949, $p < 0.01$. This means that a higher percentage of management consultants in an accounting firm will boost the total revenue of the management consulting business via strategic alliances. The percentage of CPA-qualified employees (CPAR) also shows a significant and positive influence on the total revenues of management consulting business via strategic alliances (TMR), with a coefficient of 3.550, $p < 0.01$. This implies that the higher the percentage of qualified CPAs in the accounting firms, the better it is for the total revenue of management consulting business via strategic alliances. The professionalism of employees (EMP) exhibits no significant influence on the total revenues of management consulting business via strategic alliances (TMR), with a coefficient of 0.844, $p > 0.1$. The concentration of business markets (BMC) reports a significant but negative influence on the total revenue of management consulting business via strategic alliances (TMR), with a coefficient of −10.805, $p < 0.01$. This is not in line with expectations. In other words, accounting firms should seek operational diversification in order to increase the total revenue of management consulting business via strategic alliances.

When it comes to the control variables, the operating history of management consulting companies (MCP) boasts a significant and positive influence on the total revenue of management consulting business via strategic alliances (TMR), with a coefficient of 0.364, $p < 0.01$. Put differently, the longer the operating history of the management consulting companies, the higher the total revenues of management consulting business via strategic alliances. The scale of accounting firms (SIZE) also shows a significant and positive influence on the total revenue of management consulting business via strategic alliances, with a coefficient of 1.516, $p < 0.01$. This means the larger the accounting firms, the higher the total revenue of management consulting business via strategic alliances.

In sum, Model (1) and Model (2) share relatively consistent results. The presence of China practice (CHINA), the use of e-commerce (EC), the percentage of CPA-qualified employees (CPAR) and the concentration of business markets (BMC) (as the four independent variables) have a significant and positive effect on the annual revenue of management consulting companies (MR) and the operating profits of management consulting companies (MP). In other words, the presence of China practice, the use of e-commerce, a higher percentage of CPA-qualified employees and a higher concentration of business markets contribute to the good operating performance of the management consulting companies set up by accounting firms. However, the regression model for the total revenue of management consulting business via strategic alliances (TMR) shows that only the percentage of management consultants in the workforce (MER) and the percentage of CPA-qualified employees (CPAR) report a significant and positive influence on the total revenue of management consulting business via strategic alliances (TMR). Stated differently, the higher the percentage of management consultants in the workforce and the

higher the percentage of CPA-qualified employees, the greater the performance of management consulting business via strategic alliances. In terms of the control variables, only the scale of accounting firms (SIZE) shows no significant influence in Model (2); the other three control variables show a significant and positive influence in all three models. This implies that the longer the operating history of management consulting companies and the larger the scale of accounting firms, the better the performance of management consulting companies and management consulting business via strategic alliances.

The Adjusted R^2 of the model for MR is 0.724, that of the model for MP is 0.760, and that of the model for TMR is 0.306. Model (1) and Model (2) have better explanatory power, with an Adjusted R^2 above 0.7. Model (3) has the lowest explanatory power.

5. Conclusion and suggestions

This paper seeks to identify the key factors that influence the performance of management consulting business. Three regression models for the performance of management consulting business are established for empirical analysis from the perspective of management consulting companies set up by accounting firms and the strategic alliances between accounting firms and management consulting companies. The model for the annual revenue of management consulting companies and the model for the operating profit of management consulting companies yield consistent results. The presence of China practice, the use of e-commerce, the percentage of CPA-qualified employees, and the concentration of business markets (as the four independent variables) have a significant and positive effect on the annual revenue and operating profit of management consulting companies. Put differently, the presence of China practice, the use of e-commerce, the percentage of CPA-qualified employees and the concentration of business markets are positive to the operating performance of management consulting companies. However, in the model for the total revenue of management consulting business via strategic alliances, only the percentage of management consultants in the workforce and the percentage of CPA-qualified employees report a significant and positive influence on the total revenue of management consulting business via strategic alliances. This implies that the higher the percentage of management consultants and CPA-qualified employees, the better the operating performance of management consulting business via strategic alliances. With regards to the control variables, only the scale of accounting firms shows no significant influence on the operating profit of management consulting companies; all other control variables exhibit a significant and positive influence in all three models. Put differently, the longer the operating history of management consulting companies and the larger the scale of accounting firms, the better performance of management consulting business.

This paper proposes the following four practical suggestions to the industry. First, accounting firms are advised to send more personnel to render services in China and develop audit and non-audit businesses and clientele in the Chinese market. This will enhance the depth and width of their business scope. In fact, Taiwanese accounting firms have developed many talents in auditing. Auditors trained in Taiwan are thought of highly by Chinese clients. However, only seasoned and experienced auditors should be dispatched to provide services and consultations. If the experience in Taiwan can be extended to the biggest market in China, it will be beneficial to the future operations of Taiwanese accounting firms and strengthen the performance of management consulting companies.

Second, accounting firms are encouraged to pursue e-commerce and digitalization, including upgrades to hardware/software facilities, the deployment of billing procedures, the introduction of audit software for corporate financial reporting, the design of digitalized transactions and communication channels, and the timely provision of services and responses to questions. Such actions can save the significant consumption of paper, time and manpower. A database should be established to gather all the experience and issues regarding different services. In case of any similar requirements or problems going forward, the lessons learned from the past can assist clients to quickly process and support them with better service quality.

Third, accounting firms are advised to recruit professionals with CPA licenses or who are capable of contributing to management consulting services. This will enhance the persuasiveness and foundation of the services for clients. It will also better the reputation and service quality, as well as encourage client trust and loyalty.

Fourth, accounting firms are recommended to focus on a specific business area to foster their reputation and enhance services. Whilst diversification can bring more clients, accounting firms should first specialize in a certain business before developing clients in different market segments. High quality services and a good reputation for audit or taxation services can enhance the trust and long-term relations with existing corporate clients, who will seek management consulting services from the same accounting firms they have worked with for a long time. Good reputation and trust in professionalism serves a springboard for the launch of management consulting business markets. This will lay a solid foundation for the loyalty of existing clients and the development of new clientele.

Finally, this paper hopes that its research findings can serve as a template for accounting firms in the formation of development strategies for management consulting business markets. This will help the development of new frontiers away from the fierce competition of the audit and taxation service market. The breakthrough from operational bottlenecks and the strengthening of competitive advantages will boost the operating performance of both accounting firms and management consulting companies.

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