



Investigating Dynamic Capabilities of Family Businesses in China: A Social Capital Perspective

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Abstract

Purpose - Dynamic capabilities are regarded as the bedrock of businesses that survive in a dynamic environment. Building upon the social capital theory, this study aims to investigate the nexus between dynamic capabilities and social capital in family businesses.

Design/methodology/approach - The study adopted a quantitative approach. As there is no formal business database available in China, the study followed a snowball sampling procedure. 628 useful responses were gathered.

Findings – The study echoes the call of Arregle *et al.* (2007) for understanding family business's internal sources of competitiveness and the role of social capital. Results show that the three dimensions of social capital, namely structural, cognitive, and relational capital, influence dynamic capabilities of family businesses.

Research limitations - The lack of an official business database in China made the conventional representative sample survey used in the West difficult to replicate. Furthermore, empirical data were collected from different regions of China; regional cultures and different levels of economic development across the regions might influence the social capital-dynamic capabilities connection, but these were not examined in the current study.

Originality/value – The study integrates two significant but disconnected research streams, i.e. social capital and dynamic capabilities. Furthermore, the study shows how different dimensions of social capital influence dynamic capabilities. Research findings derived may contribute to the entrepreneurial debate as to why some family businesses can survive in the dynamic environment while others cannot.

Keywords: dynamic capability, social capital, family business, quantitative approach

Paper type – Research paper

Introduction

In today's relentlessly competitive environment, modern businesses have to continuously renew, reconfigure, and recreate their capabilities to tackle intense competition and secure their market position. This calibre is encapsulated in the concept of dynamic capability (Teece *et al.*, 1997). Since the initiation of this concept, research interest in dynamic capabilities has remained at a high level (Easterby-Smith *et al.*, 2009). However, dynamic capabilities are rarely studied in the family business context, despite them being the most common form of business organisation (Konig *et al.*, 2013).

Researchers believe whether family businesses are able to survive and succeed in a dynamic environment depends on the resources available inside and outside them (Sirmon and Hitt, 2003). Hoffman *et al.* (2006) in their paper on sustainable competitive advantage proffered the notion of family capital. Pearson *et al.* (2008) further examined the family capital via the lens of social capital and believed that social capital theory is particularly relevant to studies of the unique resources family businesses possess, since social capital reflects 'the character of social relationships within the organisation, realised through members' levels of collective goal orientation and shared trust' (Leana and Van Buren 1999, p.540). Nevertheless, notwithstanding the family business literature touching upon social capital (Nordstrom and Steier, 2015; Shi *et al.*, 2015; Pearson *et al.*, 2008), a fundamental question remains unexplored: Can social capital enable family firms to develop dynamic capabilities that are crucial to their survival and success in the dynamic environment? This research question is noteworthy not only because the majority of firms across economies are profoundly influenced by families (Konig *et al.*, 2013), but also because family firms are embedded in a distinctive social system that prompts significant behavioural differences from non-family firms (Miller *et al.*, 2010). The current study intends to bridge the gap by integrating two important, yet previously disconnected, streams of management research: research on social capital in family businesses (Arregle *et al.*, 2007) and dynamic capabilities (Eisenhardt and Martin, 2000). In particular, the study aims to examine whether family business social capital is conducive to the development of family firm dynamic capabilities.

This study contributes to the understanding of social capital and dynamic capabilities of family firms in two important ways. Firstly, researchers argued that social capital is able to contribute positively to a firm's outcomes (Nahapiet and Ghoshal, 1998). Recent research shows that social capital may provide a structure to a firm for efficient information flow and enable access to broader sources of information (Adler and Kwon, 2002). Further, social capital is believed to be able to provoke co-operative behaviour within and outside the firm

(Pearson *et al.*, 2008). Despite these developments, there is little research that shows the impact of social capital on business capabilities, especially those critical to survival in the dynamic environment. The current study fills this gap by integrating the two significant but disconnected research streams. It offers a perspective that helps appreciate the resource – capability relationship. Secondly, this study fits the call for understanding a firm’s internal sources of competitiveness and the role of social capital in the creation of this competitiveness (Arregle *et al.*, 2007). While acknowledging that social capital plays a role in family businesses, the current study shows specifically how different dimensions of social capital influence the development of dynamic capabilities. Research findings derived from the study may contribute to the entrepreneurial debate as to why some family businesses can survive in the dynamic environment while others cannot.

The remainder of this article consists of four sections. In the theoretical background section, the literature that relates to dynamic capabilities and social capital is reviewed to form the foundation for the study. Grounded in this review, the conceptual framework is formulated and hypotheses are proposed. Following this, the research methodology section focuses on the description of the sample, sampling method and the constructs. Research results arising from the regression analysis are then presented. This is followed by a discussion on contribution, limitations and future research directions.

Background

Family businesses play an important role in both developing and developed economies. In the UK, family businesses are estimated to represent 65.0% of all private sector enterprises and account for about 42.0% of private sector employment (Institute of Family Business, 2008). In China, the dynamism of family businesses is conspicuous, though family controlled firms as a sector have only been recognised recently by the public. Ye *et al.* (2013) reported that family businesses represent 82.7% of the total non-public enterprises in China. Unparalleled to the significant role family businesses play in the economy, there is an overall paucity of studies of family firms in China. In fact entrepreneurial activities were suffocated in China between 1949 and 1978 and entrepreneurship was a political taboo during this period (Tan, 2002a). Despite the pervasive entrepreneurial development in the last few decades, some entrepreneurs still deny their family ownership of the business due to ideological inertia. This psychological discomfort, coupled with the definition problem, engenders barriers against family business research.

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3 China has been experiencing rapid economic growth since 1978. Nonetheless, due to
4 historical reasons and its ideological stance, the Chinese economy is characterised by a great
5 level of complexity with co-existing state-owned, collective-owned, private-owned, and other
6 types of enterprises. On the one hand, Chinese firms are operated in a highly complicated
7 institutional environment (Jiang *et al.*, 2016), where companies in different ownerships are
8 treated in disparate ways by the government, with private firms being disadvantaged (Tan
9 2002b). On the other hand, the transition that China is undergoing also offers opportunities
10 (Jiang *et al.*, 2016). Family businesses may benefit from this transition, since reforms in
11 policies, regulations, and legal frameworks continue to occur, aiming to promote
12 entrepreneurial venturing. Investigation of how family firms survive and thrive in such a
13 dynamically changing but complicated environment is therefore interesting and may unravel
14 the secret to business competency.
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24 *Dynamic capability perspective*

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26 Along with globalisation, market competition becomes ever more relentless. In a highly
27 competitive market, where the competitive landscape is constantly shifting, firms have to
28 continuously recreate, reconfigure and renew their resources and capabilities to ensure
29 survival. Researchers realise that the capabilities required to achieve and sustain competitive
30 advantages in this type of market are different from the earlier concepts such as core
31 competence (Prahalad and Hamel, 1990), distinctive competence (Learned *et al.*, 1969), and
32 combinative capability (Kogut and Zander, 1992). Teece *et al.* (1997) coined this as ‘dynamic
33 capability’. The term ‘dynamic’ refers to ‘the capacity to renew competences so as to achieve
34 congruence with the changing business environment’ (p. 515), while the word ‘capabilities’
35 means ‘the key role of strategic management in appropriately adapting, integrating, and
36 reconfiguring internal and external organisational skills, resources, and functional
37 competences to match the requirements of a changing environment’ (p. 515).
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46 Wang and Ahmed (2007) indicated that dynamic capabilities encapsulate three
47 components, namely absorptive capability, adaptive capability, and innovative capability.
48 Absorptive capability reflects ‘the ability of a firm to recognise the value of new, external
49 information, assimilate it, and apply it to commercial ends... the ability to evaluate and utilise
50 outside knowledge is largely a function of the level of prior knowledge’ (Cohen and
51 Levinthal, 1990, p. 128). Adaptive capability refers to a firm’s ability to identify and
52 capitalise on emerging market opportunities and the ability to align its resources and routines
53 to the changing external market (Alvarez and Merino, 2003). Innovative capability mirrors a
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3 firm's competence to engage in new ideas, novel designs, original technologies, and creative
4 processes that may lead to pioneering new products, services, or technological processes
5 (Lumpkin and Dess, 1996). Wang and Ahmed's (2007) definition of dynamic capabilities is
6 adopted in this paper because of the clearly decomposed components and the distinctive
7 nature of these elements.
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10 11 12 13 *Social capital perspective*

14 The resource-based view proposes that whether family businesses are able to
15 develop/enhance absorptive, adaptive and innovative capabilities depends on the
16 resources/capital available inside and outside the firms (Sirmon and Hitt, 2003). Social
17 capital, which is the resource predominantly relying on reciprocal and trustworthy
18 relationships (Arregle *et al.*, 2007), is believed to be able to contribute to a firm's capability
19 development (Nahapiet and Ghoshal, 1998; De Massis *et al.*, 2015). Social capital was first
20 systematically analysed by Bourdieu (1980) (Arregle *et al.*, 2007), and defined as 'the
21 aggregate of the actual or potential resources which are linked to possession of a durable
22 network of more or less institutionalised relationships of mutual acquaintance or recognition'
23 (Bourdieu, 1980, p. 2). Within family businesses there are two forms of social capital
24 coexisting, namely the family's social capital and the firm's. By relying on a process-based
25 perspective, Arregle *et al.* (2007) analysed the mechanisms that link a family's social capital
26 to the creation of the firm's social capital and believed that family social capital leads to
27 organisational social capital. On the other hand, Pearson *et al.* (2008) concentrated on the
28 components of social capital. They believed that 'the synergies among the family firm's
29 behavioural and social resources and the resulting capabilities represent the heart of family
30 firm social capital' (p. 956). This theoretical stance differs from Arregle *et al.*'s (2007)
31 process-based viewpoint. In the current paper, the author follows Pearson *et al.*'s (2008)
32 content perspective since the paper aims to explore the relationship between social capital
33 and dynamic capabilities, and in particular how each social capital component associates with
34 dynamic capabilities. The content perspective claims that social capital has three components,
35 namely structural, cognitive and relational capital (Nahapiet and Ghoshal, 1998). Structural
36 capital refers to 'the social interactions, including the patterns and strengths of ties, among
37 the members of a collective' (Pearson *et al.*, 2008, p. 957). Cognitive capital is '...resources
38 providing shared representations, interpretations, and systems of meaning among parties'
39 (Nahapiet and Ghoshal, 1998, p. 244). Finally, relational capital is resources created through
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3 personal relationship, including trust, norms, obligations, reputation, and identity (Nahapiet
4 and Ghoshal, 1998).
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8 *Family business social capital and dynamic capabilities*

9 *Structural capital and dynamic capabilities*

10 Structural capital refers to configurations and strength of social connections between people
11 (Nahapiet and Ghoshal, 1998). In the family business context, structural capital is often
12 associated with internal and external informational channels developed by family members
13 through a history of interactions with various stakeholders (Hoffman *et al.*, 2006). Examples
14 of internal information channels include regular family meetings, a network of support from
15 extended family members, and a reliance on family relatives for expertise and contacts. On
16 the other hand, external information channels comprise affiliations to professional
17 organisations and connections with external professionals etc. (Hoffman *et al.*, 2006). The
18 information channels owned by the firm may influence its absorptive capability (Smith *et al.*,
19 2005; Seghers *et al.*, 2012). For instance, Sanchez-Famoso *et al.* (2014) found that access to a
20 broader network may reinforce or transform a family firm's knowledge base. In a study of
21 family firms' involvement in international business, Kontinen and Ojala (2011) reported that
22 family businesses often recognise international opportunities through their external networks,
23 which usually consist of competitors, customers, suppliers, distributors and government
24 bodies. Zaefarian *et al.* (2016), by citing Kontinen and Ojala (2011), further argued that the
25 number of ties a family firm has with external stakeholders is positively related to its
26 opportunity recognition. In fact, not only the quantity of social ties affects a firm's
27 information acquisition, assimilation and exploitation, the strength of social connections also
28 seems to be crucial. Sirmon and Hitt (2003) found that the intimate relationship between
29 managers and employees in a family business instigates a better understanding of the firm's
30 informational channels. Staff members are able to access to tacit knowledge privately
31 possessed in the social network via these channels. In a similar vein, Jack (2005) claimed that
32 the special social networks introduced by family members, such as external agents like
33 professional organisations, community groups, and school ties, often offer family businesses
34 up-to-date market information. When they build up connections with external agents, family
35 members for the sake of business longevity and family control concerns often construct
36 tightly-knitted networks. The inflow of quality information becomes possible via these
37 connections. Whilst the connection between structural capital and a firm's absorptive
38 capability is acknowledged, the literature also highlights that the relationship may not always
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3 be linear and positive. Zheng (2010) pointed out that when the size of social networks is
4 beyond a threshold, costs and other negative outcomes may outweigh their positive impact.
5 De Massis *et al.* (2015) further highlighted the problem of dysfunctional networks, due to
6 business complexity and paralysis of action.
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10 Structural capital may play a crucial role when businesses make strategic adjustments.
11 Indeed, whether a business can survive and succeed depends to a large extent on its capability
12 in matching organisational structure, process and expertise with the external environment. In
13 a study of growth-oriented small businesses Liao *et al.* (2003) highlighted that a firm's
14 knowledge chain, constructed upon structural capital, often determines how swiftly the
15 business overcomes inertia and responds to market changes. This finding substantiates the
16 structural capital-adaptive capability connection. Moreover, strong ties often mean intensive
17 interactions among different parties that may prompt mutual trust, collaboration, and social
18 cohesion (Smith *et al.*, 2005). Trust, and the resulting goodwill, may further offer emotional
19 support to top managers and create a forum for them to freely reflect on strategic adjustment
20 (Chua *et al.*, 2008; Grichnik *et al.*, 2014). In fact, during the adjustment process, especially
21 when directions of adjustment are unclear and outcomes are difficult to foresee, mutual trust,
22 collaboration, and cohesion are often the primary source of guidance (Russell and Russell,
23 1992). Trustworthy relationships and collaboration may enable staff members to take
24 collective actions, and therefore the outcomes of the adjustment are likely to be positive.
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35 What impact does a family firm's structural capital have on its innovative capability?
36 The literature has provided evidence of a link between structural capital and a firm's
37 capability in innovation (Adler and Kwon, 2002). In an entrepreneurial environment,
38 innovative activities often have ambiguous contexts and involve radical development of
39 services/products and processes (Ravasi and Turati, 2005). This requires that family business
40 managers not only possess industrial knowledge and experiences, but also have capacity to
41 update their knowhow. In this context, a firm's structural capital becomes crucial, as it
42 enables managers to connect to the environment, and information exchange therefore
43 becomes possible (Sanchez-Famoso *et al.*, 2014). Perez-Luno *et al.* (2011) indicated that in a
44 swiftly changing market, a single company cannot easily command the full range of expertise
45 to satisfy the needs of innovative activities. Firms with complementary knowledge reserves
46 are therefore liable to interact and combine their expertise and technological knowhow. On
47 the other hand, the strength of social ties may be related to innovation. In fact, frequent
48 interactions via networks are benign to innovation (Landry *et al.*, 2002). Familiarity with
49 different network stakeholders as a result of frequent interactions is conducive to mutual
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3 communication, hence facilitating innovation decisions, even those on radical innovation.

4 Based on the above discussion and the general findings available in the literature, one main
5 and three sub-hypotheses are proposed:
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8 H1: Family business structural capital is positively related to dynamic capabilities of the firm,
9 i.e. absorptive capability, adaptive capability and innovative capability.
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11 H1a: Family business structural capital is positively related to the firm's absorptive
12 capability.
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14 H1b: Family business structural capital is positively related to the firm's adaptive capability.
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16 H1c: Family business structural capital is positively related to the firm's innovative
17 capability.
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20 21 *Cognitive capital and dynamic capabilities*

22 Cognitive capital refers to the firm's shared vision, as well as unique language, business
23 culture and administrative mechanism (Pearson *et al.*, 2008). This capital may play a role in
24 business operations and influence a firm's absorptive capability. Shared cognition enables
25 mutual understanding, common interpretation of information, and co-ordinated actions
26 (Zheng, 2010). In family businesses, because of kinships and the history of interactions
27 within the family, family members are likely to have a common understanding (Corbetta and
28 Salvato, 2004). When the vision is shared, family members understand the core business and
29 they are more likely to channel their momentum towards the same direction. They are also
30 more likely to be unambiguous about what market information or knowledge/expertise to be
31 brought in and what informational ties to focus on. Information absorption and updating of
32 technology therefore become more efficient.
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41 How does cognitive capital influence a family firm's adaptive capability? The
42 literature suggests family firms are likely to develop a shared vision (Chirico and Salvato,
43 2008), and such vision often conveys a profound message, that is, why business continuity is
44 important for the family (Lansberg, 1999). In this context, the vision may enable family firms
45 to perform on various tasks during adjustment. For instance, the shared vision enables the top
46 management to communicate with subordinates (Adler and Kwon, 1999), make decisions on
47 adjustment expectations, and outline action plans. On the other hand, the shared goals and
48 values may encourage employees to contribute during the adjustment process, whilst
49 subjugating their personal interests (Stanley and McDowell, 2014). The ensuing higher
50 degree of cohesiveness and commitment of the workforce (De Massis *et al.*, 2015) may also
51 help the business during the transition. In the literature, many researchers report positive
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3 impacts of shared cognition on strategic adjustment, nevertheless Zheng (2010) claimed that
4 shared cognition may sometimes blind decision-makers to changes in the market, reducing
5 their capability to respond to the outside world.
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8 Finally, cognitive capital may function in the business innovative process since the
9 shared vision clarifies the core business and business directions. The vision may drive a
10 business to nurture its own specialists for the initiation of new products and services, or at
11 least indicate what expertise/technology to be brought in, when internal human capital is not
12 available. Chandler *et al.* (2000) offered evidence that having a shared vision is beneficial to
13 the creation of an innovative culture. Through setting up strategic objectives in line with the
14 vision, senior executives can signal to staff members and encourage new practices which
15 depart from norms or existing mechanisms. In the existing literature, relatively few studies
16 analyse the linkage between cognitive capital and innovative capability. The unique study
17 from Tsai and Ghoshal (1998) investigated the impact of cognitive capital on innovation, in
18 conjunction with structural capital and relational capital. However the results show no
19 significant impact of cognitive capital on innovation. The reason for the insignificant impact
20 may be that cognitive capital overlaps with relational capital and when relational capital
21 influences innovation at a significant level, cognitive capital cannot demonstrate an extra
22 influencing power (Zheng, 2010). Based on the above discussion, the following hypothesis
23 and sub-hypotheses are proposed:
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34 H2: Family business cognitive capital is positively related to dynamic capabilities of the firm,
35 i.e. absorptive capability, adaptive capability and innovative capability.
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38 H2a: Family business cognitive capital is positively related to the firm's absorptive
39 capability.
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41 H2b: Family business cognitive capital is positively related to the firm's adaptive capability.
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43 H2c: Family business cognitive capital is positively related to the firm's innovative
44 capability.
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48 *Relational capital and dynamic capabilities*

49 Relational capital in the family business context refers to trust, norms, obligations and
50 expectations (Hoffman *et al.*, 2006). However in the literature of relational capital-business
51 capability relationship, research effort focuses on trust and norms (Zheng, 2010).
52 Interpersonal trust in family firms is often built upon family relationships, shared values and
53 historical interactions (Eddleston *et al.*, 2010). This is the reason why family members often
54 contribute to the business with informational, financial and other resources whenever
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3 required. In fact interpersonal trust in businesses may trigger individuals to share their social
4 networks, whereas extended and enriched social networks are conducive to information
5 absorption (Zahra *et al.*, 2004). Trust may further help in information inspection. High
6 quality personal relationships may create a collaborative atmosphere and enable the firm to
7 analyse technological and market information through a comprehensive approach. In
8 addition, trust is claimed to be able to foster a stewardship culture in family firms (Hadjielias
9 and Poutziouris, 2015; Pearson and Marler, 2010; Davis *et al.*, 2010). Under this atmosphere,
10 top management may easily communicate adjustment initiatives with subordinates, whilst
11 employees are willing to go beyond the required tasks (Davis *et al.*, 2010). Outcomes of
12 strategic adjustments are therefore likely to be satisfactory. Finally, trust may have an impact
13 on the family business innovation process. In an innovation process, uncertainty and
14 ambiguity permeate and the innovation per se entails risk and vulnerability. A high level of
15 trust can lead to open communication (Stanley and McDowell, 2014), and enable
16 examination of new initiatives without interference from the bureaucracy (Zheng, 2010).
17 Moreover, trust may minimise opportunistic behaviour and inspire tacit knowledge sharing
18 (Sanchez-Famoso *et al.*, 2014). Indeed, trust can enrich the competence of a family firm and
19 enable the firm to achieve competitive advantages (Steier, 2001; Sanchez-Famoso *et al.*,
20 2014).

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23 Norms are sets of accepted behaviour or a common belief system that enables
24 individuals to communicate and share their experiences (Hoffman *et al.*, 2006). Norms are
25 also regarded as a component of organisational culture that regulates employees' behaviour
26 (Russell and Russell, 1992). Pearson *et al.* (2008) realised that norms of co-operation and
27 teamwork in family firms often lead to the establishment of other norms such as reciprocity.
28 When reciprocity is valued, employees are more willing to work for the family as they
29 believe the family will reciprocate at certain points (Hoffman *et al.*, 2006). They are more
30 likely to share their network resources, which is conducive to information acquisition and
31 assimilation. Further, norms are likely to influence family business adaptive capability.
32 Lansberg (1999) recognised norms such as egalitarianism, teamwork and collaboration are
33 often found in family businesses. In a process of strategic adjustment, these norms are able to
34 ensure staff members take collective actions rather than moving divergently. Hassles often
35 experienced in the adjustment process are therefore reduced and the outcomes are more likely
36 to be positive. Finally, norms may contribute to innovation. In the innovation process where
37 there is often a high level of uncertainty, norms such as collaboration and teamwork may
38 become the primary guidance for operations (Russell and Russell, 1992; Bubolz, 2001). In
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the arena of norms-business capability, Zheng (2010) indicated that the studies on norms are divergent because of the inconsistent use of terminologies. Hence it is often difficult to compare and contrast research findings or make any generalisations upon these studies. On the basis of the above debates and taking into account the major findings from the literature, the following main hypothesis and three sub-hypotheses are put forward:

H3: Family business relational capital is positively related to dynamic capabilities of the firm, i.e. absorptive capability, adaptive capability and innovative capability.

H3a: Family business relational capital is positively related to the firm's absorptive capability.

H3b: Family business relational capital is positively related to the firm's adaptive capability.

H3c: Family business relational capital is positively related to the firm's innovative capability.

Insert Figure 1 here

Research Methodology

Sample and data

The principal purpose of this study is to investigate the nexus between dynamic capability and social capital in the Chinese family business context. In China, large-sample firm-level data collection is difficult (Tan, 2002b) since no official database, equivalent to Hemsco Company Guru, FAME or OneSource in the UK, is available. Many studies implemented in China so far are case-based, which is valuable for developing theories, but less useful for testing theories (Tan, 2002b). For this study, the author used his contacts in the Beijing Institute of Technology and Hebei University of Technology. Both institutions have multi-dimensional connections with businesses because of their teaching and research activities.

A questionnaire was delivered to businesses via the two institutions in 2012. The study followed a snowball sampling procedure (Brady *et al.*, 2012), in which in each geographical region, a group of family businesses were initially contacted and they were then requested to relay to contact other family firms with which they were familiar. Consequently, 3,000 businesses were approached. In the questionnaire, a definition of 'family business' based on Leach *et al.* (1990) was provided (*i.e. a business in which more than 50% of the voting shares are controlled by one family, and/or a single family group effectively controls the business, and/or a significant proportion of the senior management is members from the same family*). Businesses, by referring to this definition, were invited to clarify whether they

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3 are family firms or not. The survey generated 1,088 responses from the cities of Beijing and
4 Tianjin (i.e. two out of the total four municipalities directly administered by the central
5 government) and the provinces of Zhejiang, Guangdong, Jiangsu, Shandong, Guangxi,
6 Guizhou, Xinjiang, Inner Mongolia, Ningxia, Henan, and Yunnan (i.e. 11 out of the entire 28
7 provinces and autonomous regions). The response rate was 36.3%. Among the responses, 628
8 were useful. The other responses were not used in data analysis, either because the companies
9 did not regard themselves as family businesses, or because the responses were incomplete or
10 blank.

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16 With respect to the response rate, the study is comparable to research conducted in the
17 West, though occasionally empirical studies executed in the Chinese business context report a
18 high response rate. For instance, in Tan's (2002b) study about the impact of ownership type
19 on environment-strategy linkage, the response rate from the sampled private firms was
20 88.0%. The response rates in relation to Chinese business studies vary, depending on the data
21 collection approach followed. In Tan's (2002b) study, the survey was conducted at a business
22 seminar where the attendees were invited to participate, so psychological obligation might
23 have motivated the attendees.

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29 To assess the possible non-response bias, statistical analyses on differences in
30 demographic characteristics, such as business size, business age and business sector, were
31 conducted. The convention is to compare the early responses with the late ones (Stanley and
32 Wisner, 2001). In the current study, the early useful response group consisted of 506
33 companies, whereas the late response group contained 122 businesses. T-test results indicate
34 no significant differences between the two groups of companies at the 0.05 level. This
35 suggests that the study does not have significant non-response bias. To further check the
36 common method bias, Harman's one-factor test was implemented (Podsakoff and Organ,
37 1986). Factor analysis of the social capital and dynamic capability variables generated six
38 factors. Based on the facts that no single factor arose from the factor analyses and no
39 dominant factor emerged to explain most of the variance, it is concluded that common
40 method bias is not a major concern for the current study.

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Insert Table 1 here

Table 1 presents the profile of the sample companies. With respect to the sectoral
distribution, the responded companies are more prolific in traditional manufacturing,
professional services, retailing and wholesaling, and hotels and restaurants, and less prolific

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3 in construction, agriculture, and transport and distribution domains. The majority of the
4 responded businesses are relatively young and do not have a long history (40.1% younger
5 than 10 years and 50.8% between 10 and 19 years). China commenced its economic
6 transformation in 1978 and the early reform was not straightforward due to the inertia of
7 regulatory support and the cognitive barriers against entrepreneurship. It was Deng
8 Xiaoping's eulogy that 'being rich is glorious' in 1992 that gave rise to the private economy.
9 The fact that the majority of the firms in the study are fewer than 20 years old endorses the
10 short history of the private sector in China. With regard to business size, the responded
11 businesses distribute around the central size band of between 50 and 249 employees. This
12 pattern differs from that in many Western economies and the reason for a higher percentage
13 of businesses in the size band of 50-249 employees is because of the Chinese population.
14 Further, it is recognised that majority of the responded businesses are governed either entirely
15 by the first generation (72.6%) or jointly by the first and second generations (22.9%).
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26 *Variables and constructs*

27 *Dependent variables*

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29 The dependent variables were captured by three constructs, respectively absorptive, adaptive
30 and innovative capability. The development of the dynamic capability constructs was based
31 on Lichtenthaler (2009), Alvarez and Merino (2003), Ma *et al.* (2009), Zhou and Li (2010),
32 Lumpkin and Dess (1996), and Hult *et al.* (2004). Each of the constructs consisted of a set of
33 items depicting the construct theme from different angles. For each item, a 5-point Likert
34 scale was used, inviting respondents to indicate the extent to which their businesses agree
35 with these items. In particular, the absorptive capability construct consisted of items
36 examining whether the family firm regularly organises meetings with external partners to
37 acquire new expertise and technologies, and whether the family firm acquires new expertise
38 and knowledge via external institutions, etc. (see the appendix for details). Adaptive
39 capability was measured by a scale assessing whether the family firm can match its expertise
40 and technologies with new emerging products/services, and whether the family business can
41 make adjustments in internal processes to respond to market changes, etc. Finally, the
42 innovative capability construct was composed of items investigating whether the family firm
43 is playing a leading role in new product/service introduction, and whether the family business
44 is more successful in new product/service development compared with competitors, etc.
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58 *Independent variables*

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3 The three social capital constructs, i.e. structural, cognitive and relational capital, were
4 independent variables. The three capital constructs used in the current study were developed
5 based on Pearson *et al.* (2008), Oh *et al.* (2006), Leana and Van Buren (1999), and Nahapiet
6 and Ghoshal (1998). In particular, the structural capital construct consisted of items
7 describing the external/internal network ties the family firm possesses, the extent the family
8 business relies on social networks, and the connections with professional organisations, etc.
9 The cognitive capital construct reflected whether the family firm has a shared vision, whether
10 the family business uses a common language understood by all members, and whether
11 business partners understand the family business's goals and interests, etc. Finally, the
12 relational capital construct was composed of items describing whether there is trust between
13 family and non-family members, whether non-family employees are trusted and respected,
14 and whether family and non-family members have appropriate motives and intentions, etc.
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24 *Control variables*

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26 This study controlled demographic variables that could influence the associations between
27 family business social capital and dynamic capabilities. These control variables included
28 business size and age. For instance, larger sized family companies are more likely to show
29 competence in absorptive capability, due to their well meshed socio-economic networks.
30 They may also own better human capital, which can facilitate technology absorption. With
31 respect to adaptive capability, business size may have a negative impact. Larger firms often
32 have bureaucratic operational systems due to their complex business functions and this makes
33 radical changes difficult (Sathe, 2003). Drastic changes may damage existing infrastructure
34 and dysfunctionalise previous investments. Finally, a good stock of human capital as a result
35 of business size may contribute to the firm's innovative capability. King and Zeithaml (2003)
36 indicated that copious expertise/knowledge enables a firm to take actions in innovation. In
37 this paper, for operational purposes, firm size was measured by the total number of full-time
38 employees.
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48 Business age may influence dynamic capabilities. Mature firms are more likely to
49 hold affluent social capital, enabling them to garner commercial and technological
50 information from their networks. Furthermore, when strategic adjustment is concerned,
51 mature firms find it easier to get access to resources required during the change process due
52 to their accumulated socio-economic capital. On the other hand, young businesses may
53 encounter barriers in securing resources, resulting in a disadvantaged position. With respect
54 to innovative capability, Nystrom *et al.* (2002) observed that mature organisations are likely
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3 to invest in innovation because they can afford to take innovation-related risks and absorb the
4 loss caused by failures. In this paper, business age was measured by the years that the
5 company had been in the market.
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8 9 10 *Exploratory factor analysis*

11 A principal component analysis with varimax rotation was executed to examine the structure
12 of social capital and dynamic capabilities constructs. Six factors with the eigenvalue above
13 1.000 arose, and they were generally consistent with the constructs proposed, respectively
14 representing structural, cognitive and relational capital, and absorptive, adaptive and
15 innovative capabilities (Kaiser-Meyer-Olkin statistic .890; Bartlett Test of Sphericity: Chi-
16 square=5076.511, df=435, p=.000). The six factors explained a total of 50.742% of the
17 variance. Table 2 shows the items of the social capital and dynamic capability constructs, as
18 well as loadings and cross-loadings of each item on factors. Items were only retained if they
19 had a loading of .200 or above on a factor and the difference between the main loading and
20 other cross-loadings was more than .300 (Howell, Shea, and Higgins, 2005).
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28 ***Insert Table 2 here***

29 30 31 *Confirmatory factor analysis*

32 A confirmatory factor analysis (CFA) was further implemented to validate the
33 operationalisation of the six constructs. This was performed based on AMOS SPSS (Version
34 20). The fit indices indicated that the model provided an acceptable fit for the data: A Chi-
35 square statistic of 680.425 (df = 358, χ^2 /df =1.901, p = .000) showed a good fit, as the
36 normed Chi-square was less than two times of the degrees of freedom (Kline, 2004). Also,
37 the values on other fit indices (CFI=.929, GFI=.932, AGFI=.917, and RMSEA=.038)
38 exceeded the critical levels suggested by Hair *et al.* (2010).
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46 47 *Reliability and validity*

48 This study utilised Cronbach alpha to evaluate variable reliability. As the appendix shows,
49 the Cronbach alpha scores of all independent and dependent variables are above the threshold
50 of .700, indicating reliability and internal consistency of the constructs (Hair *et al.*, 2010).
51 The satisfactory Cronbach alpha scores also imply the internal consistency of respective
52 items in each construct. However the Cronbach alpha scores are not at the .800 or .900 level,
53 and in particular, two results, i.e. alphas for structural capital and absorptive capability, are
54 only marginally above the threshold. The reasons for the relatively low values may be
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3 twofold: a) Chinese family businesses were not familiar with questionnaire surveys;
4 misunderstanding might have occurred in completing the questionnaire; b) though the design
5 of the constructs referred to the literature, the items were derived from different studies.
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8 Parasuraman *et al.* (1988) argued that the content validity of a construct depends on
9 the extent to which the construct items represent the construct's theme. The constructs in this
10 study were believed to possess content validity because of two reasons: (1) the items
11 incorporated in the constructs were sourced from the literature, such as Pearson *et al.* (2008),
12 Nahapiet and Ghoshal (1998), Oh *et al.* (2006), and Leana and Van Buren (1999) for the
13 social capital constructs, and Alvarez and Merino (2003), Ma *et al.* (2009), Zhou and Li
14 (2010), Lumpkin and Dess (1996), and Hult *et al.* (2004) for the dynamic capability
15 constructs; (2) the items encapsulated were filtered through extensive discussions with
16 researchers in the domain.
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24 **Results**

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26 Table 3 shows the means and standard deviations of social capital constructs, dynamic
27 capability constructs, business size and age. The correlations among these variables are
28 presented. Relatively low inter-correlations among variables indicate that multi-collinearity
29 should not be a major problem. The low VIF values reported later (the maximum VIF value
30 is 1.395) further endorse this conclusion.
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34 *Insert Table 3 here*

35 *Insert Table 4 here*

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38 Because the model examines the impact of three dimensions of social capital on
39 dynamic capabilities, linear regression was adopted. For each dependent variable of dynamic
40 capabilities, the linear regression was executed twice. Firstly a restricted model performed
41 only with dependent and control variables, i.e. business size and business age (i.e. model 1 in
42 Table 4). The independent variables were then added to the model (i.e. model 2 in Table 4).
43 To assess the overall fitness of the model, ANOVA F values were inspected. In the full
44 regression models for absorptive, adaptive, and innovative capabilities, the F values are
45 36.176, 53.829, and 30.647 respectively. All these values are high and significant at the .001
46 level.
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53 R^2 is another variable which can indicate the overall fit of the regression model. In the
54 full regression models for absorptive, adaptive, and innovative capabilities, the adjusted R^2
55 values are .225, .304, and .197 respectively, indicating that the full models can explain
56 respectively 22.5%, 30.4%, and 19.7% of the variances of dependent variables.
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3 In the full model for absorptive capability, the independent variables, i.e. structural,
4 cognitive, and relational capital respectively, have a significant impact on the dependent
5 variable ($B=.106, p<.01$; $B=.140, p<.01$; $B=.203, p<.01$ respectively; see Table 4), supporting
6 hypotheses H1a, H2a and H3a. This implies that the more structural, cognitive and relational
7 capital possessed by the firm, the more likely the firm will be equipped with competitive
8 absorptive capability. Business age in the restricted model was identified as significant with
9 absorptive capability, but in the full model this relationship was veiled by the three
10 dimensions of social capital. The fact that the explanatory power of the model represented by
11 R^2 increases from 2.0% in the restricted model to 22.5% in the full model implies that
12 absorptive capability is primarily related to social capital. In the full model for adaptive
13 capability, research results further support hypotheses H1b, H2b and H3b ($B=.131, p<.01$;
14 $B=.238, p<.01$; $B=.234, p<.01$ respectively), which implies that the more structural, cognitive
15 and relational capital possessed by the firm, the more competent adaptive capability the firm
16 will show. Business size and age were both recognised to be related to adaptive capability,
17 but the fact that the explanatory power increases from 5.1% in the restricted model to 30.4%
18 in the full model indicates that adaptive capability is predominantly associated with social
19 capital. For innovative capability, all independent variables are significant ($B =.146, p<.01$;
20 $B=.162, p<.01$; $B=.206, p<.01$ respectively), supporting hypotheses H1c, H2c, and H3c. The
21 control variable business size was found to have a positive relationship with innovative
22 capability. Nevertheless, since the explanatory power represented by R^2 increases from 3.3%
23 in the restricted model to 19.7% in the full model, this suggests that innovative capability is
24 largely related to social capital.
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41 Discussion

42 The research setting of this study is a transitional economy with characteristics of dynamism,
43 complexity and hostility (Tan and Litschert, 1994; Jiang *et al.*, 2016; Tian *et al.*, 2009). The
44 Chinese economy has experienced a significant upturn after the dramatic economic paralysis
45 between the 1950s and the 1970s. Since the end of the 1970s, China's GDP growth has
46 remained at a high level and the business environment has been shifting rapidly. In
47 conjunction with this dynamic feature, the Chinese economy demonstrates a great level of
48 complexity with co-existing state-owned, collective-owned, private-owned and other types of
49 enterprises. Companies in different ownerships are treated differently by the government and
50 the disparities between these firms are not only reflected in operational autonomy, 'but also
51 in resource procurement, infrastructure access, and distribution arrangement' (Tan 2002b,
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3 p.336). Private firms, though enjoying greater autonomy nowadays, have to bear a lower
4 level of legal and institutional protection, and a higher level of regulation uncertainty (Jiang
5 *et al.*, 2016; Peng and Zhou, 2005). This raises the question of how family businesses can
6 survive and succeed in this complicated, hostile and dynamic environment. Research findings
7 arising from the current study offer an answer to this critical question - the social capital of
8 family businesses can help, since they positively influence dynamic capabilities. This in
9 principle corroborates the viewpoints expressed by Hoffman *et al.* (2006), Pearson *et al.*
10 (2008), Eddleston *et al.* (2010), and Arregle *et al.* (2007).

16 Evidence arising from the study suggests that business' structural capital influences
17 absorptive, adaptive and innovative capability. Chinese family businesses' operations are
18 influenced by Confucianism, in which the family forms the basic social unit. Family ties are
19 unconditionally loyal and involve social obligations that do not require reciprocation (Guo
20 and Miller, 2010). However in the business world, companies cannot exclusively rely on
21 family ties because of their limited coverage and therefore structural capital, i.e. a 'quasi-
22 familial' relationship, is appreciated (Bell, 2004). In addition, China's market, as a
23 transitional economy, is crammed with uncoded information, which leaves room for market
24 opportunism (Tan, 2002b). Structural capital in this context becomes more valuable to firms.
25 Quality structural capital may enable family businesses to absorb business information from
26 the market, and figure out what products and services have potential in the future, and what
27 resources and technologies are useful for these products and services. Structural capital is
28 also recognised to be able to contribute to adaptive capability. China is shifting away from a
29 centrally planned system and moving towards a market economy. During this transition,
30 although the government's power has been diluted, it still has a remarkable control over
31 resource allocation and distribution (Luo, 2007). In this context, family businesses have to
32 pay additional attention to structural capital if they would acquire resources essential for their
33 strategic adjustments. Finally, structural capital is recognised to contribute to the firm's
34 innovative capability. In China, access to resources is usually a problem in family businesses,
35 given their unfavourable position in the market and the unfair treatment from the government.
36 Possession of high quality structural capital may enable a firm to collaborate with partners
37 with complementary resources, so that the firm can overcome resource and institutional
38 barriers and compete against the advantaged state-owned enterprises in innovation.

55 Secondly, cognitive capital is ascertained to be able to have impact on absorptive,
56 adaptive and innovative capability. Cognitive capital is 'shared representations,
57 interpretations and systems between actors yielding durable connections' (Arregle *et al.*,
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2007, p. 75). Redding (1995) observed that in Chinese businesses there is often a Confucian leader who is a benevolent autocrat, prepared to accept the duty to look after those who are dependent on him or her. In such firms, the authority of the central figure is often deemed as the only form of accepted power (Poutziouris *et al.*, 2002). Under this circumstance, if quality cognitive capital is available, initiatives from the top management can be conveyed to shop-floor employees, leaving no room for confusion. Information absorption and updating of technology are therefore likely to be more efficient. Further, the collective culture built upon cognitive capital may serve to minimise individualistic and opportunistic behaviours and encourage employees to subjugate their personal interests. Under this climate, strategic adjustments may be carried out more smoothly. In fact, adaptive capability is often a competitive advantage of family firms, compared with state-owned businesses. Finally, the collective understanding of a business' innovation-orientated stance may impel the business to nurture its own specialists in product and process development. The shared vision may improve the resource investment efficiency and allow resource distribution towards innovation more efficiently.

Thirdly, relational capital is confirmed as being able to influence absorptive, adaptive and innovative capability. Family businesses in China receive a lower level of legal and institutional protection (Tan, 2002b), thus relational capital-based collaboration becomes an alternative protection means. Quality relational capital may enable the firm to connect to a wider business community and enrich its market information portfolio. With respect to business's adaptive capability, relational capital can also exert impact. Lansberg (1999) recognised that in family businesses, teamwork and collaboration often exist. Such norms in the Chinese dynamic environment may have high importance, facilitating businesses to take collective and efficient actions in strategic manoeuvre. Finally, relational capital is confirmed to be conducive to innovative capability. When relational capital is affluent, employees no matter whether they are inside or outside the family are more willing to work for businesses. The firms, especially those in new product and process development or market exploitation, will benefit from this dedication and commitment.

The study, building upon prior research on social capital and dynamic capabilities, adds to the literature in several areas. Firstly, prior studies in the literature on dynamic capabilities (Eisenhardt and Martin, 2000) and on social capital of family businesses (Arregle *et al.*, 2007) are predominantly separated, resulting in a lack of understanding of how a family business's social capital influence its dynamic capabilities. The current study integrates the two significant but disconnected streams. The research findings enlighten the

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3 directions family business should strive for, and highlight what should be taken into account
4 by researchers, practitioners, and consultants who aim to assist family businesses for their
5 sustainable development. Secondly, this study responds to the call for understanding
6 business's internal sources of competitiveness and the role of social capital in the creation of
7 this competitiveness (Arregle *et al.*, 2007). Specifically, the study shows the impact of
8 different dimensions of social capital on dynamic capabilities in a subtle way, namely a
9 higher level of structural, cognitive and relational capital translates into a higher level of
10 dynamic capability. The findings are of practical significance to owner-managers, aiming to
11 develop business capabilities in a dynamic environment. Thirdly, the study is executed in
12 China, which is a transitional economy with high market dynamism, as well as rich contexts
13 of social capital. The research setting, on the one hand, offers a convincing venue for
14 examining social capital and dynamic capability, and on the other hand provides an
15 opportunity to study this unique emerging economy. In fact, Chinese family businesses are
16 under-researched in general and only a few papers have appeared in the mainstream Western
17 management journals. This study attempts to add to this body of literature.

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28 This study is an empirical exploration. The methodological challenges in executing
29 this research result in two major caveats and these may constrain the generalisability of the
30 conclusions. Firstly, there is no official business database in China. This makes the
31 conventional representative sample survey used in the West difficult to replicate in China.
32 Bryman and Bell (2007) indicated that snowball sampling is of value when a researcher has
33 no clear idea of the population, or simply there is no record of population size. In the current
34 study, though the responses received are in a good nature, it would be inappropriate to claim
35 that the businesses are representative of Chinese family businesses. Secondly, Ralston *et al.*
36 (1996) recognised wide-ranging variations among managers from different regions of China.
37 Whilst regional culture may have an impact on managers, the level of economic development
38 in different regions also shapes business operations. Therefore, the social capital-dynamic
39 capabilities connection may demonstrate regional characteristics, but this is not examined in
40 the study.

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60 Research on dynamic capabilities and social capital is at an embryonic stage, although
recently researchers start to channel their momentum towards this domain aiming to
understand the idiosyncratic nature that enables family business to survive and flourish in the
market. Motivated by the belief that dynamic capabilities as a notion is rarely examined in the
milieu of family firms, this study adopts a quantitative approach with an attempt to advance
knowledge and understanding of the field. Following this empirical work, several areas of

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3 future research can be envisaged. Firstly, Arregle *et al.* (2007) argued that there are two
4 forms of social capital co-existing in family businesses, namely family and business social
5 capital, and that family social capital influences the development of a firm's social capital.
6 Nevertheless, little research effort has been invested and the understanding of the relationship
7 between family and business social capital is limited. Future research effort may then focus
8 on whether family and business social capital influence dynamic capabilities simultaneously,
9 or family social capital leads to business social capital, and subsequently shapes a firm's
10 dynamic capabilities. Secondly, if we move one extra step to stretch the boundary to
11 incorporate non-family businesses, the influence of social capital on dynamic capabilities can
12 be revisited. Family businesses differ from non-family businesses (Hoffman *et al.*, 2006) in
13 that family firms often enjoy superior employees' loyalty and sustainable commitment
14 (Tagiuri and Davis, 1996), stronger family bonds (Corbetta and Salvato, 2004), and lower
15 level of transaction costs (Cruz *et al.*, 2010). Whether this disparity in social capital can be
16 translated into different levels of dynamic capabilities is worthy of investigation. Thirdly,
17 China is regarded as a decent location for this study because of its swiftly changing nature
18 and rich contexts of social capital. Comparative studies in the future may be executed in other
19 Asian countries, such as Korea, Malaysia and Singapore, whose economies also change fast.
20 The crux is whether the nexus identified in this study can still hold, where the environment is
21 less complicated and hostile to private firms. Moreover, if the connection persists, to what
22 extent will the strength of the relationship vary? Indeed, the whole realm of dynamic
23 capabilities and social capital warrants more effort before one can expect to develop domain-
24 specific theories.
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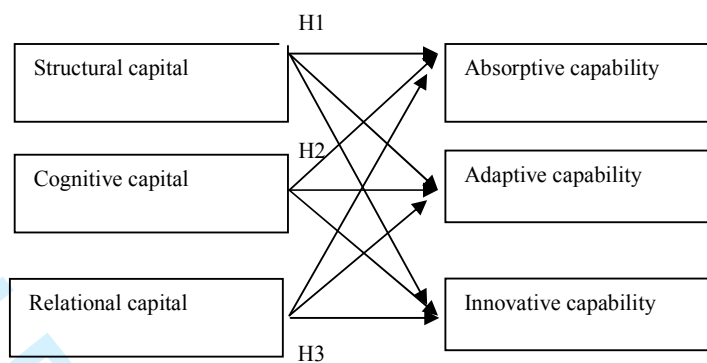


Figure 1 The proposed model about family business social capital, dynamic capabilities, and business performance

Table 1 Profile of the sample family businesses

Demographic variables	Percentage
<i>Sectoral distribution</i>	
Agriculture	6.8
Manufacturing	38.7
Construction	8.9
Retailing and wholesaling	12.4
Professional service	19.2
Hotels and restaurants	10.5
Transport and distribution	3.5
<i>Age of business (years)</i>	
0-9	40.1
10-19	50.8
20-29	7.5
30+	1.6
<i>Size of business (number of employees)</i>	
0-9	5.4
10-19	6.4
20-49	16.4
50-249	53.0
250+	18.8
<i>Generation in control</i>	
1 st	72.6
1 st +2 nd	22.9
2 nd	3.8
2 nd +3 rd	0.6

Table 2 Exploratory Factor Analysis for Social Capital and Dynamic Capabilities Constructs

	Factor 1: Structural Capital	Factor 2: Cognitive Capital	Factor 3: Relational Capital	Factor 4: Absorptive Capability	Factor 5: Adaptive Capability	Factor 6: Innovative Capability
SC1	.654					
SC2	.768					
SC3	.623					
SC4	.739					
CC1		.623				
CC2		.620				
CC3		.726				
CC4		.632				
CC5		.605				
RC1			.614			
RC2			.597			
RC3			.626			
RC4			.574			
RC5			.592			
RC6			.576			
RC7			.642			
ABC1				.711		
ABC2				.597		
ABC3				.742		
ABC4				.586		
ADC1					.575	
ADC2					.667	
ADC3					.541	
ADC4					.615	
ADC5					.596	
IC1						.613
IC2						.653
IC3						.670
IC4						.634
IC5						.669
Eigenvalue	2.291	2.490	3.030	2.161	2.524	2.726
% of variance	7.636	8.299	10.101	7.205	8.414	9.088

Note: SC-structural capital, CC-cognitive capital, RC-relational capital, ABC-absorptive capability, ADC-adaptive capability, IC-innovative capability.

Table 3 Means, standard deviations and correlations

	Mean	St. Dev.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1) Absorptive capability	14.003	2.712	-						
2) Adaptive capability	17.939	3.205	0.486**	-					
3) Innovative capability	17.051	3.364	0.420**	0.553**	-				
4) Structural capital	13.567	2.706	0.242**	0.272**	0.232**	-			
5) Cognitive capital	17.740	3.312	0.355**	0.442**	0.325**	0.347**	-		
6) Relational capital	25.026	4.154	0.418**	0.462**	0.362**	0.214**	0.457**	-	
7) Business size	157.520	186.817	0.121**	0.161**	0.164**	0.112**	0.071	0.081*	-
8) Business age	11.629	6.762	0.128**	0.215**	0.149**	0.152**	0.170**	0.147**	0.360**

* $p < 0.05$, ** $p < 0.01$

Table 4 Regression analysis of social capital and dynamic capabilities

	Absorptive capability						Adaptive capability						Innovative capability					
	Model 1			Model 2			Model 1			Model 2			Model 1			Model 2		
	B	t	VIF	B	t	VIF	B	t	VIF	B	t	VIF	B	t	VIF	B	t	VIF
Business size	0.001	1.949	1.153	0.001	1.831	1.129	0.002	2.237*	1.150	0.001	2.113*	1.125	0.002	2.978**	1.147	0.002	2.979**	1.122
Business age	0.040	2.316*	1.153	0.017	1.035	1.162	0.085	4.299**	1.150	0.047	2.585*	1.160	0.052	2.466*	1.147	0.027	1.310	1.155
Structural capital				0.106	2.731**	1.151				0.131	3.018**	1.148				0.146	2.986**	1.149
Cognitive capital				0.140	4.008**	1.395				0.238	6.097**	1.392				0.162	3.683**	1.394
Innovative capital				0.203	7.589**	1.290				0.234	7.839**	1.288				0.206	6.113**	1.292
R ²		0.023			0.231			0.054			0.309			0.037			0.204	
Adjust R ²		0.020			0.225			0.051			0.304			0.033			0.197	
ANOVA F		7.180			36.176			17.504			53.829			11.587			30.647	
Sig. F		0.001**			0.000***			0.000***			0.000***			0.000***			0.000***	

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Appendix: Summary of Construct Measurement (Scale reliability)

	Reliability
Structural Capital	.703
Our family business possesses abundant internal network ties that are helpful for the firm (SC1)	
Our family business possesses abundant external network ties that are helpful for the firm (SC2)	
Our family business heavily relies on social networks to interact with the external community (SC3)	
Our family business has tight connections with professional organisations (SC4)	
Cognitive Capital	.735
In our family business we have a shared vision (CC1)	
The shared vision functions as a bonding mechanism that facilitates family business management (CC2)	
Within the family business, we have internalised sets of accepted behaviour (CC3)	
Our family firm uses a language that is commonly known and understood by staff members (CC4)	
Companies collaborating with us understand our goals and interests (CC5)	
Relational Capital	.770
Family and non-family members in the business trust each other (RC1)	
Non-family employees, even those who are not close friends of the family, are trusted and respected as co-workers (RC2)	
Overall, the motives and intentions of staff members in the family firm are good (RC3)	
Within the family firm, reciprocity is regarded as a norm (RC4)	
The employees approach their jobs with professionalism and dedication (RC5)	
Our staff members understand they are part of the family business (RC6)	
Our staff members understand they need to contribute for the collective good of the family business (RC7)	
Absorptive Capability	.709
Our family business regularly organises special meetings with external partners to acquire new expertise/technologies (ABC1)	
Our employees regularly approach external institutions to acquire managerial/technological knowledge (ABC2)	
Our family business frequently scans the environment for new expertise/technologies (ABC3)	
Our family business has information on the state-of-art of external expertise/technologies (ABC4)	
Adaptive Capability	.753
Our family firm thoroughly observes market trends (ADC1)	
Our family firm can easily match our expertise/technologies with new products/services emerging in the market (ADC2)	
Our existing competency can cope with changes in the market (ADC3)	
Our family business frequently makes adjustments in internal processes to respond to market changes (ADC4)	
We are proficient in updating expertise/technological knowledge (ADC5)	
Innovative Capability	.748
The rate of introducing new changes to the internal processes in our family business has been high (INC1)	
In new product/service introductions, our family firm is often first-to-market (INC2)	
Compared with our major competitors, our overall new product/service development programme is more successful (INC3)	
The overall performance of our new product/service development programme has met our objectives (INC4)	
Employees in our family business are capable of using their expertise to develop new products/services (INC5)	