Intellectual capital and organizational ambidexterity in Chinese and Irish professional service firms

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Abstract

Purpose - Organizational ambidexterity enables firm to simultaneously exploit existing resources and explore new resources. It is associated with high levels of organizational performance. This paper identifies key internal management resources which contribute to building organizational ambidexterity. In particular, this study examines the impact of intellectual capital, i.e. human, social and organizational capital, on organizational ambidexterity which in turn influences firm performance.

Design/methodology/approach – The research is conducted within the context of professional service firms (PSFs) due to the importance of intellectual capital and organizational ambidexterity. Data was collected from 112 Chinese (cross-sectional design) and 93 Irish accounting firms (time-lagged design).

Findings – Results provide support for the linkage of intellectual capital to organizational ambidexterity and firm performance. Interestingly, findings are mixed regarding the impact of the three types of capital resources on organizational ambidexterity across both countries.

Research implications - The results showed that the three types of intellectual capital influenced organizational ambidexterity differently for Chinese and Irish PSFs. Consistent support was found for an association between organizational dexterity and firm performance in both contexts. Whilst we cannot infer directly that human capital wasn't important than social and organizational capital in the Chinese context compared to the Irish context, it would seem that that may well be a cultural imprint on the antecedents of organizational ambidexterity.

Practical implications - This study finds that various components of intellectual capital facilitate organizational ambidexterity which in turn improves firm performance. Therefore we provide managers with evidential support for the salience of intellectual capital in enabling organizations to simultaneously engage in exploiting existing resources while also exploring new ideas and opportunities.

Originality/value – This study is unique in that it highlights the importance of internal management resources in building up organization's ambidexterity capability. The link between intellectual capital and organizational ambidexterity was established using a rigorous research design which has not been done before. It also emphasizes the role of people in leading to organizational effectiveness via developing organizational ambidexterity. Furthermore the evidence is gathered in two countries.

Key words: Organizational ambidexterity, Intellectual capital, Professional service firms

INTRODUCTION

Organizational ambidexterity refers to an organization's ability to simultaneously explore and exploit their internal and external resources to meet today's business needs as well as being adaptive to market changes (e.g. O'Reilly and Tushman, 2013; Raish and Birkinshaw, 2008). Four research strands are found in organizational ambidexterity research. The first strand relates to the conceptualization of organizational ambidexterity and discusses its various definitions and dimensions (e.g. Birkinshaw and Gupta, 2013; Cao et al., 2009; Gupta et al., 2006). The second strand is the examination of the consequences of organizational ambidexterity, i.e. its impact on firm performance (e.g. Auh and Menguc, 2005; Gibson and Birkinshaw, 2004; He and Wong, 2004; Lubatkin et al., 2006). The third strand is the investigation of the moderators between organizational ambidexterity and firm performance. The moderators that have been tested include environmental factors such as environmental munificence (Cao et al., 2009), dynamism and competitiveness (Jansen et al., 2006), and competitive intensity (Auh and Menguc, 2005); market orientation (Kyriakopoulos and Moorman, 2004); and organizational size (Cao et al., 2009; Ebben and Johnson, 2005). The fourth strand focuses on the antecedents of organizational ambidexterity. Raisch and Birkinshaw (2008) categorise the antecedents of organizational ambidexterity into three types: structural, contextual and leadership related. Structural antecedents refer to organizational design practices, which allows for exploration and exploitation to be carried out in different organizational units, achieved via decentralisation (Jansen et al., 2006) and formal structure (Mom et al., 2009). Contextual antecedents refer to the organization's systems and processes that shape employee behaviors, such as stretch, discipline, support, and trust which allow exploration and exploitation to be pursued within the organization (Gibson and Birkinshaw, 2004). Leadership-based antecedents refer to the top management team who are responsible for facilitating and responding to the tensions between exploration and exploitation, e.g. the top management team's behavioural integration - the degree of senior management team's wholeness and unity of effort (Lubatkin et al., 2006).

This study falls within the second and fourth strand by focusing on the antecedents and outcomes of organizational ambidexterity. The main objective of this study is to explore the antecedents of organizational ambidexterity by examining the impact of intellectual capital (i.e. human,

social and organizational capital) as well as the performance impact of organizational ambidexterity among professional service firms (PSFs) based in an Eastern (China) and a Western (Ireland) country. PSFs consist of a highly educated workforce and provide customized solutions to business problems, e.g. accounting, consulting and law firms (Master, 1993; von Nordenflycht, 2010). Organizational ambidexterity is critical for PSFs' survival and success as it allows firms to renew their knowledge assets and manage risks effectively (Swart and Kinnie, 2010). Intellectual capital refers to the knowledge embedded in difference sources, such as individual (human capital), relationships (social capital) and organizational systems, processes and databases (organizational capital) (Subramaniam and Youndt, 2005). Human, social and organizational capital resources are critical knowledge assets in PSFs (Alvesson, 2001; Hitt et al., 2001; Morris, 2001).

Linking intellectual capital with organizational ambidexterity contributes to the existing literature by proposing a new angle to research the antecedents of organizational ambidexterity. Existing research of the antecedents of organizational ambidexterity focuses on the organizational design, strategic management and leadership theory (Raisch and Birkinshaw, 2008). The existing antecedent factors only explain some but not all the variance in organizational ambidexterity which suggests that other antecedent factors may exist. As Birkinshaw and Gupta (2013) highlight the impact of internal management factors on organizational ambidexterity should be explored. Organizational ambidexterity is highly reliant on the knowledge, skills, and abilities of people (human capital) as well as the willingness and motivation to pursue these uses. These can be amplified by the use of social capital (Wasko and Faraj, 2005). In addition, organizational capital, allowing knowledge flows between different organizational levels, is important for organizational ambidexterity (Fu et al., 2016). However, the systematic investigation of the organizational resource's impact on organizational ambidexterity is rare (for an exception see Swart and Kinnie, 2010's case study). This study systematically investigates the impact of human, social and organizational capital, which together can be labelled as intellectual capital, on organizational ambidexterity.

The present study is conducted in professional service firms (PSFs). Existing research on the antecedents and outcomes of organizational ambidexterity has largely been conducted in manufacturing firms (Auh and Menguc, 2005; He and Wong, 2004), high-technology firms (Beckman,

2006; Cao et al., 2009), or mixed industries involving manufacturing and service industries (e.g. Gibson and Birkinshaw, 2004; Mom et al., 2009). However, our understanding of this relevant research in the professional service context is very limited. This is surprising given the importance of organizational ambidexterity in PSFs (e.g. Fu et al., 2015; Fu et al., 2016; Swart and Kinnie, 2010). By studying the antecedents and outcomes of organizational ambidexterity in PSFs this study contributes to a better understanding of the role of management in PSFs. Extensive research on PSFs management has addressed the impact of ownership (von Nordenflycht, 2007), business model evaluation (Greenwood et al., 1990), tournament model (Morris and Pinnington, 1998), knowledge management (Anand et al., 2007) and human resource management (Fu et al., 2013, 2015, 2016; Hansen and Alewell, 2013). However, research exploring the impact of intellectual capital and organizational ambidexterity in enhancing firm performance has been largely ignored (see Swart and Kinnie, 2010 for an exception). The present study therefore fills a gap in the literature by enabling a better understanding of PSFs organizational effectiveness.

Furthermore, we test our model using two samples – one sample from an Eastern country (China) and one sample from a Western (Ireland) country. In doing so, our research makes an important contribution to the existing literature as the inclusion of the two samples in one study aids the generalizability of our findings. Although previous research on organizational ambidexterity was carried out in Australia (Auh and Menguc, 2005), the United States (e.g. Beckman, 2006), the Netherlands (Kyriakopoulos and Moorman, 2004), China (Cao et al., 2009), and Malaysia (He and Wong, 2004), the authors are not aware of a study which investigates the impact of intellectual capital on performance via organizational ambidexterity and uses the same measures in both an Eastern and Western sample. This study provides researchers and practitioners with an understanding not only of the underlying mechanisms of the intellectual capital-performance link but also of the extent to which findings obtained in a Western context are generalizable to those obtained in an Eastern context – with both cultures known to differ on a number of dimensions (e.g. Wang and Walumbwa, 2007; Zhou and Martocchio, 2001).

Finally, two research design methods are used: a cross-sectional design for Study 1 (Chinese sample) and a time-lagged design for Study 2 (Irish sample). Existing research on organizational

ambidexterity has mainly adopted a cross-sectional research design which may cause common method bias and presents difficulties in determining the direction of causal inference (e.g. Cao et al., 2009; Jansen et al., 2006; Mom et al., 2009; Patel et al., 2013). To overcome this issue, this paper also adopts a time-lagged research design for Study 2 and therefore answers calls from scholars to collect data at different time points in order to give credence for the direction of causality.

In the next section, we elaborate on the concept of organizational ambidexterity and develop the model and relevant hypotheses. The methods section provides a description of our samples, the data collection procedure, as well as the development and validation of the measurement instruments. Next, we present the empirical findings and conclude with a discussion of the results, implications, and directions for further research.

LITERATURE REVIEW AND HYPOTHESES

Linking Intellectual Capital to Organizational Ambidexterity in PSFs

Human, social, and organizational capital, together labelled as intellectual capital (Subramaniam and Youndt, 2005) refer to the knowledge embedded in individuals (human capital), relationships (social capital), and organizational processes, databases, and systems (organizational capital). The three types of capital are acknowledged as the most important resources in PSFs (e.g. Alvesson, 2001; Fu et al., 2015; Hitt et al., 2001; Morris, 2001). Human capital in PSFs is defined as the knowledge embedded in professionals that can be used to produce high quality professional services for clients (Hitt et al., 2001; Hitt et al., 2006; Pennings et al., 1998). Clients often seek out a PSF based on its reputation, accrued via higher quality human capital, anticipating that more talented people produce better results (Greenwood et al., 2005). Therefore a highly skilled workforce helps client firms to achieve higher financial performance (Becker and Gerhart, 1996; Snell and Dean, 1992). Social capital is a resource embedded in the relationships among individuals (Bourdieu, 1985; Burt, 1992; Lin, 2001; Nahapiet and Ghoshal, 1998). Social capital in PSFs helps to attract and retain clients. As the services delivered by PSFs have an "opaque quality" (von Nordenflycht, 2010) clients cannot easily evaluate the quality of service ex ante, aside from cues regarding the firm's reputation, and thus prefer a service provider with whom a relationship already exists (Alvesson, 2001; Pennings et al.,

1998). PSFs' work is team based and social capital among professional staff is a key factor for knowledge sharing and application (Fu, 2015). Organizational capital is the institutionalised knowledge embedded in a firm's databases, structures, systems, culture, and processes (Subramaniam and Youndt, 2005; Youndt et al., 2004). In PSFs, organizational processes focus on developing and retaining the firm's knowledge base given its central role in the services provided to clients (Freidson, 1986; Greenwood et al., 1990; Robertson et al., 2003). These include informal organizational work practices formed by professionals collaborating on engagements to improve organizational performance (Morris, 2001). Human, social and organizational capital plays an important role in promoting knowledge generating, transfer, and applications within firms which in turn enhances organizational effectiveness (Snell and Morris, 2014).

Kang and Snell (2009) theorized that organizational ambidexterity depends on intellectual capital which includes human capital (Becker, 1964; O'Sullivan and Sheffrin, 1998), social capital (Burt, 1992; Nahapiet and Ghoshal, 1998), and organizational capital (Subramaniam and Youndt, 2005; Youndt et al., 2004). Theoretically the impact of intellectual capital on organizational ambidexterity is in line with contextual antecedents captured by discipline, stretch, support and trust (Raisch and Birkinshaw, 2008). High human capital can be seen as the results of discipline and stretch. Discipline is a function of having clear expectations. Relevant performance standard, rapid and open feedback systems monitor if these expectations have been met (Ghoshal and Bartlett, 1994). Stretch, on the other hands, induces employees to voluntarily and actively have more ambitious objectives through a shared ambition and collective perception (Ghosal and Bartlett, 1994). Both discipline and stretch improve employees' abilities and skills to perform their task, i.e. building human capital. The other two antecedents of organizational ambidexterity i.e. support and trust (Raisch and Birkinshaw, 2008), encourage the development of social capital among employees. The strong relationships among members allow them to rely on each other, to more effectively access other members' resources, and then to seek/provide assistance and countenance to other employees. Organizational capital refers to the organizational databases, systems and processes, such as non-hierarchical structures which facilitate knowledge transfer between individuals and organizations and *vice versa*. It helps to shape

the organizational climate based on support and trust thus encouraging knowledge sharing and combination.

In practice, organizational ambidexterity is highly reliant on the knowledge, skills, and abilities of people (human capital) as well as the willingness and motivation to pursue organizational ambidexterity based on social capital (Wasko and Faraj, 2005). In addition, organizational capital, allowing knowledge flow between different organizational levels, is important for organizational ambidexterity. For example, when PSFs have high human capital, their staff are creative, highly skilled, and apply expertise in their own roles and functions (Subramaniam and Youndt, 2005). They are able to acquire new knowledge, reuse existing knowledge and have professionalised knowledge to share with others. High social capital generates the trust and willingness of staff required for knowledge exchange and combination (Collins and Smith, 2006). Similarly, organizational capital allows efficient exploration and exploitation through systems such as a non-hierarchical organizational structure, and efficient internal processes.

Empirically, Subramaniam and Youndt (2005) found that the three types of capital resources influenced incremental and radical innovative capabilities, which they operationalize in forms comparable to exploitation (e.g., refining and reinforcing existing products and services) and exploration (e.g., transforming existing products and services). Based on a multiple-case study of law firms, Swart and Kinnie (2010) found that the dominant knowledge assets in PSFs, i.e. human, social or relational and organizational capital, facilitated the firm's ambidextrous learning. As such, we anticipate a positive link between intellectual capital and organizational ambidexterity in PSFs.

H1: Intellectual capital, including human capital (1a), social capital (1b) and organizational capital (1c), is positively linked to organizational ambidexterity in PSFs.

Linking Organizational Ambidexterity to Firm Performance in PSFs

Organizational ambidexterity allows PSFs to renew their knowledge assets and manage risks effectively, and therefore is critical for PSFs' survival and success (Swart and Kinnie, 2010). Many studies have found a positive link between organizational ambidexterity and performance in different contexts. For example, Cao et al. (2009) found both balance and combined dimensions of

organizational ambidexterity were related to relative firm performance in 122 Chinese SMEs in the high-tech sector. Gibson and Birkinshaw (2004) reported an association between organizational ambidexterity and perceived organizational performance by surveying 4,195 employees in 41 business units of 10 multinational firms. He and Wong (2004) found support for the relationship between organizational ambidexterity and firms' sales growth in 206 manufacturing firms based in Singapore and Malaysia. Lubatkin et al. (2006) found that organizational ambidexterity was positively related with subjective firm performance using a sample of 139 North American SMEs in different sectors. Patel et al. (2013) found a positive link between organizational ambidexterity and firm revenue growth in 215 US SMEs in the high-tech sector.

These results suggest that when organizations are ambidextrous, they are more capable of exploiting existing resources to align with current activities, and exploring new opportunities to quickly adapt to environmental changes. PSFs such as law firms, tend to combine exploration which creates new opportunities, with exploitation, in order to re-configure existing offerings which helps them achieve flexibility in a dynamic environment (Swart and Kinnie, 2010). In accounting firms, organizational ambidexterity contributes to competitive advantage through exploitation of existing knowledge (e.g., auditing activities) as well as providing innovative solutions to their clients (e.g., in consulting services, Gardner et al., 2012). Organizational ambidexterity, therefore, enables the firm to develop different learning capabilities that can create strategic value (Kang and Snell 2009; Lavie et al., 2010). Therefore, we expect that organizational ambidexterity will be positively linked to PSF performance.

H2: Organizational ambidexterity is positively linked to firm performance in PSFs.

Figure 1 presents our theoretical model.

Insert Figure 1 around here

RESEARCH METHODS AND RESULTS

This research was conducted in regulated accounting firms which are traditional professional service firms (von Nordenflycht, 2010). The research sample consisted of accounting firms based in both China and Ireland. As previously outlined one aim of the present research was to test the validity of our proposed research model in both an Eastern and Western country. These two countries have been found to differ on cultural dimensions such as individualism, power distance and long-term orientation (Hofstede et al., 2010). The use of these two different samples and different research designs (cross-sectional in the Chinese sample and time-lagged in the Irish sample) aided to test the generalizability of the research model. In the following we will describe the data and findings first for the Chinese sample and then for the Irish sample.

Study 1 (Chinese Sample)

Procedure

Hard copy surveys were distributed to the participants attending a training event held by the Liaoning Institute of Certified Public Accountants (LICPA). LICPA encouraged all accounting firms in the whole province to attend this training event. It was the largest training event organized in this province which was attended by the majority of accounting firms' managing partners and/or HR managers/directors. During this event, 112 surveys were returned (response rate of 93%). After excluding incomplete surveys, we retained 91 valid surveys which were used in the data analysis (response rate of 76%). This high response rate was comparable to those of other studies using similar survey distribution methods during events (e.g. 78% in Gardner et al. 2012).

The survey was developed in English and then translated into Chinese. Following Brislin (1980)'s recommendation, we adopted a back-translation procedure. We first asked two Chinese professional translators to translate the survey from English to Chinese. A bilingual researcher in the management research field checked the translation and revised the survey. We then asked a native speaker to translate the survey from Chinese back into English. All hypotheses were tested using hierarchical regression analysis.

Sample Profile

Among the respondents, 70% of respondents were managing partners, 18% of respondents were HR managers/directors, 6% of respondents were partners, and 6% of respondents were other experienced professional staff who had a good knowledge of their organizations. In terms of gender, 62% of respondents were men and 38% were women. In terms of age, 1% of respondents were 30 years of age or less, 12% of respondents were between 31 and 40, 35% of respondents were between 41 and 50, 37% of respondents were between 51 and 60, and 15% of respondents were above 60 years of age. For education level, 53% of respondents held a Bachelor's Degree, 39% of respondents held a Master's Degree and 1% of respondents did not have any degree. The only professional qualification existent in China is the following: Certified Public Accountants in China. All respondents were qualified accountants.

Measures

Intellectual capital. Measures of human, social, and organizational capital were primarily adapted from Youndt et al. (2004). Participants responded to all items using a seven-point Likert scale from 1 = strongly disagree, and 7 = strongly agree. Five items measured human capital. A sample item was: "Our professional staff are up to date on relevant new taxation, auditing, accounting and legal developments". To measure social capital, five items were used. One item was added to the measure of external social capital. This item read as follows "Our professional staff develop and maintain good relationships with clients". For organizational capital, three items were adopted from Youndt et al. (2004). Another two items were created and added to provide a more comprehensive measure of organizational capital: "The processes are efficient to solve clients' problems" and "A low level of vertical hierarchies and cross-functional barriers are maintained in the organization structure". Scales showed high internal consistency reliability, for human capital α =0.83, social capital α =0.86, and organizational capital α =0.82.

Exploration and exploration for organizational ambidexterity. Measures for exploration and exploitation were adapted from Gupta et al. (2006). Participants responded to all items using a seven-point Likert scale from 1 = strongly disagree to 7 = strongly agree. Three items were used to measure exploration. These included: "We focus on creating entirely new services for new customers and new

segments", "We are always experimenting with new services", and "We love to play with new ideas in order to develop new services". Two items were used to measure exploitation. They were "We focus on conducting activities using our existing knowledge", and "We mainly conduct those activities which clearly fit with existing firm policy". Scales showed high internal consistency reliabilities for exploration α =0.80, and for exploitation α =0.63. We also carried out confirmatory factor analysis (CFA) to test the validity of our scale. The results of the two-factor CFA indicated a good model fit (X^2/df = 6.72/4 = 1.68, p >0.10, CFI =0.99, RMSEA =0.096, and SRMR =0.028).

There are many ways to calculate organizational ambidexterity, such as subtracting exploitation from exploration (Cao et al., 2009), multiplying exploration and exploitation (He and Wong, 2004), and summing the two (Lubatkin et al., 2006). According to Lubatkin et al. (2006), the additive model is the best due to no significant loss of information of this model. Therefore, this study calculated organizational ambidexterity using the sum of exploration and exploitation.

Firm performance. Firm performance was assessed by self-report comparative measures. Seven items adopted from Delaney and Huselid (1996) were used to measure the firm's relative performance. Respondents rated their organization's performance relative to that of competitors in relation to for example their "development of new services", and their "ability to attract essential employees".. Answers to these performance indicators weremeasured on a Likert scale ranging from 1 = much worse to 7 = much better. The scale showed high internal consistency reliability, α=0.89. Using comparative firm performance scales is consistent with existing organizational ambidexterity studies (e.g. Cao et al., 2009; Lubatkin et al., 2006).

Control variables. We controlled for firm characteristics such as firm age and firm size because of their possible association with intellectual capital, organizational ambidexterity, and firm performance. We operationalized firm age and firm size using their natural logs.

Study 1 (Chinese Sample) Results

Table 1 shows the descriptive statistics (means, standard deviations), the correlations between the focal variables and reliability coefficients in the Chinese sample.

Insert Table 1 about here

In the regression analysis which tested the link between intellectual capital (predictor) and organizational ambidexterity (outcome), we firstly entered the control variables of firm age and firm size. We then entered intellectual capital as predictor. We also used the 2-step procedure for testing the link between organizational ambidexterity (predictor) and firm performance (outcome). We used variance inflation factors (VIFs) and the Durbin-Watson test (Durbin and Watson, 1950) to examine the effect of multicollinearity and autocorrelation of residuals. The values of the average VIF associated with the predictors ranged from 1.16 to 1.97, which was less than the threshold of 5 suggested by Haan (2002). This suggests that there was no need for concern with respect to multicollinearity. The values of the Durbin-Watson test associated with the predictors showed a range from 1.94 to 2.09, which fall within acceptable limits of between 1 and 3 (Field, 2009). This suggests there was no need for concern with respect to autocorrelation of residuals.

Hypothesis 1 proposed a positive relationship between intellectual capital and organizational ambidexterity. The results of the regression analysis shown in Table 2 indicate that social and organizational capital were positively linked to organizational ambidexterity in the Chinese sample (β = 0.24, p <0.05 for social capital; β = 0.46, p <0.001 for organizational capital). Human capital was not significantly linked to organizational ambidexterity (β = 0.08, *n.s.*). Therefore, Hypotheses 1b and 1c which proposed a positive relationship of organizational ambidexterity with social capital and organizational capital respectively was supported. Hypothesis 1a which proposed a positive relationship between human capital and organizational ambidexterity was not supported.

Hypothesis 2 proposed that organizational ambidexterity would be positively linked to firm performance. The results in Table 2 indicate that after controlling for firm age and firm size, organizational ambidexterity was positively associated with firm performance (β = 0.19, p < 0.05). Therefore, Hypothesis 2 was supported.

Insert Table 2 about here

Study 2 (Irish Sample)

Procedure

For the Irish sample we employed a time-lagged design. Therefore, data collection occurred at two times some twelve months apart. At Time 1, a survey measuring intellectual capital was sent out to 548 managing partners and HR managers (or the senior partners if there were no HR managers) in 274 accounting firms based in Ireland. In doing so we avoided the potential issue of single rater bias (Gerhart et al., 2000). 120 firms returned the surveys (45.98%) which resulted in 72 matched pairs and single response data from 48 firms. At Time 2 (one year later), a survey measuring organizational ambidexterity and firm performance was sent out to the 120 firms from time 1. 93 firms returned the survey (78%) which resulted in 33 matched pairs and single response data from 60 firms. We employed Dillman's (2007) Tailored Design Method to collect data and adopted the following steps: an invitation letter, a cover letter with the survey, a reminder/thank you postcard, and the re-issue of questionnaires as necessary. The data returned from the 93 firms was used for the test of our model and the respective data analysis. A series of comparison analyses using analysis of variance (ANOVA) were conducted. The results showed no significant differences between respondents and non-respondents at T2, between early respondents and late respondents at T1 and T2, between respondents who used hard copy surveys and those who responded to the online survey in terms of respondents' gender, age, education, and job tenure. In addition, there were no differences between respondent and non-respondent firms at T2, as well as between matched paired firms and single respondent firms at T1 and T2 on firms' characteristics such as revenue, firm size, firm age, and partnership. Therefore, we used the responses from all 93 firms, which included the combined matched pairs and single-response firm data. Specifically we aggregated the matched pairs data to the firm level and then combined it with the single response firm data. Support for the aggregation is presented in the following section on "aggregation issues".

Sample Profile

Among the Time 1 respondents, 84% were managing partners or senior partners, 10% HR managers/directors, and 6% were other experienced professional staff. In total 80% were men, with an

average age of 49 years (SD = 10) and working tenure of 26 years (SD = 11). In terms of firm size, there were 10 out of 120 firms with fewer than 10 employees (8%).

Among the Time 2 respondents, 82% were managing partners or experienced partners, 10% HR managers/directors, and 8% were other experienced professional staff. In total, 80% were men, with an average age of 49 years (SD = 10) and working tenure of 26.5 years (SD = 11).

Measures

All of the measures were the same as those used in Study 1 (Chinese Sample). To avoid repetition we only report the internal consistency reliability coefficients of the scales in the following.

Intellectual capital. Scales showed high internal consistency, for human capital α =0.88, social capital α = 0.91, and organizational capital α = 0.81.

Exploration and exploitation for organizational ambidexterity. These scales showed high internal consistency reliability for exploration α = 0.84, and for exploitation α = 0.83. The two-factor CFA results indicated good model fit (X^2/df = 8.28/4 = 2.07, p = 0.08, CFI = 0.98, RMSEA = 0.11, and SRMR = 0.06).

Using the same calculation method, the sum of exploration and exploitation scores was used to compute a scale of organizational ambidexterity (Lubatkin et al., 2006).

Firm performance. The reliability coefficient was α = 0.81.

Control variables. We controlled for firm age and firm size because of their possible association with the constructs in this study. We operationalized firm age and firm size using their natural logs.

Aggregation Issues

At Time 1, there were 72 matched paired respondents providing data on intellectual capital. At Time 2, there were 33 matched pair respondents that provided data on organizational ambidexterity and firm performance. Similar to Datta et al. (2005), we used both the combined pairs and single responses data. Specifically, we averaged pairs data to the firm level and then included both the aggregated data and single response data in the data analysis. This approach is appropriate when: 1) the ANOVA indicates no differences between matched pairs and single response data at T1 and T2;

and 2) inter-rater agreement and inter-rater reliability are high. The aforementioned ANOVA results met these requirements.

Inter-rater agreement was assessed using *Rwg* (James et al. 1984, 1993) for each variable (see Table 1). The mean of *Rwgs* for all variables ranged from 0.80 to 0.98, which was well above the 0.60 rule of thumb for *Rwg* (James, 1982) and the more commonly acceptable value of 0.70, indicating that respondents from each firm were in agreement. Both inter-rater agreement and inter-rater reliability were assessed using the intra-class correlations. ICC(1)s and ICC(2)s were calculated using McGraw and Wong's (1996) formula with a one-way random-effects analysis of variance. In this study, the ICC(1) values for all variables (including Likert and binary ones) ranged from 0.18 to 1.00, higher than the median value of 0.12 reported by James (1982). The ICC(2) values for all variables (except for human, social and organizational capital) ranged from 0.60 to 1.00 which were higher than the 0.60 cut-off point recommended by Glick (1985). The ICC(2)s for intellectual capital were 0.30 for human capital, 0.33 for social capital, and 0.32 for organizational capital. They were comparable to coefficients in Liao et al. (2009), which ranged from 0.28 to 0.38. Thus, we concluded that the firms could be reliably differentiated in terms of all variables in this study. Based on the above results, the matched pair response data were aggregated to the firm-level.

Study 2 (Irish Sample) Results

Table 3 shows the descriptive statistics (means, standard deviations), *Rwgs*, ICCs, correlations between the focal variables and reliability coefficients in the Irish sample.

Insert Table 3 about here

We followed the same data analysis method as employed in Study 1 (Chinese sample). Thus, in the regression analysis which tested the link between intellectual capital (predictor) and organizational ambidexterity (outcome), we firstly entered the control variables of firm age and firm size. We then entered intellectual capital as a predictor. We applied the same 2-step procedure for our test of the link between organizational ambidexterity (predictor) and firm performance (outcome). The

values of the average VIF associated with the predictors in this study ranged from 1.05 to 3.11, which was less than the threshold of 5 suggested by Haan (2002). This suggested that there was no concern with respect to multicollinearity. The values of the Durbin-Watson test associated with the predictors showed a range from 2.14 to 2.47, which fell within acceptable limits of between 1 and 3 (Field, 2009). This suggested that there was no concern with respect to autocorrelation of residuals.

Hypothesis 1 proposed that intellectual capital would be positively linked to organizational ambidexterity. The results of the regression analysis shown in Table 4 indicate that human capital (T1) was positively linked to organizational ambidexterity (T2) in the Irish sample (β = 0.46, $p < 0.001$). Neither social nor organizational capital (T1) was significantly linked to organizational ambidexterity (T2) (β = -0.28, *n.s.* for social capital; β = 0.22, *n.s* for organizational capital). Therefore, Hypothesis 1a which proposed a proposing a positive relationship between human capital and organizational ambidexterity was supported. Hypotheses 1b and 1c which proposed a positive relationships of organizational ambidexterity with social capital and organizational capital respectively was not supported.

Hypothesis 2 proposed that organizational ambidexterity would be positively linked to firm performance. The results in Table 4 indicate that after controlling for firm age and firm size, organizational ambidexterity (T2) was positively associated with firm performance (T2) (β = 0.44, p <0.001). Therefore, Hypothesis 2 was supported.

Insert Table 4 about here

FINDINGS AND DISCUSSION

The aim of this study was to examine the impact of intellectual capital (i.e. human, social and organizational capital) on organizational ambidexterity which in turn should influence firm performance in a professional service context. Using samples from two countries (China and Ireland) and two research design methods (cross-sectional design for Chinese sample; time-lagged research design for Irish sample), this study found consistent evidence in relation to the positive impact of

organizational ambidexterity on firm performance. Support was found for the impact of intellectual capital on organizational ambidexterity. However, the results showed that the three types of intellectual capital influenced organizational ambidexterity differently for Chinese and Irish PSFs.

First, in relation to the antecedents of organizational ambidexterity our findings demonstrated that both social and organizational capital (T1) were significantly linked to organizational ambidexterity (T1) in Chinese PSFs. In contrast, only human capital (T1) was found to be significantly linked to organizational ambidexterity (T2) in Irish PSFs. These findings suggest a cultural imprint of the three forms of intellectual capital and therefore a different effect on organizational ambidexterity. Despite strong similarities in the accounting system in terms of the content and the management approaches (Fu et al., 2015), China and Ireland differ on cultural dimensions and the nature of work which might account for the different pattern to which the three forms of intellectual capital worked in the two national samples. In relation to the cultural dimensions, China has been found to score lower on individualism and higher on power-distance and long-term orientation than Ireland (see Hofstede et al., 2010). Research on individual orientations of individualism/collectivism has been found to impact employee attitudes such as loyalty and team commitment (Ramamoorthy and Flood, 2004). Chinese people place a greater emphasis on groups and think more about themselves in terms of "we" rather than "I". Relationships (*Guanxi*) are critical for Chinese people and firms for the conduct of business which is in line with our findings showing the impact of social capital on organizational ambidexterity.

Moreover, Chinese management tends to place more importance on employees' loyalty to the firm than to their performance. This might explain why in the present research the Chinese data revealed both social and organizational capital (culture and climate based on relationships) as significant predictors of organizational ambidexterity, which ultimately impacted firm performance in PSFs. From these findings we cannot infer that human capital was not important yet perhaps less so than social and organizational capital in the Chinese context compared to the Irish context. In contrast, Ireland is a highly individualistic culture. Being part of a highly individualistic culture, employees are more expected to be self-reliant and to display initiative in work settings. Therefore, the management style in individualistic cultures is more transactional, focuses on merit-based rewards and the work itself is more exchange-based. Employees' knowledge, abilities and skills (i.e. their human capital)

tend to be more important than other factors including social and organizational capital. In relation to the nature of work, Irish firms place more emphasis on employees' creativity which requires human capital whereas Chinese accounting firms focus more on routinized work such as auditing (Fu et al., 2016). It is therefore only logical that Irish firms pursue high human capital as an indicator of reputation as clients anticipate that more talented people produce better results (Greenwood et al., 2005).

Second, consistent support was found for the association between organizational ambidexterity and relative firm performance in both contexts. This finding indicates that although there are differences in management, Chinese and Irish accounting firms as well as other industries are facing similar challenges such as quick changes in the market. They both need to align existing resources for achieving better efficiency and adapt to these changes for the benefit of innovation. Only by being ambidextrous can accounting firms ensure survival and success (Swart and Kinnie, 2010). This finding is consistent with that of previous studies which focussed on other sectors – including firms in the high-tech sector (Cao et al., 2009; Patel et al., 2013), multinational firms (Gibson and Birkinshaw, 2004) and manufacturing firms (He and Wong, 2004).

Theoretical Implications

By exploring the impact of intellectual capital (human, social and organizational capital) on organizational ambidexterity and organizational performance, this study contributes to extending our knowledge of the antecedents and outcomes of organizational ambidexterity in the following ways.

First, this study extends our knowledge of organizational ambidexterity by proposing a new set of antecedents, i.e. human, social and organizational capital - – labelled together 'Intellectual capital'. Three types of antecedents have been identified in previous research which include organizational design (structural), strategic management (contextual) and leadership-related factors (Raisch and Birkinshaw, 2008). However, these antecedents have explained only some variance in organizational ambidexterity which points to the existence of other antecedents. Although Kang and Snell (2009) theorized that intellectual capital facilitates organizational ambidexterity, empirical work demonstrating this link is scarce to date. To the authors' knowledge, only Swart and Kinnie (2010)

investigated the relationship between intellectual capital and organizational ambidextrous learning using a multi-case study of law firms. This study complements and extends Swart and Kinnie's (2010) work by using quantitative methods to answer the question of whether the three types of intellectual capital influence organizational ambidexterity. In doing so, this study contributes to more comprehensive understanding of the factors which drive organizational ambidexterity.

Second, we also make an important contribution to the literature on organizational ambidexterity by investigating the context of PSFs. In existing research on organizational ambidexterity, the context of PSFs has been overlooked. For example, Auh and Menguc (2005) and He and Wong (2004) conducted their research on organizational ambidexterity in manufacturing firms, whereas Beckman (2006) and Cao et al. (2009) focused on high-technology firms. To date research on organizational ambidexterity in the professional service context is scarce. Only recently, Swart and Kinnie (2010) studied organizational ambidextrous learning in law firms using a qualitative method. In contrast, the present research adopted a quantitative method which allowed an empirical test of the hypothesized relationships between the focal variables in the professional service context. Our findings therefore enrich our understanding of organizational ambidexterity in this particular research context. In addition, this study also make a contribution by addressing another a research gap in the PSFs literature, i.e. the current lack of research on the topic of organizational ambidexterity. The topics which have been addressed in PSFs management literature to date include ownership (von Nordenflycht, 2007), business model evaluation from P^2 (professional partnership) to business network model (Greenwood et al, 1990) and particular promotion models (up-or-out) on firm performance (Morris and Pinnington, 1998) and knowledge management (Anand et al., 2007). This study enriches the current literature on PSFs by investigating the relationships between intellectual capital, organizational ambidexterity and firm performance. By doing so, this study provides a better understanding of PSFs management effectiveness.

Third, we tested our model using two samples – one Eastern sample (China) and one Western (Ireland) sample. These two countries' samples represent a unique opportunity to study organizational ambidexterity, its antecedents and consequences and see whether the results obtained in one cultural context are generalizable to the other cultural context. For example, Auh and Menguc (2005)

conducted their study in Australia. Beckman (2006), Ebben and Johnson (2005) explored their research on ambidexterity in a US sample. Jansen et al. (2005) investigated one European financial service firm. Kyriakopoulos and Moorman (2004) focused on a Dutch sample. Two studies used Eastern country's sample: Cao et al. (2009) in China and He and Wong (2004) in Singapore and Malaysia. However, our study differs from Cao et al. (2009) as we focus on PSFs rather than high-technology firms. Moreover, our study is cross-cultural rather than focusing on a single context which adds unique insight and ensures our study is different from Cao et al. (2009) and He and Wong (2004). Consistent with research showing diverse cultural differences between Eastern and Western countries (e.g. Wang and Walumbwa, 2007; Zhou and Martocchio, 2001), the present found that cultural differences in the types of intellectual capital that predicated organizational ambidexterity. Knowledge of this cultural imprint of intellectual capital antecedents is critical for researchers and managers in order to better understand the culture-specific constraints and drivers of organizational ambidexterity, which in return is linked to firm performance in both cultures.

Finally, the adoption of both cross-sectional and time-lagged research design methods answers the call from scholars to collect data overtime (e.g. Cao et al., 2009). Existing research on organizational ambidexterity has mainly adopted a cross-sectional research design which may cause common method bias (Cao et al., 2009; Jansen et al., 2006; Mom et al., 2009; Patel et al., 2013). In the present study, a time-lagged research design for Study 2 (Irish sample) was employed. By doing so, we provide support for causal link between intellectual capital (T1) and organizational ambidexterity (T2).

Practical Implications

The findings from our study showed that different aspects of intellectual capital facilitate organizational ambidexterity which in turn improves firm performance. Therefore our study provides managers with support for the importance of intellectual capital in enabling organizations to simultaneously engage in exploiting existing resources and exploring new ideas and opportunities.

However, managers need to bear in mind that the different types of intellectual capital operate in different ways in different contexts. In the Irish sample, we found that human capital was the only

important factor linked to organizational ambidexterity. This finding indicates that in Western countries high on the cultural dimension of individualism culture management is more transactional and exchange-based. Employees' knowledge, skills and capabilities play a more prominent role in achieving organizational ambidexterity. However, in the Chinese sample, both organizational and social capital were linked to organizational ambidexterity and human capital was not. Due to high collectivism in the Chinese culture, the Chinese people place higher importance on groups and focus on relationships, links and networks. The present findings which show the impact of different patterns of capital on organizational ambidexterity in both cultures will enrich our understanding of best practices in l Eastern management, e.g. Chinese management.

For Chinese firms in particular, this study provides greater insights into international management. There are more Chinese firms that are moving abroad such as Lenovo, Huawei, and Haier. According to the 2013 Survey Report on Chinese Companies' Outward Foreign Direct Investment (short as Report) published by China Council for the Promotion of International Trade, the total amount of Chinese companies' foreign direct investment in 2012 was 62.5 billion dollars, with a growth rate of 25% compared to 2011. The investment is still growing. The Report indicates that a lack of international management experts and talent is the largest barrier for Chinese companies to open offices overseas. Therefore, the findings of this study on the differential impact of human, social and organizational capital on organizational ambidexterity between Eastern and Western countries provides important lessons for Chinese companies on international management. Knowing these differences will facilitate managers' decision making regarding appropriate HR policies when transferring from China to Western countries.

Limitations and Future Research

This study contributes to theory and practice in numerous ways. Nonetheless, it has a number of limitations which can be addressed in future research.

First, the present study is limited in context in terms of its focus on a single industry, i.e. accounting industry. Although a single industry study has the advantage of focus, results may not be

generalizable to other PSFs, e.g. law practices and architecture firms. Future research is needed to test our model in multiple knowledge-intensive industries.

Second, this study is limited in terms of the level of analysis as only a firm level analysis was employed. As conceptualized by Birkinshaw and Gupta (2013), organizational ambidexterity is a multi-level construct. However, to date studies have predominantly examined organizational ambidexterity at the firm level, so does this study. There is a lack of research on the organizational ambidexterity – performance relationship at different organizational levels such as the individual and the team level (Junni et al., 2013; Raisch et al., 2009). Therefore, we recommend that future research should examine a multi-level model of the organizational ambidexterity – performance link and investigate cross-level interactions between individual and team level resources in this link.

Third, although we collected data at different time points for the Irish sample to reduce common method bias and establish causal relationships we were not able to do so for the Chinese sample. We strongly encourage future research to employ longitudinal designs not only for methodological reasons but also for theoretical reasons. Markides (2013) proposed that organizational ambidexterity is dynamic and different firms at different stages need to select different organizational ambidexterity strategies, e.g. temporal, spatial, and contextual ambidexterity. Longitudinal research is imperative to gain an understanding of what organizational ambidexterity strategies and how they will impact on firms' performance at different stages.

Lastly, although the present research included one Western and one Eastern sample to aid the generalizability of the findings, future research needs to gather more data to further validate the findings in the future. For example, this study sampled all 254 accounting firms with more than 3 partners or 10 employees in Ireland and 120 accounting firms based in the Liaoning Province in China yet it can be questioned whether the latter firms can represent all firms in China. However surveying all Chinese firms is a major challenge and most research to date adopted a similar sample strategy to the one we followed, i.e. selecting one area based on sample availability and operation feasibility (Zhou and Martocchio, 2001).

CONCULSION

Organizational ambidexterity enables firm to simultaneously exploit existing resources to enhance organizational efficiency *and* explore new resources to improve organizational effectiveness. It is an important capability for organizations to achieve high performance. Using data collected from two countries, we have established a link between intellectual capital including human, social and organizational capital, organizational ambidexterity and firm performance. By doing so, this study provides new insights into how to build up organizational ambidexterity capability via developing its people.

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Tables and Figures

Table 1 Descriptive Statistics for Study 1 (Chinese Sample)

Variables	Mean	S.D.	1	2	3	4	5	6	7	8
1. Firm performance	5.26	0.86	(0.89)							
2. Organizational ambidexterity	9.91	1.47	0.53**							
3. Exploration	5.06	0.80	0.57**	0.88**	(0.80)					
4. Exploitation	4.85	0.86	0.38**	0.90**	0.57**	(0.63)				
5. Human capital	4.73	0.85	0.66**	0.45**	0.40**	0.40**	(0.83)			
6. Social capital	5.21	0.77	0.57**	0.60**	0.62**	0.45**	0.57**	(0.86)		
7. Organizational capital	4.64	0.88	0.41**	0.67**	0.63**	0.56**	0.42**	0.57**	(0.82)	
8. Firm age	2.22	0.70	0.25*	0.08	0.12	0.03	0.06	0.08	0.02	
9. Firm size	2.89	0.65	0.19	0.08	0.09	0.06	-0.02	0.06	0.03	0.37**

Note: Note: N = 91 (listwise) ** p<0.01, * p<0.05 (two-tailed tests).

Table 3 Descriptive Statistics for Study 2 (Irish Sample)

Variables	Mean	S.D.	*Rwg*	ICC(1)	ICC(2)	1	2	3	4	5	6	7	8
1. Firm performance	5.68	0.47	0.98	0.55	0.67	(0.81)							
2. Organizational ambidexterity	8.55	1.68	-	-	-	0.38**							
3. Exploration	3.81	1.10	0.80	0.46	0.84	0.36**	0.81**	(0.84)					
4. Exploitation	4.74	1.02	0.85	0.27	0.60	0.23*	0.77**	0.26*	(0.83)				
5. Human capital	5.49	0.63	0.96	0.18	0.30	0.54**	0.36**	0.23	0.35**	(0.88)			
6. Social capital	5.65	0.76	0.88	0.20	0.33	0.39**	0.17	0.09	0.19	0.72**	(0.91)		
7. Organizational capital	5.32	0.77	0.94	0.19	0.32	0.36**	0.23	0.22	0.14	0.43**	0.55**	(0.81)	
8. Firm age	2.99	0.81	-	0.62	0.77	0.00	0.09	0.10	0.04	0.09	0.01	-0.01	
9. Firm size	2.95	1.20	-	1.00	1.00	0.13	0.19	0.18	0.12	0.36**	-0.01	0.04	0.22

Note: Note: N = 72 (listwise) ** p<0.01, * p<0.05 (two-tailed tests).

Table 2 Regression Results for Study 1 (Chinese Sample)

Variables	Organizational ambidexterity		Firm performance	
	Model 1.1	Model 1.2	Model 2.1	Model 2.2
Control				
Firm age	0.06	0.03	0.21	0.14
Firm size	-0.03	-0.06	0.11	0.12
Predictors				
Human capital		0.08		0.48***
Social capital		0.24*		0.19
Organizational capital		0.46***		-0.02
Organizational ambidexterity				0.19*
Adjusted R^2	-0.02	0.43	0.05	0.54
ΔR^2		0.46		0.50
ΔF	0.13	24.30***	3.51*	24.37***

Note: Standardized coefficients were reported. Listwise deletion method was employed to deal with missing data in hierarchical multiple regression analysis. N = 91. *** p<.001, ** p<.01, * p<.05, † p<.10. All tests were two-tailed.

Table 4 Regression Results for Study 2 (Irish Sample)

Variables	Organizational ambidexterity (T2)		Firm performance (T2)	
	Model 1.1	Model 1.2	Model 2.1	Model 2.2
Control				
Firm age (T1)	0.05	0.06	-0.06	-0.08
Firm size (T1)	0.18	0.00	0.21	0.12
Predictors				
Human capital (T1)		0.46***		0.06
Social capital (T1)		-0.28		-0.02
Organizational capita (T1)l		0.22		-0.19
Organizational ambidexterity (T2)				0.44***
Adjusted R^2	0.01	0.12	0.01	0.16
ΔR^2		0.14		0.19
ΔF	1.36	3.76*	1.46	4.06**

Note: Standardized coefficients were reported. Listwise deletion method was employed to deal with missing data in hierarchical multiple regression analysis. N = 72. *** p<0.001, ** p<0.01, * p<0.05, † p<0.10. All tests were two-tailed.

Figure 1. Conceptual Model