Journal of International Business Studies (2011) 42, 99–127

www.jibs.net

Social ties and international entrepreneurship: Opportunities and constraints affecting firm internationalization

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Abstract

International entrepreneurship involves the identification and exploitation of opportunities for international exchange. Yet little is known about the entrepreneurial methods used for opportunity recognition. While previous work emphasizes effects operating at the level of the business network, I propose that the recognition of exchange opportunities is a highly subjective process, shaped by entrepreneurs' existing ties with others. Based on interview data collected from 41 managers, I develop a comprehensive measure for classifying different methods of opportunity recognition. I then use this measure to classify 665 international exchange ventures set up by entrepreneurs in four Chinese cities. In contrast with past research I find virtually no role for blind luck. Although the majority of exchange opportunities were discovered rather than sought, these discoveries were intentional rather than accidental. I also find that entrepreneurs' idiosyncratic connections with others both promote and inhibit international exchange. Tie-based opportunities lead to higher-quality and more valuable exchanges that are constrained in terms of geographic, psychic and linguistic distance. From this I conclude that entrepreneurial networks have distinct opportunity horizons that limit the reach of tie-based exchanges and potentially lead to sub-optimal internationalization trajectories.
Journal of International Business Studies (2011) **42,** 99–127.
doi:10.1057/jibs.2010.20

Keywords: foreign market entry; international entrepreneurship; social network theory; China

INTRODUCTION

International entrepreneurship is fundamentally captured in the identification and exploitation of opportunities for international exchange. Yet little is known about the methods used by entrepreneurs for opportunity recognition. Traditional models of firm internationalization routinely attribute expansion decisions to the perception of foreign market opportunities, but how these opportunities come to be recognized and exploited is rarely addressed. Consequently these models fail to explain how firms actually enter new markets (Andersen, 1993). In view of this shortcoming a number of case-based studies have recently emerged to address the "how" question (e.g., Chandra, Styles, & Wilkinson, 2009; Crick & Spence, 2005; Ellis & Pecotich, 2001; Komulainen, Mainela, & Tähtinen, 2006; Sharma & Blomstermo, 2003; Wong &

Received: 20 August 2008
Revised: 10 December 2009
Accepted: 15 December 2009
Online publication date: 6 May 2010

Ellis, 2002). Collectively this body of work provides a rich, descriptive database documenting the discovery and exploitation of international opportunities and consequent patterns of international expansion.

Building on this qualitative work and drawing on insights from social network theory and entrepreneurship research, I propose that the recognition of international exchange opportunities is a highly subjective process, shaped by entrepreneurs' existing ties with others. These idiosyncratic connections both promote and constrain international exchange. While the informational benefits of social networks have been documented in the case-based studies, their inherent disadvantages have not been examined. In an international business context these disadvantages take the form of cognitive and situational constraints limiting the reach of network ties, and thereby inhibiting the course of entrepreneurial initiative.

The central question I seek to address in this study is: How do entrepreneurs identify opportunities for international exchange? I begin by charting the recent emergence of exchange as a concept central to the study of international entrepreneurship. I then address a levels issue. While past network research has emphasized the business- or inter-firm network level of analysis, I argue that a focus on interpersonal or social ties is better suited to the study of information flows between potential exchange partners. I then briefly review the literature examining the role of social networks in international trade before articulating hypotheses pertaining to the antecedents and consequences of tie-based exchange. Next I describe my compilation of a large database of international exchange ventures, evidence that is brought to bear in the tests of the hypotheses. I then report and interpret estimates of effect size before suggesting avenues for further research.

EXCHANGE AND INTERNATIONAL ENTREPRENEURSHIP

The basis of value creation is exchange. Exchange may be internalized within firms or conducted in open markets, but when any buyer and seller exchange something they need or want, the usual result is that both are better off. The "course and outcome" of an exchange are context dependent, and will be shaped by the characteristics of those conducting the exchange as well as the physical, psychological and social setting in which they operate (Bagozzi, 1978). Situational constraints that impede the flow of information and resources between exchange partners will be especially likely in the context of international business when sellers are buyers are separated by geographic, cultural and other forms of distance (Ghemawat, 2001). Overcoming these barriers and making a market where none previously existed requires an act of entrepreneurship.

Finding and negotiating an exchange agreement with a new customer in a new foreign market bears all the entrepreneurial hallmarks of opportunity discovery, evaluation and exploitation (Shane & Venkataraman, 2000). The opportunity – in this case the potential to exchange valued goods and services among partners located in different markets – can be said to be entrepreneurial when it involves the creation of new means-ends relationships (Kirzner, 1997), or what Schumpeter (1934) would label "new combinations." New combinations include exchanges that lead to "the opening of a new market" or a "new source of supply" (Schumpeter, 1934: 66). In contrast, penetration within existing markets is less entrepreneurial, because exchange alternatives are better known, and choices can usually be made through an optimization process.

The entrepreneurial aspects of making markets by creating exchanges where none previously existed have largely been neglected in preference for other forms of entrepreneurship such as new firm formation and the introduction of new goods and services. This neglect is particularly evident in the evolution of international entrepreneurship research, which was originally conceived to explain the existence of firms that are international from inception (Oviatt & McDougall, 1994). The empirical boundaries of early research could thus be described in terms of organizational age and the geographic scope of organizational activities. Mindful that this interpretation was "too narrowly focused on new venture internationalization," Oviatt & McDougall (2005: 7) recently revised their definition of international entrepreneurship to encompass opportunity discovery and exploitation culminating in the creation of "future goods and services." Yet even this definition may be too narrow, as it arguably excludes the Schumpeterian innovation that results from creating something (trade) out of nothing (missing markets). Innovation arises not just from the creation of new ventures, goods or services but also from the matching of existing goods and services with existing, unmet needs in new markets.

In the international business literature the entry of the firm into new foreign markets has long been described as an act of innovation (Andersen, 1993; Saimee, Walters, & DuBois, 1993; Simmonds & Smith, 1968). In view of this, international entrepreneurship can be more broadly defined in terms of those "behavioral processes associated with the creation and exchange of value through the identification and exploitation of opportunities that cross national borders" (Styles & Seymour, 2006: 134). This exchange-based definition encompasses the rapidly internationalizing firms of Oviatt and McDougall (1994), the future goods and services of Oviatt and McDougall (2005), and the market-making exchange of Schumpeter (1934) and Casson (2003: Chapter 6).

Research investigating international entrepreneurship has been identified as one of the critical areas for further work within the international business domain (Dimitratos & Jones, 2005; Styles & Seymour, 2006; Young, Dimitratos, & Dana, 2003; Zahra, 2005). With its emerging emphasis on cross-border exchange, international entrepreneurship can be distinguished from traditional theories of internalization and internationalization in several ways (Autio, 2005). The internalization theories of the 1970s and 1980s focused on large, well-established multinational companies, whereas international entrepreneurship research began as a response to the globalization of markets and the corresponding rise in the number of firms that were internationalizing while still young and small (McDougall & Oviatt, 2000). Traditional models of internationalization posit expansion patterns that are incremental and inhibited by uncertainty (Johanson & Vahlne, 1977) but, seen from an international entrepreneurship perspective, firm internationalization is typically rapid and opportunity driven (Zahra, Korri, & Yu, 2005). The firm is the primary engine in both the internalization and internationalization perspectives, but the international entrepreneurship approach is less restrictive, recognizing that firms are just one governance option available to entrepreneurs looking to exploit exchange opportunities (Hsieh, Nickerson, & Zenger, 2007). By emphasizing the dyadic and multilateral nature of international exchange, this research also avoids the tendency towards one-sided, firm-centric explanations of international business activity (Toyne, 1989). But the chief distinguishing characteristic of international entrepreneurship research is the emphasis given to the entrepreneurial recognition and exploitation of opportunities (Dimitratos & Jones, 2005; Styles & Seymour, 2006; Zahra et al., 2005). In contrast, the pursuit of entrepreneurial opportunities barely figures in theories of the multinational enterprise or firm internationalization.

NETWORKS AND OPPORTUNITY RECOGNITION

International Opportunities

The primacy of opportunity recognition in the entrepreneurial process is now well established (Ardichvili, Cardozo, & Ray, 2003; Eckhardt & Shane, 2003; Ozgen & Baron, 2007; Schumpeter, 1934; Shane, 2000; Venkataraman, 1997; Zahra et al., 2005). But the question of how international opportunities are identified remains under-explored, prompting calls for more research (Dimitratos & Jones, 2005; Singh, 2000; Styles & Seymour, 2006; Young et al., 2003). As a starting point I define "international opportunity" as the chance to conduct exchange with new partners in new foreign markets. However, as entrepreneurship cannot be inferred unless opportunities are actually exploited, for all intents and purposes the only meaningful opportunity is the one that leads to the formation of a new international exchange. If there is no exchange, nothing has been risked, and there is no entrepreneurial activity to observe. Exchange partners may be foreign intermediaries (e.g., distributors, wholesalers or retailers) or foreign consumers. The distinguishing characteristic is not the type of partner involved, but whether the exchange venture itself is unprecedented. By definition, an innovative act cannot repeat an earlier act (Baumol, 1993). While the firm's first foray into a new market clearly qualifies as entrepreneurial, subsequent entries into the same market – even if they involve new exchange partners – are less so. Thus the formation of exchange agreements with new partners in new foreign markets constitutes strong evidence of market-making entrepreneurship. From the perspective of the seller, the result is the opening up of a new market; from the perspective of the buyer, the result is a new source of supply.

Acknowledging opportunity recognition as being central to entrepreneurship, a key question is: Why and how do some people and not others discover and exploit these opportunities (Venkataraman, 1997)? The standard answer to this question is that opportunity recognition is influenced by entrepreneurs' participation in social and business networks (Aldrich & Zimmer, 1986; Coviello & Munro, 1997;

Johanson & Mattsson, 1988; Loane & Bell, 2006; Meyer & Skak, 2002; Mort & Weerawardena, 2006; Sharma & Blomstermo, 2003; Singh, 2000). Social networks are distinguished from business networks primarily by the level of analysis: a social network is the sum of relationships linking one person with other people (Burt, 1992), whereas a business network is normally described as a set of relationships linking one firm with other firms (Easton & Håkansson, 1996; Johanson & Mattsson, 1988). This may seem like a small difference, but it has profound consequences for examining entrepreneurial behavior, as explained below. Another difference is that most of the research examining internationalization from a network perspective has examined effects originating within inter-firm business networks (Axelsson & Johanson, 1992; Blankenburg, 1995; Håkansson & Snehota, 1995; Johanson & Mattsson, 1988; Thorelli, 1986). Indeed, after nearly 30 years of research this emphasis is now so entrenched that business network research is sometimes referred to as *the* network approach (Axelsson & Johanson, 1992). This is not surprising given that research examining the effects of social networks on international entrepreneurship has emerged only recently (Crick & Spence, 2005; Ellis & Pecotich, 2001; Komulainen et al., 2006; Loane & Bell, 2006; Sharma & Blomstermo, 2003).

Business Networks vs Social Networks

The analysis of business networks has clearly improved our understanding of the factors affecting firm internationalization.[1] However, if our aim is to understand the process by which entrepreneurs come to recognize international opportunities, a fair question to ask is whether a network-level analysis of inter-firm relationships offers greater explanatory potential than a focus on social ties between people.[2] Undoubtedly, internationalization decisions are influenced by the relational constraints of business networks (Blankenburg, 1995; McDermott & Corredoira, 2010). Yet the analysis of entrepreneurs' social networks offers at least two conceptual advantages over the analysis of inter-firm networks.

First, it is generally accepted by entrepreneurship theorists that opportunities are recognized by individuals, not firms (Aldrich & Zimmer, 1986; Ozgen & Baron, 2007; Singh, 2000; Venkataraman, 1997). As Shane (2003: 45) notes, the discovery or recognition of an opportunity is a cognitive and not a collective act: "individuals, not groups or firms, discover entrepreneurial opportunities." It follows then that the appropriate level for analyzing the information exchange that precedes opportunity recognition is the interpersonal, rather than the inter-organizational, tie.

Second, it seems unduly restrictive to limit the analysis of network effects to inter-firm relationships, which are but a subset of all the ties held by entrepreneurs and their teams. Under the business network approach, firm internationalization is seen as being influenced by inter-firm ties that span national borders (Axelsson & Johanson, 1992; Coviello & Munro, 1997; Johanson & Mattsson, 1988). This means that network effects relevant for opportunity recognition will be restricted to those markets where the firm already has business relationships – that is, where the firm is likely to be currently active (Johanson & Vahlne, 2006). Thus the approach cannot be used to account for the entry of the firm into new markets except in those relatively rare cases (e.g., software, medical devices, heavy equipment) where existing customers are themselves highly internationalized and therefore able to pull the focal firm into new markets, or where the firm is a subsidiary of a multinational conglomerate (e.g., Axelsson & Johanson, 1992; Blankenburg, 1995; Coviello & Munro, 1997).[3] In contrast, a focus on entrepreneurs' social networks is less restrictive, as it allows for the communication of information about opportunities via all sorts of ties. Network effects will be defined by the sum total of the entrepreneur's relationships with others. Consequently, a purely domestic business network need not handicap the identification of international exchange opportunities. As long as the entrepreneur has some direct or indirect connection with potential exchange partners abroad – via family, friends or acquaintances – opportunity recognition possibilities will exist.[4]

In summary, if one is interested in learning how entrepreneurs come to recognize international opportunities, then a focus on their interpersonal ties – that is, their social networks – will be both more appropriate and less restrictive than a higher-level focus on any inter-firm networks of which they may be a part. Although the analysis of business networks is useful for giving the theorist a sense of the bigger picture – the interdependent and multilateral interactions of connected firms – it does so at the risk of overlooking important information exchanges that take place at the level of the entrepreneur.

SOCIAL TIES AND INTERNATIONAL ENTREPRENEURSHIP

Opportunities are exogenous, arising as a consequence of market imperfections and the disruptive introduction of new information (Eckhardt & Shane, 2003). In the context of international business the classic example of an exchange opportunity is an unfilled, or imperfectly filled, need in a foreign market (Toyne, 1989). That such needs give rise to trade and investment is one of the oldest tenets of our discipline.

International exchange opportunities are ubiquitous, but are not universally known. An important idea in the social network and entrepreneurship milieus is that social ties serve as conduits for the spread of information about new opportunities (Aldrich & Zimmer, 1986; Burt, 1992; Granovetter, 1973; Mitchell, 1969). As information about opportunities diffuses unevenly though society, benefits arise for those who are among the first to recognize them. The propensity to recognize new opportunities is determined by the reach and redundancy of one's existing ties with others (Aldrich & Zimmer, 1986). Given that those linked within social clusters tend to know what others in the same cluster know, information about new opportunities tends to disseminate via those ties linking people in separate social clusters (Burt, 1992). Consequently, opportunity recognition has been framed as a highly subjective process, shaped by each individual's unique exposure to knowledge corridors (Venkataraman, 1997) and gap-spanning bridge ties (Burt, 1992). This suggests that there are both advantages (in the form of access to valuable information) and disadvantages (access is selective) to relying on social ties (Brass, Galaskiewicz, Greve, & Tsai, 2004). Yet, to date, the limited research examining international opportunity recognition has generally considered only the benefits provided by entrepreneurs' social networks.

The value of social networks in promoting international trade has been reported in macro-level analyses of bilateral trade flows (Gould, 1994; Rauch & Trindade, 2002) and ethnographic studies of immigration (Saxenian, 2006). In research investigating firm internationalization, the benefits of social ties have been seen in studies variously examining personal networks (Qiu, 2005), informal networks (Coviello & Munro, 1997; Zain & Ng, 2006), relational networks (Chen & Chen, 1998), social networks (Komulainen et al., 2006), interpersonal relationships (Harris & Wheeler, 2005) and personal contacts (Andersen, 2006). However described, social ties are thought to lower the transaction costs (Rutashobya & Jaensson, 2004), risk (Sharma & Blomstermo, 2003) and uncertainty (Zain & Ng, 2006) associated with foreign market entry while at the same time promoting credibility and trust among exchange partners (Loane & Bell, 2006). Significantly, a growing number of case-based studies are showing how entrepreneurs learn about international opportunities through their existing ties with others (Chandra et al., 2009; Crick & Spence, 2005; Ellis & Pecotich, 2001; Komulainen et al., 2006; Sharma & Blomstermo, 2003; Zain & Ng, 2006).

In their separate case studies of Scandinavian exporters, Komulainen et al. (2006) and Sharma and Blomstermo (2003) found that exchange opportunities were typically identified via existing relationships linking researchers, innovators and others interested in a particular technology. Three Malaysian software firms studied by Zain and Ng (2006) entered numerous foreign markets based on information acquired from managers' networks of friends, relatives and contacts. Industry connections and friendship ties were used to identify new exchange opportunities in 7 of 12 UK cases reported by Crick and Spence (2005). In their study of Australian exporters, Ellis and Pecotich (2001) found that social ties linking entrepreneurs with former employees, dealer networks, migrating customers, fellow doctors and family members were instrumental in identifying exchange partners in 25 out of 31 international exchanges. Prior social ties were also used to identify joint venture partners in all 18 Sino-Hong Kong joint ventures studied by Wong and Ellis (2002). In addition to these case-based studies, other studies have also signaled the importance of social ties when identifying trade and investment opportunities in foreign markets (Chen & Chen, 1998; Harris & Wheeler, 2005; Loane & Bell, 2006; Qiu, 2005; Rutashobya & Jaensson, 2004).

While these studies have succeeded in documenting the informational benefits that entrepreneurs derive from their social networks, past work is undermined by two limitations. First, little thought has been given to the possible disadvantages associated with using networks. Consequently, little is known about the trade-offs that entrepreneurs make when they rely on their networks to identify international opportunities (Brass et al., 2004). Second, there has been little attempt to consider rival, non-network explanations for opportunity recognition. The typical network study

is littered with anecdotes illustrating network effects. What are missing are accounts of opportunity recognition arising from, for instance, unsolicited enquiries from non-network members or meetings with strangers at trade fairs. There is evidence that unsolicited enquiries account for a substantial proportion of all foreign market entries (Bilkey, 1978; Liang, 1995). To the scholar more interested in describing network effects these stories are distracting and anomalous. Yet unless non-network effects are explicitly considered, the relative merits of networks cannot be reliably gauged.[5]

The remedy for these shortcomings is to explicitly compare opportunities identified by both network and non-network means. In the context of market-marketing international entrepreneurship, this implies accounting for the formation of every exchange agreement arising from the firm's entry into new foreign markets. Case-based studies that do this well include Crick and Spence (2005), Coviello and Munro (1997), Ellis and Pecotich (2001), and Zain and Ng (2006). Some studies go one step further and also examine venture partners who were identified but ultimately rejected in preference for others (e.g., Wong & Ellis, 2002). What needs to be avoided, however, is the occasional practice of selectively reporting data deemed to be illustrative of larger patterns. By describing some, but not all, of the opportunities pursued, and by failing to implement rigorous procedures for deciding which opportunities or cases were included or excluded from the analysis, some studies fail the test of providing readers with sufficient information to make independent judgments about the conclusions drawn. Where expansion patterns are too complex to be presented in full, summaries may be reported with full datasets or case reports made available for independent audit. (Ellis and Pecotich (2001) provide an example of this practice.)

In this study I attempt to assess the relative merits of social networks by explicitly comparing tie- and non-tie-based exchanges in terms of their antecedents and outcomes. I do this by formalizing several hypotheses in the next section.

OPPORTUNITY IDENTIFICATION HYPOTHESES

Social ties have been found to be important in the opportunity recognition process, both generally and in the special case of internationalizing firms (Crick & Spence, 2005; Ellis & Pecotich, 2001; Harris & Wheeler, 2005; Komulainen et al., 2006; Sharma & Blomstermo, 2003; Zain & Ng, 2006). But many questions remain to be answered. Under what predictable circumstances do entrepreneurs identify international opportunities via social ties as opposed to other methods? What are the advantages and disadvantages of relying on social ties? Do tie-based opportunities differ from opportunities identified via other means? And are there performance implications attached to using ties for opportunity recognition?

Social network theory implicitly addresses many of these questions, as it accounts for the transmission of information about opportunities through entrepreneurs' interpersonal networks (Aldrich & Zimmer, 1986; Ellis, 2003; Mitchell, 1969; Morrison, 2002). Yet social network theory has not been adequately tested in the context of firm internationalization. Adequate testing implies an assessment of the empirical relevance of the core propositions underlying the theory. I identify four such propositions here. Entrepreneurs' social networks:

(1) are idiosyncratic, meaning that opportunity recognition will be contingent upon an individual network structures as opposed to differences in personal traits;
(2) take time to develop, suggesting a correlation between opportunity recognition and entrepreneurial experience;
(3) are constrained, suggesting that the recognition of exchange opportunities will be affected by network size and reach; and
(4) provide a context for trust-based transacting, with the implication that tie-based opportunities will be exploited more quickly and rated more favorably than opportunities identified by other means (Aldrich & Zimmer, 1986; Burt, 1992, 2000; Lin, 1999; Uzzi, 1996, 1997).

From these four propositions I derive four testable implications relevant to international entrepreneurship.

Social Networks in Open Economies

Opportunities for international exchange are exogenous and ubiquitous, but information about opportunities diffuses unevenly across social boundaries. This creates informational benefits for those who are positioned to be among the first to recognize new exchange opportunities (Burt, 1992; Venkataraman, 1997). Informational benefits have been defined in terms of gaps or structural holes

separating individuals possessing complementary resources or information (Burt, 1992). The testable implication arising from this is that entrepreneurs whose networks span structural holes will be more likely to identify exchange opportunities via their ties with others than entrepreneurs whose networks span few gaps or holes. Entrepreneurs with limited networks will be more likely to identify international opportunities in other ways, such as through participation at trade fairs or through advertising.

Social networks are thought to be particularly relevant in exchange settings where institutional inadequacies raise the costs of identifying, evaluating and conducting business with potential exchange partners (Rangan, 2000). For example, in emerging or transition economies characterized by weak institutions and low trust, ties with others are sometimes seen as a prerequisite for initiating exchange (Björkman & Kock, 1995; Chen & Chen, 1998). However, while relationships may be needed to facilitate *domestic* exchange, there are good reasons to suspect that emerging-economy managers will be at a disadvantage when it comes to using social ties to foster *international* exchange. This disadvantage stems from a legacy of limited exposure to international markets. In China, for example, pre-reform trade was handled by a dozen large foreign trade corporations (MacBean, 1996). This meant that Chinese managers historically had little direct contact with foreign buyers, denying them the chance to cultivate boundary-spanning networks. Although China's trade regime has since been liberalized, many Chinese managers, and particularly those in the interior provinces, are still learning to navigate global supply networks. The same may be true for managers in other emerging economies. Having had little direct exposure to foreign markets, their social networks remain essentially domestic. In contrast, entrepreneurs in more open economies, such as the coastal provinces of China, are routinely exposed to foreign competition, will have had more practice at interpreting signals from distant markets, and are more likely to participate in boundary-spanning networks as a result. Relatively high levels of outward migration from these provinces only reinforces the possibility that indigenous entrepreneurs are able to benefit from their participation in boundary-spanning networks (Rauch & Trindade, 2002).

If opportunity recognition is dependent on idiosyncratic network structure, it follows that different methods of identification will be adopted by entrepreneurs in different settings. Specifically, entrepreneurial networks formed in economies that are open to international trade and investment will be more likely to include gap-spanning connections than networks formed in economies that are relatively closed. The testable implication is that entrepreneurs in open economies will be able to benefit more from their social ties with others when identifying opportunities for international exchange. This can be expressed in hypothesis form, as follows:

> **Hypothesis 1**: International opportunities are more likely to be identified via social ties by entrepreneurs in relatively open economies than by entrepreneurs in relatively closed economies.

The Benefits of Experience

Entrepreneurs with boundary-spanning network connections will be better placed than others to recognize opportunities via ties. However, social networks take time to develop, which suggests a correlation between network benefits and experience (Aldrich & Zimmer, 1986; Andersen, 2006). Although this link has not been explicitly tested, the available evidence tends to support the claim. In their study of Western companies doing business in China, Björkman and Kock (1995: 524) observed that informants with "long China experience" rated good personal relations most highly. The implication was that recent arrivals had not had the time to cultivate, or benefit from, their connections with others. Business network research also hints at the benefits of experience, with many studies examining the internationalization activities of long-established companies (Axelsson & Johanson, 1992; Blankenburg, 1995). Younger, smaller firms can also benefit from network participation, but typically they do so by tapping into established networks of other firms (Coviello & Munro, 1997), or by relying on the connections of experienced mentors (Harris & Wheeler, 2005). New firms may also be run by highly experienced or well-connected managers (Loane & Bell, 2006; Sharma & Blomstermo, 2003). These young-firm exceptions thus support the conjecture that experience matters. In this study, network benefits have been defined in terms of identifying international exchange opportunities. If the link between network experience and benefits applies to firm

internationalization, a testable implication is as follows:

Hypothesis 2: The use of social ties as a means for identifying international opportunities increases with international experience.

The Constraints of Social Networks

Social networks serve as conduits for acquiring information about exchange opportunities, but the coding, transmission and decoding of information across boundaries are not costless. Consequently, network theorists trade off the information benefits of different networks against the associated costs of maintaining network ties (Aldrich & Zimmer, 1986; Burt, 1992). A key construct in this regard is network constraint, which reflects entrepreneurs' cognitive limits (Zahra et al., 2005). Networks are inherently constrained, but sparse, diverse networks will be more efficient and therefore less constraining than small, dense networks (Burt, 2000; Lin, 1999).

In the context of international entrepreneurship, social networks will be constrained by those factors that hinder the transmission of information across social boundaries. Entrepreneurial networks have distinct opportunity horizons that reflect barriers to long-distance communication. As communication is a precondition for international exchange, these network horizons effectively limit the reach of tie-based exchanges. Situational factors that are thought to impede communication will be found in the physical, psychological and social setting in which exchange takes place (Bagozzi, 1978). In the context of international business these impediments are usually measured in terms of the geographic, cultural, psychic and linguistic distance to foreign markets (Beckerman, 1956; Ellis, 2007; Ghemawat, 2001; Hutchinson, 2005).

Geographic distance is a well-known barrier to trade (Beckerman, 1956; Leamer, 1974). International trade diminishes with distance to market, reflecting both the costs of transportation and the uncertainty of dealing with customers in far-away places (Ellis, 2007; Leamer, 1974). Uncertainty also arises from differences in culture, and so the cultural distance construct was developed to quantify the liability of foreignness that firms must overcome when entering culturally dissimilar markets (Kogut & Singh, 1988). While cultural distance measures the gaps between groups, psychic distance describes differences in managers' subjective perceptions regarding the dissimilarities of foreign markets (Ellis, 2007; Nordström, 1991). Although psychic distance is affected by cultural distance, studies comparing the two constructs have shown that they are different things (Håkanson & Ambos, 2008; Nordström & Vahlne, 1994). Both cultural and psychic distance are correlated with differences in language, which some have treated separately in their analyses of trade patterns (Hutchinson, 2005). Certainly, language can be expected to be a major obstacle to the transmission of information between different groups.

In view of these obstacles to communication, it is likely that opportunities identified via social ties will be constrained by network horizons in a way that other types of opportunities are not. Specifically, opportunities identified via social networks are more likely to emanate from sources that are geographically, culturally, psychically and linguistically proximate than exchange opportunities identified via non-network means. This will have predictable repercussions for exchange formation, as follows:

Hypothesis 3: The use of social ties as a means for identifying international opportunities will lead to exchanges that are constrained in terms of (a) geographic, (b) cultural, (c) psychic and (d) linguistic distance, relative to opportunities identified via other means.

The Quality of Tie-based Opportunities

Is the quality of international opportunities affected by the means with which they are identified, and does this have implications for subsequent exchange performance? In the international marketing literature the normative position is that the best exchanges are the result of formal market research and the systematic evaluation of opportunities according to predetermined criteria (Douglas & Craig, 1983; Root, 1994; Young, Hamill, Wheeler, & Davies, 1989). Seen from this perspective, reliance on informal social networks represents an inferior approach to partner identification. The implication is that tie-based exchanges will be of lower quality than exchanges based on formal (i.e., non-network) methods of opportunity identification.

An alternative perspective found in the network literature is that tie-based exchanges benefit from being embedded in a context of trust between known partners, or between partners that can be endorsed by known others (Uzzi, 1996, 1997). This

trust context provides a basis for evaluating potential exchange partners, leading to a better match (Castilla, 2005). In contrast, opportunities identified via non-network means are impersonal, and must be judged solely on their merits. This difference suggests two measurable performance outcomes. First, as tie-based exchanges come primed with an initial stock of trust (Uzzi, 1996), they are likely to be rated more highly or favorably than exchanges identified via non-network means. Second, as tie-based exchanges are embedded within a history of social exchange, they will be easier to set up, leading to a more rapid market penetration and greater sales volumes. Again, trust is the deciding factor. Trust promotes commitment to a relationship reducing the need for comprehensive contractual safeguards and enabling faster set-up times. In exchanges where partners are known or vouched for by others, transactional details can be negotiated "on the fly" in order to exploit new opportunities quickly (Uzzi, 1997). In contrast, arm's length deals made with strangers require caution and trust-building investment. Resource commitments will be slower in coming on account of the greater need for due diligence. These two predictions can be expressed in hypothesis form, as follows:

Hypothesis 4: The use of social ties as a means for identifying international opportunities will lead to exchanges that (a) are rated more importantly and (b) account for greater sales volumes relative to opportunities identified via other means.

METHODOLOGY

Sampling and Data Collection

This study had several sampling aims: to include entrepreneurs from diverse economic settings (relevant for testing Hypothesis 1) with widely different levels of experience (Hypothesis 2), and to record internationalization stories evidencing maximum variation in terms of scope (Hypothesis 3) and performance (Hypothesis 4). These aims were met by collecting data from 230 manufacturer-exporters located in four Chinese cities: Hong Kong, Guangzhou, Shanghai and Xian. The firms in the sample came from a variety of light manufacturing industries (e.g., textiles, garments, electronics and toys) that have been at the forefront of China's emergence as a top-ranked trading nation.

Entrepreneurial behavior was inferred on the basis of opportunity exploitation (Mathews & Zander, 2007). Consequently, the aim was to interview the manager who was personally responsible for identifying and negotiating with the firm's foreign exchange partners. In the typical Chinese business this person is usually the senior manager, who may also be the owner of the firm. Although the sample contained a mix of small and large firms, in the majority of cases each firm's internationalization history could be attributed to the entrepreneurial initiative of its most senior manager.

Interviews at each firm followed a similar procedure. Senior managers were initially asked to describe their firm's internationalization histories and, as they did, descriptive details pertaining to each foreign market entry (the date and mode of entry, proportion of export sales, etc.) were recorded into table shells. In virtually every case, market entry implied the formation of a direct export exchange agreement with a new foreign partner, where exchange agreement meant a contract to deliver goods to a foreign market. Often these contract-based transactions grew into enduring supply relationships. Managers were asked to indicate whether they had been personally involved in setting up the various exchange agreements. Where managers had been involved, further details were sought to establish the story behind the initial meeting of the exchange partners in each market. This validity check was made to ensure that managers weren't tempted to speculate about the formation of exchange ventures with which they were personally unacquainted.

Interviews were conducted mainly in Cantonese in Hong Kong and Guangzhou, and in Mandarin in Shanghai and Xian. Semi-structured interviews were initially conducted in Hong Kong, and this experience led to the creation of a standardized questionnaire, which was then used at the other locations. (Details surrounding the sample selection and interviews done in Hong Kong are fully described in Ellis (2000).) Questionnaires were prepared in Chinese, back-translated and then pre-tested on local managers prior to the commencement of formal data collection in each city. On average, interviews lasted 34 min at each site.

In the three mainland Chinese cities data were collected by skilled interviewers recruited through collegial connections at universities in Shanghai and Xian and a marketing research company in

Guangzhou. Interviewers were recruited and supervised in the field by a local research collaborator familiar with the particular research setting. Two of these supervisors were university professors, and the third was a senior manager at the market research company. All of the interviewers and their supervisors were personally trained by me during visits to each city. I also monitored initial interviews in each city to ensure that the interviewers had been trained to the required standard.

In each city the research supervisors took the initial responsibility for checking the quality of completed questionnaires. In addition, three Chinese-speaking research assistants based in Hong Kong and not affiliated with any of the local teams provided a further validity check by examining incoming questionnaires and making random phone calls to more than 70% of the interviewees. Owing to the lack of good databases, the research supervisors were also responsible for identifying suitable firms to study. Wherever possible they did this by relying on formal channels such as lists provided by local government officials, databases maintained by their own institutions and phone directories. The sampling frame was defined by a set of criteria given to the supervisors. Specifically, supervisors were instructed to arrange interviews with the senior managers of wholly or majority-owned Chinese firms principally engaged in light manufacturing. Eligible firms were required to have their head office in one of the four surveyed cities, and be significantly involved in exporting. In the field it was difficult to determine with perfect reliability whether these criteria were fully met by potential firms. However, questionnaires from ineligible firms were identified during the initial data editing and were discarded from the final sample. The primary data to be analyzed were thus obtained from a sample of firms that may be considered a fairly representative cross-section of Chinese manufacturer-exporters.

Details describing the four study locations are provided in Table 1, Panel A. The table highlights the difference between the four cities in terms of their economic development and dependence on international trade. With its history of laissez-faire government, Hong Kong is arguably Asia's best example of a mature, open economy. The city's openness to trade, defined as the ratio of exports to GDP, is exceptionally high at 171%.[6] Like Hong Kong, Guangzhou and Shanghai are also highly open to trade, with indexes of 90% each. Between them the three cities are home to some of the world's busiest container ports. In contrast, the inland city of Xian has no seaport and is far less open to international trade, with exports accounting for just 6% of gross regional product.

Table 1 Descriptive details for the study locations, sample and market entries

	Hong Kong	*Guangzhou*	*Shanghai*	*Xian*
A: Study locations				
Population (millions, 2007)	6.93	7.73	13.79	7.64
GDP/capita (US$)	29,060	12,095	11,623	3036
Openness to trade (%)	171.1	90.3	89.7	6.5
World port ranking	9	5	1	—
B: Sample characteristics				
No. of firms	41	26	129	34
Average firm size (employees)	1158	227	526	2000
Average firm age (years)	25.0	6.3	16.8	9.4
Average age at time of first venture	7.2	1.3	6.4	14.6
C: Opportunity recognition via				
Social ties	60 (38.5)	41 (73.2)	128 (35.6)	27 (29.0)
Non-tie methods	96 (61.5)	15 (26.8)	232 (64.4)	66 (71.0)
Total *N* (%)	156 (100.0)	56 (100.0)	360 (100.0)	93 (100.0)

Notes: Macroeconomic data came from the *China Statistical Yearbook* (2008). Data in the *Yearbook* are reported in a mix of currencies. To facilitate comparisons these were converted to US$ using the reference exchange rates provided in the *Yearbook*: US$1=HK$7.80=RMB7.60. Openness to trade measures the ratio of total exports to GDP or gross regional product (GRP) as appropriate. Trade and GRP data are provincial, so the figures for Guangzhou and Xian relate to Guangdong and Shaanxi provinces, respectively. World port ranking refers to container tonnage volumes for 2007, with data sourced from the American Association of Port Authorities (AAPA, 2007).

Characteristics describing the four subsamples are shown in Table 1, Panel B. Although the mean firm size for the pooled sample was 855 workers, the sample included many small and medium-sized enterprises. The proportions of firms with fewer than 200 workers were 21%, 53%, 59% and 40% for Hong Kong, Guangzhou, Shanghai and Xian, respectively. The combined sample also included some very large companies employing 10, 200, 2000, 6000 and 8000 workers in Hong Kong, Guangzhou, Shanghai and Xian, respectively.

Defining International Opportunities

Several methods for measuring opportunity recognition are found in the entrepreneurship literature. These include: asking entrepreneurs to count the number of new venture opportunities they perceived in the immediate past (Singh, 2000); asking entrepreneurs to speculate about the likelihood of recognizing opportunities in the immediate future (Arenius & De Clercq, 2005); and asking entrepreneurs to gauge their level of alertness to new opportunities in general (Hills & Schrader, 1998; Ozgen & Baron, 2007). These procedures can suffer from measurement imprecision to the extent that opportunities are not discriminated according to their commercial potential. One opportunity is just as viable as another. In addition, by leaving the definition of opportunity to the imagination of the respondents, it is likely that these procedures overstate the number of viable opportunities recognized.

An alternative approach is to measure exploited opportunities, that is, to record only those opportunities that have led to the formation of new ventures or exchange agreements (Chandra et al., 2009; Ellis & Pecotich, 2001; Mort & Weerawardena, 2006; Shane, 2000; Sharma & Blomstermo, 2003). This is consistent with the view that the recognition and exploitation of opportunities are two distinct milestones in the entrepreneurial process (Mathews & Zander, 2007). In the early entrepreneurship literature an entrepreneur was defined as one who is alert to entrepreneurial opportunities (Kirzner, 1973). But opportunity recognition is increasingly viewed as an insufficient condition for entrepreneurship (Shane & Venkataraman 2000). As Aldrich and Zimmer (1986: 14) note, "opportunities are irrelevant unless taken advantage of." Anyone can recognize an opportunity, but only entrepreneurs exploit them. As my aim was to learn how entrepreneurs identify opportunities for international exchange, it seemed sensible to focus on those opportunities that had actually led to the formation of exchange agreements with new customers in new foreign markets. By measuring entrepreneurial behavior as opposed to entrepreneurial cognition I also sidestepped the biasing prospect that entrepreneurs in different settings perceive opportunities in different ways. Perceptions are difficult to measure, and harder to compare. In contrast, the formation of a new exchange agreement in a new market is both an observable event and *prima facie* evidence of entrepreneurship. Where entrepreneurs indicated that they had formed multiple exchanges in the same foreign market, only their initial exchange ventures were recorded. Initial ventures in new markets are unprecedented and therefore more risky and entrepreneurial than subsequent ventures in the same market (Baumol, 1993).

At the end of the interviews descriptive data had been collected for a total of 1080 separate exchange ventures. A small number of these exchanges involved modes of control other than direct exporting, and these were excluded in the final analysis. Although there was no *a priori* reason for discounting joint ventures, licensing agreements and foreign direct investments, it was felt that the benefits to be gained by including these stories did not offset the potential dangers of introducing extraneous sources of influence into a database that was made up predominantly of exchanges based on direct exporting (96% of the total). During the interviews, managers indicated that they had been personally involved in setting up 665 market entries, representing nearly two-thirds of the total number of export agreements recorded. Given that some of the surveyed firms had been exporting for more than 50 years, and that the details of some market entries were lost to history, this proportion was considered satisfactory. If anything, there was a concern that the large size of the sample would lead to overpowered statistical tests and an increased risk of drawing big conclusions from essentially trivial effects. This can happen when researchers infer meaning from their results by examining p values.[7] Mindful of this risk, the analytical approach taken here was to interpret the effect magnitudes independently of the results of tests of statistical significance.

Measurement

During the semi-structured interviews, informants in the Hong Kong sample revealed nearly ten different methods for identifying international

exchange opportunities. These were subsequently aggregated into tie-based and non-tie-based methods for opportunity identification. Identification methods were labeled tie-based if they relied on prior social ties with relatives, friends or acquaintances (e.g., neighbors, former classmates, former employers or employees, existing clients, business associates). In terms of operationalization, the distinguishing characteristic of any tie-based exchange is a prior connection linking the exchange partners that is used to convey information regarding the exchange opportunity. For the purposes of this study it was irrelevant whether this connection was direct or indirect, strong or weak. As long as the tie was antecedent and instrumental to the opportunity identification process, any resulting exchange was classified as tie-based. If interviewers had doubts about the instrumentality of a tie, or could not clearly establish a prior link between the exchange partners, the exchange was classified as non-tie-based.

Several non-tie methods of partner identification were identified during the Hong Kong interviews. These were subsequently defined as:

(1) formal search methods, which are characterized by the evaluation of information about potential exchange partners acquired either from formal sources (e.g., official trade-promoting agencies) or via formal data collection methods (e.g., proprietary market research);
(2) fair-based methods, which rely on meetings at trade fairs and other market-like settings (e.g., exhibitions, conventions and trade missions); and
(3) advertising-based methods, where exchange partners are identified on the basis of advertising and other forms of impersonal promotion (e.g., corporate websites, publicity, sponsorships, industry directories).

The different methods for identifying exchange opportunities were captured in a comprehensive ten-item choice offered to managers at the other study locations. The success of this measurement procedure was proven in the field. Out of 665 market entry stories recorded, in no instance did respondents describe an opportunity recognition situation that was not on the list.[8] The complete list of counts for each choice at each location is provided in the Appendix and summarized in Table 1, Panel C. In the analysis, tie-based exchanges, or tie-use for short, were coded as 1 and non-tie-based exchanges were coded as 0.[9]

Openness to trade was proxied with a dummy variable, with Xian coded as 1 for the indicator group and the three coastal cities (Hong Kong, Guangzhou and Shanghai) coded 0 for the comparison group. This classification seemed appropriate, given that the coastal cities are all highly dependent on international trade, and are home to three of the world's busiest container ports. In other words, the coastal cities are examples of open economies, particularly in comparison with cities in China's interior. Located far from the nearest seaport, and much less dependent on international trade, Xian can be considered a less open economy. Higher scores on this variable thus reflect lower levels of openness.

The entrepreneur's personal experience in setting up exchange ventures was measured by rank-ordering those exchange agreements where the interviewee had been personally involved in identifying the foreign exchange partner. Consequently, the first exchange venture set up by the manager would equate to a low-experience score of 1, whereas successive ventures would be scored higher and reflect higher levels of personal experience. Scores for this variable ranged from 1 to 10. As experience data tend to be skewed towards low values, a logarithmic transformation was applied to improve the normality of the distribution.

The geographic, cultural and psychic distance spanned by each international exchange was determined using established methods. Geographic distance was operationalized as the distance in thousands of nautical miles (nm) separating the seaports closest to each exchange partner.[10] Raw data came from the distance calculator maintained by Maritimechain.com (2007). Cultural distance was calculated using Kogut and Singh's (1988) index, with data drawn from the appendices found in the updated edition of Hofstede's book (2001). Psychic distance was measured using procedures originally devised by Nordström (1991). Specifically, 54 managers in Hong Kong and 96 managers in Guangzhou were asked to rate their subjective perceptions of the psychic distance to a list of 60 countries on a scale from 1 to 100, with their home setting (Hong Kong or China) anchored on 1. Prior to making these ratings, respondents were given two Chinese-language definitions of psychic distance, taken from Johanson and Wiedersheim-Paul (1975) and O'Grady and Lane (1996). The data obtained from the Hong Kong managers were used to calculate the psychic distances of exchanges

originating in Hong Kong, and the data obtained from the Guangzhou managers were applied to all the exchanges originating from mainland China. Although the two sets of scores were highly correlated (r=0.73), it was felt that the historical and institutional differences separating the two groups of managers were sufficient to warrant separate measurements. Full details describing the collection of both sets of psychic distance data can be found in Ellis (2007; Hong Kong) and Ellis (2009; Guangzhou).

Linguistic distance was proxied by asking respondents in the three mainland Chinese cities to indicate whether their exchange partners were ethnically Chinese. If both partners were Chinese it was assumed they shared a common language, which might be Mandarin, Cantonese or some other Chinese dialect. No such assumption was made if the foreign partner was identified as non-Chinese. In the analysis, non-Chinese speaking partners (the larger group; n=391) were coded 1 and Chinese-speaking partners were coded 0 (n=113).

Two variables were included to gauge the quality of each exchange venture; the perceived importance of the venture to the entrepreneur and its relative export share. Exchange importance was assessed by asking respondents to rank-order their foreign markets, with the most important market rated as 1. (These data were collected prior to asking interviewees to describe the formation of each exchange venture.) Low scores on this dimension correspond to high importance rankings. Export share was measured as firm's total export income accounted for by the exchange venture in question.

Control Variables

Nine additional variables were included in the analysis to control for extraneous effects that might influence either the methods used for opportunity identification or the subsequent performance of the exchange venture. Firm size was measured as the total number of employees in thousands. Firm age (in years) was recorded at the time of each exchange formation. To account for the possibility that firms with considerable experience in foreign markets might be run by relatively young and inexperienced managers, a firm-level experience variable was also included in the analysis. The international experience of the firm was measured by recording the breadth (number of existing foreign markets) plus the depth (total number of years selling to foreign markets) of the firm's overall experience prior to each exchange formation. As with personal experience, a natural log transformation was applied to improve the normality of international experience data.

The firms in the sample consisted of a mix of privately owned enterprises, state-owned enterprises, and township- or otherwise collectively owned enterprises. To control for the possible effects of ownership, separate dummy variables were included to reflect both state ownership and private ownership. A small proportion of the firms in the final sample (less than 8%) were joint ventures partially funded with foreign capital. To control for this a dummy variable with joint ventures set as the indicator group was included in the analysis. As identification methods and exchange outcomes may be influenced by the relative attractiveness of the markets involved, market size, defined as purchasing power equivalent of GDP (in US$'000), was also measured. Data for this variable came from the World Bank's (2007) Development Indicators. Product type was measured as a dummy variable, with exchanges involving finished goods (n=541) coded as the indicator group, and exchanges involving intermediate goods (components and raw materials) coded as the comparison group. Finally, a variable labeled "colonial trade" was included to control for the historic commercial and legal relationship linking Hong Kong with the UK (Lundan & Jones, 2001; Rauch & Trindade, 2002). The rationale was that a history of British investment in its former colony might raise the likelihood that Hong Kong entrepreneurs would exploit tie-based methods of opportunity identification when exporting to the UK. Exchanges linking Hong Kong entrepreneurs with UK buyers were coded as 1 and other exchanges were coded as 0.

Opportunity recognition data collected for the 665 exchange ventures were used to test the hypotheses, as described in the following section. The descriptive statistics and inter-construct correlations are reported in Table 2.

RESULTS AND DISCUSSION

As many firms in the sample provided data on more than one exchange venture, the result was an unbalanced panel dataset. To use this dataset to test the hypothesized predictions it was necessary to control for the non-independence of observations. To do this I used the generalized linear models procedure in SPSS to cluster cases by firm.

Table 2 Descriptive statistics and correlations

	Mean	*s.d.*	*Min*	*Max*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1. Firm size	0.86	1.61	0.01	10.20	1.00																	
2. Firm age	8.90	10.41	0	74	0.25	1.00																
3. International experience	−0.56	1.89	−2.30	3.18	0.06	0.19	1.00															
4. State ownership	0.18	0.38	0	1	0.21	0.43	0.04	1.00														
5. Private ownership	0.78	0.41	0	1	−0.16	−0.38	−0.07	−0.90	1.00													
6. Joint venture	0.08	0.27	0	1	−0.12	−0.00	0.08	−0.14	0.15	1.00												
7. Market size	2.21	2.76	0.00	10.20	−0.07	−0.11	−0.14	−0.01	0.03	0.01	1.00											
8. Product type	0.81	0.39	0	1	−0.17	−0.22	−0.06	−0.36	0.32	0.04	0.01	1.00										
9. Colonial trade	0.03	0.17	0	1	0.07	−0.02	−0.04	−0.08	0.09	−0.05	−0.08	0.08	1.00									
10. Openness to trade	0.14	0.35	0	1	0.29	0.20	0.03	0.28	−0.22	0.30	−0.01	−0.26	−0.07	1.00								
11. Personal experience	0.66	0.63	0.10	2.40	0.05	0.16	0.90	0.10	−0.15	0.11	−0.13	−0.08	−0.06	0.06	1.00							
12. Tie-use	0.38	0.49	0	1	0.06	−0.02	0.07	0.06	−0.11	0.01	−0.04	0.03	0.10	−0.08	0.09	1.00						
13. Geographical distance	5.08	3.58	0.04	11.42	0.00	−0.01	0.06	−0.04	0.08	−0.03	0.04	0.17	0.22	−0.09	0.06	−0.09	1.00					
14. Cultural distance	2.17	1.05	0.14	4.94	0.00	−0.09	0.00	0.05	−0.00	0.03	0.42	0.11	0.03	−0.02	0.00	−0.06	0.35	1.00				
15. Psychic distance	39.67	16.73	4.24	83.10	−0.01	0.05	0.16	0.10	−0.11	0.03	−0.40	−0.02	−0.19	0.03	0.20	−0.11	0.51	−0.03	1.00			
16. Linguistic distance	0.77	0.42	0	1	0.07	−0.02	−0.09	−0.22	0.26	−0.16	−0.05	0.25	0.29	−0.25	−0.15	−0.04	0.23	−0.01	−0.22	1.00		
17. Exchange importance	2.78	1.77	1	10	−0.03	0.04	0.28	−0.04	−0.01	0.02	−0.28	0.04	−0.06	−0.06	0.37	−0.07	0.06	−0.11	0.23	0.02	1.00	
18. Export share	0.26	0.25	0.00	1.00	−0.08	−0.11	−0.39	0.02	0.02	−0.04	0.36	0.02	−0.06	−0.06	−0.41	0.12	−0.10	0.08	−0.21	−0.13	−0.55	1.00

Note: Mean categories for dummy variables show the proportion of cases in the category coded 1.

Tests of statistical significance were then based on the robust standard errors generated by this procedure (Fox, 2008: Chapter 19).

Social Ties and Opportunity Recognition

Logistic regression was used to test the hypotheses that social ties are more likely to be used to identify opportunities by entrepreneurs in relatively open economies (Hypothesis 1) and with higher levels of international experience (Hypothesis 2). Logistic regression is computationally similar to multiple regression, but differs in that the coefficients, which are calculated using a maximum likelihood procedure, are used to estimate the probability of the outcome occurring and are expressed in terms of logged odds or logits. As logits are not inherently meaningful, the usual practice is to transform the coefficients into more intuitive metrics such as odds, odds ratios, probabilities and the difference between probabilities when assessing the contribution of individual predictors (Menard, 1995; Pampel, 2000).

To test the hypothesized predictions, separate statistical models were estimated for the control variables, the control variables plus each of the two predictors, and then the control variables and both predictors altogether. The results of the estimation procedures are reported in Table 3.

The logit coefficient (−0.994) for openness to trade obtained in the full model (Model 4) is statistically significant, and runs in the direction that would be expected with the less open economy of Xian set as the indicator group. The corresponding odds ratio for this logit was calculated by exponentiating the coefficient (e^b). The antilog of the logit coefficient is 0.370 (or $e^{-0.994}$). This effect can also be expressed in terms of the percentage change in the outcome attributable to a one-unit change in the independent variable by using the following equation from Pampel (2000: 23):

$$\%\Delta = (e^b - 1)\times 100$$

Inserting the antilog into this equation reveals that the odds of identifying exchange partners using social ties are nearly two-thirds lower (since $(0.370–1)\times 100 = -63\%$) for entrepreneurs in less open economies than for entrepreneurs in open economies, after controlling for the effects of the other variables in the equation. In probability terms this is equivalent to a difference of −0.197 at the mean of the dependent variable. Given that ties were used in 38% of the exchange ventures observed in this study, the implication is that entrepreneurs in the open coastal cities were, on average, twice as likely to rely on ties as entrepreneurs in the less open city of Xian after controlling for the other variables in the model.[11] Thus Hypothesis 1 is supported.

In both the restricted and full models (Models 3 and 4 in Table 3) personal experience was found to have a positive but statistically non-significant effect on entrepreneurs' use of ties. To interpret this result I calculated the predicted probability of tie-based exchanges for a range of values on the experience variable following the procedure described by Menard (1995: 43).[12] The results showed that the probability of tie-use increased from 31 to 38% between the first and second exchange ventures, and then to 42%, 45% and 47% for the subsequent ventures, after controlling for the other variables in the model. For the tenth exchange, equivalent to the highest level of personal experience observed in the sample, the probability of tie-based exchanges peaked at 55%. In other words, the probability of tie-use increases with the accumulated experience of the international entrepreneur, as expected. However, the effect of experience is not particularly large, being equivalent to an average increase in tie-use of just 2.6% for each subsequent exchange over the full range of possible experience scores. Yet small effects may be judged important when they accumulate over time (Abelson, 1985). In this study, highly experienced entrepreneurs were 24% more likely to use social ties than first-time exporters. However, few entrepreneurs in the sample were highly experienced. This made the accumulated benefits of experience difficult to detect, and statistical significance hard to attain.[13] Consequently Hypothesis 2 receives only qualified support.

Two control variables were found to have a statistically significant effect on entrepreneurs' use of social ties. The coefficient obtained for the private ownership dummy in the full model (Model 4) reveals that the odds of identifying exchange partners via ties are 18.6% (or $(e^{-1.682}-1)\times 100$) higher for exchanges involving private firms in comparison with state- and collectively owned firms. The size of the colonial effect as estimated in the full model was substantial, equivalent to an odds ratio of 3.26 (or $e^{1.182}$) to 1. This implication is that the odds of identifying opportunities via social ties were more than three times as high for exchanges linking Hong Kong entrepreneurs with UK buyers than for other types of exchange. However, this result should be

Table 3 Logistic regression estimates of the probability of tie-based opportunities

Dependent variable	*Hypothesis 1: Tie-use*		*Hypothesis 2: Tie-use*		*Hypothesis 3d: Linguistic distance*		*Hypothesis 4a: Exchange importance*	
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*	*Model 8*
Controls								
Firm size	0.10 (0.08)	0.16 (0.09)	0.10 (0.08)	0.16 (0.09)	−0.01 (0.08)	−0.01 (0.08)	−0.01 (0.03)	0.02 (0.03)
Firm age	−0.02 (0.01)	−0.02 (0.01)	−0.02 (0.02)	−0.02 (0.01)	−0.02 (0.02)	−0.02 (0.01)	0.00 (0.01)	0.00 (0.01)
International experience	0.08 (0.06)	0.06 (0.06)	−0.04 (0.12)	−0.06 (0.12)	0.08 (0.15)	0.06 (0.15)	−0.19 (0.07)**	−0.22 (0.08)**
State ownership	−0.76 (0.87)	−0.89 (0.85)	−0.77 (0.84)	−0.91 (0.82)	0.10 (0.90)	0.94 (0.90)	0.64 (0.35)	0.77 (0.41)
Private ownership	−1.48 (0.84)	−1.73 (0.84)*	−1.43 (0.81)	−1.68 (0.81)*	0.72 (0.86)	0.54 (0.84)	0.34 (0.33)	0.56 (0.39)
Joint venture	0.34 (0.52)	0.79 (0.62)	0.30 (0.54)	0.74 (0.64)	1.37 (0.58)*	1.45 (0.57)*	0.02 (0.27)	−0.09 (0.22)
Market size	−0.02 (0.03)	−0.02 (0.03)	−0.02 (0.03)	−0.02 (0.03)	−0.01 (0.04)	−0.02 (0.04)	−0.25 (0.03)***	−0.26 (0.03)***
Product type	0.33 (0.34)	0.17 (0.34)	0.33 (0.34)	0.17 (0.34)	0.02 (0.37)	0.04 (0.38)	−0.22 (0.16)	−0.26 (0.16)
Colonial trade	1.23 (0.44)**	1.17 (0.44)**	1.24 (0.44)**	1.18 (0.45)**			−0.56 (0.40)	−0.37 (0.40)
Openness to trade		−0.98 (0.43)*		−0.99 (0.43)*	−0.64 (0.37)	−0.76 (0.37)*	−0.25 (0.19)	−0.40 (0.18)*
Personal experience			0.39 (0.33)	0.42 (0.35)	−0.20 (0.42)	−0.10 (0.43)	1.77 (0.18)***	1.89 (0.29)***
Tie-use						−0.58 (0.30)*		−0.58 (0.16)***
χ^2	32.49***	43.94***	34.12***	45.80***	18.78*	25.10**	210.70***	224.95***
−2LL	853.88	842.43	852.25	840.57	505.57	499.25	2080.18	2065.92
Hosmer and Lemeshow	0.91	0.08	0.91	0.13	0.25	0.76	NA	NA
Nagelkerke R^2	0.06	0.09	0.07	0.09	0.06	0.08	0.29	0.30
N	665	665	665	665	490	490	645	645

Notes: Robust standard errors are in parentheses. The estimates for Hypotheses 1–3 were calculated using binary logistic regression. The estimates for Hypothesis 4 were calculated using ordinal logistic regression. Logit coefficients for colonial trade were not calculated for Hypothesis 3d as this test was based on data obtained in the three mainland cities only.
*p < 0.05; **p < 0.01; ***p < 0.001.

interpreted with caution, as only 20 exchanges of this type were observed. Of this subset of ventures, three exchanges were initiated by sellers (i.e., Hong Kong entrepreneurs), three were the result of meetings that took place at trade fairs, and the remaining exchanges were initiated by parties external to the firm (i.e., UK buyers and mutually related third parties). Although the majority of these ventures were tie-based (12 out of 20), the evidentiary base may be too small to draw large conclusions about the opportunity recognition habits of former colonials.

The findings pertaining to the tie-use antecedents reveal that entrepreneurs in open economies have recognition options that are unavailable to their counterparts in less open settings. Although entrepreneurs in all cities relied on both network and non-network methods for identifying international opportunities, entrepreneurs in the open coastal cities were able to exploit their existing ties with others to greater effect. They were able to do this because their social networks are richer in informational benefits, a consequence of each city's open and highly internationalized trading environment. In contrast, entrepreneurs in central China operate in a less open environment, with the result that their networks are denser, more domestic, and less conducive to the recognition of international exchange opportunities. This finding may explain why the internationalizing benefits of network participation have been observed mainly in open, trade-dependent economies such as Scandinavia (Axelsson & Johanson, 1992; Komulainen et al., 2006; Sharma & Blomstermo, 2003), Australia (Mort & Weerawardena, 2006) and New Zealand (Chetty & Blankenburg Holm, 2000).

The conclusion that entrepreneurs in open economies are more likely to participate in boundary-spanning networks is consistent with the emerging view that opportunity recognition, and hence entrepreneurship, is primarily a function of the information benefits inherent within social networks (Eckhardt & Shane, 2003; Shane & Venkataraman, 2000). In contrast, the alternative hypothesis that observed differences in entrepreneurial behavior reflect differences in personal traits is difficult to substantiate. There is no particular reason to suspect that entrepreneurs in central China are more or less risk-averse, creative or self-efficacious than their counterparts in the coastal cities.

Entrepreneurs in less open economies may be handicapped in their pursuit of tie-based opportunities, but other methods for identifying international opportunities are available. In this study, entrepreneurs in central China seemed to compensate for their opportunity-poor networks by participating at trade fairs. Those in this group were 50% more likely to identify opportunities via trade fairs than entrepreneurs in the open-economy group. This may account for the rapid growth in the trade fair business in China. According to Wang (2007), the number of UFI-approved exhibitions in China increased from 5 to 23 in the 5-year period ending 2005. (UFI is an exhibition industry association based in France that provides a certification system for exhibitions.) In 2009 there were 60 UFI-certified events in mainland China, representing a 12-fold increase in 10 years (UFI, 2009). Although China's most popular fairs are usually held in coastal cities such as Guangzhou, there is an increasing representation of firms from the interior provinces at these fairs. The rapid rise in the number of international trade fairs, combined with China's long-term trade growth, suggests that participating at trade fairs is an effective compensating strategy for managers lacking opportunity-rich, boundary-spanning networks. This interpretation is consistent with other research that has found trade fairs to be a useful means for identifying exchange opportunities for exporters in emerging economies (e.g., Meyer & Skak, 2002).

Network Constraint and Opportunity Recognition

To test the hypotheses that tie-based opportunities are constrained by geographic, cultural and psychic distance, multiple regression analyses were run, with the three distance measures adopted as dependent variables and tie-use included as a predictor. As before, p values were based on the calculation of robust standard errors. The results, shown in Table 4, reveal that tie-based opportunities lead to exchanges that are constrained by geographic and psychic distance but not cultural distance. Significantly, these results hold even after controlling for differences in the location of entrepreneurs (via the openness to trade variable). To facilitate interpretation, the table reports unstandardized regression coefficients.

In the full geographic distance model (Model 2), the coefficient for tie-use was statistically significant, ran in the predicted direction, and led to a statistically significant improvement in the estimation, as indicated by the ΔF. The unstandardized coefficient for tie-use indicates that the predicted geographic distance for tie-based exchanges is 926 nm less than the predicted distance for

Table 4 Multiple regression coefficients

	Geographic distance (Hypothesis 3a)		*Cultural distance (Hypothesis 3b)*		*Psychic distance (Hypothesis 3c)*		*Export share (Hypothesis 4b)*	
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*	*Model 8*
Constant	1.39 (0.95)	1.97 (0.96)*	1.10 (0.26)***	1.19 (0.26)***	40.23 (4.08)***	43.12 (4.11)***	−1.16 (0.44)*	−1.49 (0.44)**
Controls								
Firm size	0.01 (0.08)	0.05 (0.08)	0.03 (0.02)	0.03 (0.03)	−0.38 (0.40)	−0.22 (0.38)	−0.01 (0.04)	−0.03 (0.04)
Firm age	0.00 (0.02)	0.00 (0.02)	−0.01 (0.00)	−0.01 (0.00)*	−0.06 (0.06)	−0.08 (0.06)	−0.01 (0.01)	−0.01 (0.01)
International experience	−0.03 (0.19)	−0.05 (0.19)	0.05 (0.06)	0.05 (0.06)	−0.86 (0.93)	−0.93 (0.90)	−0.05 (0.06)	−0.04 (0.06)
State ownership	1.86 (0.78)*	1.68 (0.74)*	0.83 (0.32)*	0.80 (0.31)*	4.16 (3.39)	3.24 (3.63)	0.43 (0.22)*	0.52 (0.26)*
Private ownership	1.81 (0.65)**	1.46 (0.59)*	0.43 (0.29)	0.37 (0.27)	0.25 (2.91)	−1.48 (3.16)	0.10 (0.15)	0.29 (0.20)
Joint venture	−0.42 (0.66)	−0.26 (0.61)	0.16 (0.27)	0.18 (0.26)	0.57 (2.72)	1.35 (2.72)	−0.01 (0.25)	−0.09 (0.22)
Market size	0.08 (0.04)*	0.08 (0.04)*	0.16 (0.01)***	0.16 (0.01)***	−2.44 (0.18)	−2.46 (0.18)***	0.18 (0.03)***	0.18 (0.03)***
Product type	1.45 (0.37)***	1.49 (0.36)***	0.38 (0.13)**	0.38 (0.12)**	1.14 (1.89)	1.34 (1.85)	−0.01 (0.14)	−0.04 (0.15)
Colonial trade	4.40 (0.24)***	4.66 (0.27)***	0.40 (0.08)***	0.44 (0.08)***	−20.07 (1.21)***	−18.80 (1.26)***	−0.51 (0.25)*	−0.68 (0.25)**
Openness to trade	−0.28 (0.46)	−0.48 (0.46)	−0.02 (0.16)	−0.06 (0.16)	0.11 (2.10)	−0.86 (2.17)	−0.15 (0.12)	−0.02 (0.22)
Personal experience	0.68 (0.55)	0.77 (0.55)	0.00 (0.18)	0.01 (0.18)	5.85 (2.72)*	6.29 (2.65)*	−0.80 (0.14)***	−0.85 (0.15)***
Independent variable								
Tie-use		−0.93 (0.29)**		−0.15 (0.09)		−4.60 (1.34)**		0.53 (.24)***
Adjusted R^2	0.08	0.09	0.20	0.21	0.22	0.24	0.23	0.25
F	5.96***	6.44***	16.80***	15.79**	18.16***	18.20***	18.09***	18.545***
ΔF sig		0.00		0.05		0.00		0.00
N	665	665	665	665	665	665	638	638

Note: Unstandardized coefficients are shown with robust standard errors in parentheses.
*p < 0.05; **p < 0.01; ***p < 0.001.

non-tie-based exchanges when the variation in other factors has been taken into account. Tie-based exchanges originating in China reach, on average, 1048 nm ($b_0 + b_1$ or 1974−926), in contrast with the mean distance of 1974 nm for other types of exchange. For the average entrepreneur in this study, reliance on social ties essentially limited their perception of exchange opportunities to markets within East Asia. Opportunities identified via non-tie methods, such as trade fairs and advertising, were less constrained, and led to exchanges that were more likely to involve partners located outside East Asia. Thus Hypothesis 3a is supported.[14]

In the full cultural distance model (Model 4) the tie-use coefficient ran in the predicted direction, and was statistically significant at the $p < 0.10$ level. However, it was felt that this was an insufficient basis for drawing a conclusion, as the test had ample statistical power (making it difficult to justify a relaxation of alpha beyond conventional levels) and the effect size was trivial. The part correlation linking tie-use with cultural distance was just −0.067, well below Cohen's (1988) recommended threshold for a small effect. In contrast, the part correlations for geographic and psychic distance were nearly twice as large (−0.121 and −0.129, respectively). Thus Hypothesis 3b is rejected.

In the full psychic distance model (Model 6) the coefficient for tie-use was negative and statistically significant, as predicted. The unstandardized coefficient reveals that the mean psychic distance for tie-based exchanges is equivalent to 4.6 scale units less than the mean distance for non-tie-based exchanges after the effects of the other variables have been controlled for. Tie-based exchanges reach, on average, 38.5 scale units ($b_0 + b_1$ or 43.1−4.6), in contrast with the mean distance of 43.1 for other types of exchange. One way to interpret this effect is to calculate the standardized mean distance difference between the two types of exchange. Dividing the mean estimates generated by the regression analysis by the standard deviation of the full sample generates an effect size equivalent to d=0.28 (or (43.1−38.5)/16.7). According to Cohen's (1988) conventions for interpreting effect sizes, an effect of this magnitude would qualify as small, but well above the threshold for a trivial effect. For entrepreneurs based in Hong Kong this difference is approximately equivalent to the difference between Laos (39.0) and the Netherlands (43.5). For entrepreneurs in mainland China it is roughly the difference between Vietnam (38.5) and Australia (41.0). In either case the implication is that tie-based exchanges link entrepreneurs with partners in markets that are psychically closer to home in comparison with non-tie-based exchanges. Thus Hypothesis 3c is supported.

Binary logistic regression was used to test the hypothesis that tie-use would lead to exchanges that are linguistically constrained. The results are presented along with the other logistic regression results in Table 3. Examining the logits in Model 6 reveals that tie-use has a statistically significant effect on linguistic distance in the direction predicted. The negative coefficient obtained for tie-use (−0.585) means that ties were likely to lead entrepreneurs away from the indicator group (non-Chinese speaking partners) and towards the comparison group (Chinese-speakers). The exponentiated coefficient reveals that the odds of identifying a non-Chinese-speaking partner were, on average, 44.3% lower (or $(e^{-0.585}-1) \times 100$) for tie-based exchanges. In probability terms this means that Chinese entrepreneurs relying on their social networks had a 12% lower probability of identifying non-Chinese buyers at the sample mean.[15] Thus Hypothesis 3d is supported.

Collectively these findings reveal that "course and outcome" of cross-border exchange are shaped by the physical, psychological and social setting in which exchange partners operate (Bagozzi, 1978). Specifically, the use of social ties to identify international opportunities will lead to exchanges that span smaller gaps in comparison with exchanges based on non-tie methods of identification. However, this interpretation is tinged with a credible threat of endogeneity. An alternative interpretation is that entrepreneurs' use of ties might be affected by their choice of markets. If markets that are similar or closer to home are selected, entrepreneurs might find themselves in a position where they are better able to exploit their existing ties with known others in their search for exchange partners. Conversely, entrepreneurs seeking to enter distant markets might find they have relatively fewer network possibilities, compelling them to rely more on non-tie methods of partner identification. A question of endogeneity arises whenever researchers measure outcomes that were the result of intentional decisions or strategies made by managers (Shaver, 1998). However, in this case the likelihood of an endogeneity problem is less than certain, and is proportional to entrepreneurs' propensity for choosing markets before partners. If the identification of suitable partners

motivates entrepreneurs to set up new exchange ventures, then the choice of foreign markets is likely random and the current interpretation stands. However, if entrepreneurs look for partners only after they have identified markets of interest, then the selection of markets is non-random, and tie-use may be endogenous to market choice.

Do entrepreneurs choose markets and then find exchange partners in those markets, or do they export to those markets where they have already found suitable exchange partners? The evidence from this study points towards the latter practice. Across the sample 42% of the exchange ventures were the result of unsolicited approaches made by potential customers or intermediaries external to the firm. By definition, any unsolicited order will be a case of identifying partners before markets. A further 45% of the exchange ventures were the result of first-time meetings that took place at trade fairs and exhibitions. Although exporters attend trade fairs for many reasons, the success of any fair is usually gauged in terms of the raw number of contacts made, followed by the number of new customer accounts opened (Miller, 1999). Having incurred the expense associated with participating at a trade fair, it is hard to conceive of a scenario where an exporter would ignore a legitimate lead because of a bias towards certain markets. Thus exchanges based on trade fairs will also tend to emphasize partners (i.e., contacts and leads) over markets. In this study only 88 exchanges were the result of exporters taking the initiative in approaching potential exchange partners. If even half of these exchanges had been influenced by exporters' prior market preferences, then any threat arising from an endogeneity problem will be capped at 6.5% of the total number of observations. On balance, the evidence supports the interpretation that ties lead to constrained opportunities. This interpretation is also consistent with entrepreneurship research that has found most opportunities are discovered or recognized rather than actively sought out (Koller, 1988; Shane, 2003).[16]

The finding that social ties lead to restricted exchanges reinforces Hutchinson's (2005) view that linguistic distance is a non-trivial barrier to trade. In the context of foreign direct investment Chen and Chen (1998) have also observed that relational networks that facilitate investment, on the one hand, tend to restrict the choice of investment location on the other. Collectively these findings signal a potentially serious disadvantage of using social networks to glean information about international opportunities. Networks have distinct horizons, and potentially lucrative opportunities that lie beyond these horizons will be unreachable via network ties. In other words, the same ties that provide entrepreneurs with access to some opportunities blind them to others. The implication is that an exclusive reliance on social networks may inhibit entrepreneurial initiative, leading to inferior choices. On the flip side, entrepreneurs who rely solely on ties won't know what they're missing.

Social Ties and Opportunity-quality

Do social ties facilitate the identification of better-quality opportunities as evidenced by higher importance ratings and export shares? To test the hypothesis that tie-based opportunities lead to exchanges that are rated more highly by entrepreneurs, an ordinal logistic regression analysis was run, and the results are reported in Models 7 and 8 in Table 3. To interpret this result it is important to recall that the dependent variable was reverse-scored. Ventures rated as most important by managers were scored 1, and those that were judged relatively less important were given higher scores. The statistically significant and negative coefficient for tie-use thus indicates a positive relationship between ties and importance ratings. Exchanges formed with partners identified via ties were rated more highly than exchanges based on other methods of partner identification. The relevant odds ratio indicates that the odds of an exchange being tie-based fall by a factor of 0.558 (or $(e^{-0.584}-1)\times 100$) for every one-unit increase in importance score after controlling for other factors.[17] Converting these odds to a probability reveals that ties are 36% less likely to be used for each successively less important venture. Thus Hypothesis 4a is supported.

To test the hypothesis that tie-based opportunities lead to bigger exchanges, a multiple regression analysis was run with export share as the dependent variable. As observations for this variable are sigmoidal in distribution, it was first necessary to linearize the data by performing a logit transformation (Armitage, Berry, & Matthews 2002: 488). The results of the regression analyses are reported in Models 7 and 8 in Table 4. The statistically significant and positive coefficient obtained for tie-use in the full model reveals a positive relationship between tie-use and export share. The average share of non-tie-based exchanges is 22.6% ($e^{-1.487}$), while the average share of

tie-based exchanges is 38.5% ($e^{-1.487+0.533}$). Tie-based exchanges are thus 70% larger (38.5/22.6) than non-tie-based exchanges when the variation in firm and market size, experience, product type, and so forth is taken into account. Expressed in terms of the standardized mean difference in export shares achieved in tie-based vs non-tie-based exchanges, this is a medium-sized difference equivalent to d=0.64 (or (38.5−22.6)/25.0). Thus Hypothesis 4b is also supported.

Collectively these findings support the conjecture that opportunities identified via known others can be more rapidly exploited and developed in contrast with deals struck with strangers. Tie-based exchanges generate larger relative incomes and are rated more highly than exchanges based on non-network methods of opportunity identification. This finding challenges the normative view advocated in some texts that the best exchanges are those based on formal market research and the systematic evaluation of opportunities according to predetermined criteria (Root, 1994; Young et al., 1989). Instead the results of this study support the alternative view that there are compelling economic incentives for exploiting social networks (Ingram & Roberts, 2000; Zhou, Wu, & Luo, 2007). The search and evaluation process described in the normative literature is problematic when exchange alternatives are unknown, and relevant and accurate information can be gleaned only at considerable cost. In contrast, boundary-spanning social networks provide entrepreneurs with access to information about valuable exchange opportunities and a reputational context against which potential partners may be evaluated. In the normative literature a good match is the result of a systematic and often costly evaluation of unknown partners (Douglas & Craig, 1983; Root, 1994). But in the economic sociology literature a good match is the result of having more complete and accurate information pertaining to the suitability of known or vouched-for partners (Castilla, 2005). When dealing with strangers, trust is initially absent and the threat of opportunistic behavior must be restrained by contractual safeguards and institutional mechanisms. But exchanges embedded in a social context benefit from expectations of reciprocity, and by reinforcing a mutual concern for reputation (Gulati, 1995).

The relational benefits of social networks (trust, reciprocity, commitment, reputation) are well known, but ultimately the benefits of social ties are economic. Exchanges built on ties were rated higher by respondents not because they were deals done with friends and acquaintances, but because they entailed lower set-up, monitoring and enforcement costs. In short, they generated superior returns. This ought to be expected, given that social capital, by definition, implies investing in social relations with the expectation of producing a profit (Lin, 2001). Yet few studies have so far established a link between networks and economic returns. In their study of firm internationalization in China, Zhou et al. (2007) showed that participation within social networks had a beneficial effect on export performance. In a study of the relationships between competitors in the Sydney hotel industry, Ingram and Roberts (2000) were even able to calculate the dollar value of friendships between rival managers.

Taken in conjunction with the earlier results regarding network constraint, the general conclusion seems to be that social networks provide entrepreneurs with privileged access to a pool of valuable exchange opportunities circumscribed within measurable geographical, psychological and linguistic boundaries. Social ties will offer the best means for recognizing opportunities that lie within these boundaries, but will be of no use for detecting profitable opportunities that lie beyond. However, the boundaries of social networks are not fixed, but expand with use and cultivation. For inexperienced entrepreneurs with limited social capital my results recommend that they actively seek to develop and increase the reach of their social networks. They may do this by participating at trade fairs or going on trade missions, or by tapping into the multinational networks of mentors or existing suppliers and buyers.

CONCLUSIONS AND FURTHER DIRECTIONS

Limitations and Directions for Further Research

This study provides the first large-N analysis of the different methods of opportunity recognition used by internationalizing entrepreneurs. Further work on this important and understudied topic could improve on the current study in a number of ways. In this study entrepreneurs' social networks were thought to be shaped by their host setting: entrepreneurs in open economies were assumed to have broader networks than entrepreneurs in closed economies. But this is only a partial answer to the question of why only some managers participate in cross-border networks. It would be interesting to dig deeper into those factors that

promote the formation of boundary-spanning networks in the first place (Kostova & Roth, 2003). Likely drivers might include inward migration (Gould, 1994) and outward migration (Saxenian, 2006). At the level of the firm there is some evidence that the migration of former employees, customers, and entrepreneurs themselves affects the identification of international exchange opportunities (Ellis & Pecotich, 2001), but the actual dynamics underlying network expansion remain to be uncovered. Further research could also explore the efficiency trade-offs inherent within different network types. At the extreme, networks may be thought of as open or closed. A network is open to the degree to which ties with others are nonredundant (Burt, 1992). Networks that are more open will be better at generating information about exchange opportunities, while networks that are less open will be better at generating trust between exchange partners (Brass et al., 2004). In what exchange settings will one network type be preferred over another?

Attempts could also be made to measure the informational benefits inherent within entrepreneurial networks. Being idiosyncratic, networks are highly heterogeneous in terms of their latent benefits. Only recently has research begun to examine how knowledge flows are affected by the quality of social ties or types of connections within networks (e.g., McDermott & Corredoira, 2010). If networks could be rated in terms of their opportunity richness, perhaps by gauging the number of structural holes spanned (Burt, 1992), or the "extensity" of their ties (Lin, 1999), and their cohesiveness (Ingram & Roberts, 2000), this would provide a stronger test of the hypothesis linking network structure and opportunity recognition.

In this study an element of trust was assumed to be present in all tie-based exchanges. However, no attempt was made to gauge the actual level of trust in the exchange relationships studied. As an initial stock of trust is advantageous to entrepreneurs dealing with the uncertainty of international exchange, future studies have much to offer by both measuring trust and identifying those exchange characteristics that promote different types of trust (e.g., cognitive, affective) in different settings.

There is also scope to improve the measurement of some of the constructs used in this study, such as cultural and linguistic distance. I measured cultural distance using Kogut and Singh's (1988) well-known index. However, this index has been criticized as an inappropriate aggregation of essentially dissimilar cultural indicators (Dow & Karunaratna, 2006). Given the positive results for Hypothesis 3 that were obtained when distance was measured in other ways, it is tempting to conclude that any effects arising from cultural distance were diminished as a consequence of the measurement procedure. Further studies might benefit from exploring alternative methods for measuring this important construct. In terms of measuring linguistic distance, a lack of data compelled the use of an ethnic proxy in this study. When Chinese interviewees were involved in exchanges with overseas Chinese partners I assumed they shared a common language. While this would be true most of the time, a better approach would be to determine whether exchange partners actually did speak a common language or dialect prior to their initial meeting.

Further research might also consider a wider set of exchange outcomes. In this study, tie-based opportunities were linked with larger and more highly rated exchanges. Other relevant outcomes that might be contingent upon the methods used for opportunity identification include the time required to consummate an exchange opportunity, the extent of partners' commitment to the exchange, the degree of partner opportunism, and the need for contractual safeguards. It would also be interesting to examine whether the advantages of tie-based exchanges endure. In other contexts there is evidence that the productivity-enhancing benefits of embedded exchange are merely temporary – that, in the long run, ties do not confer superior economic returns (Castilla, 2005). Longitudinal research would reveal whether performance differences attributable to different methods of opportunity recognition converge over time.

Summary

International entrepreneurs operate at the boundaries between groups. Most of the time their entrepreneurship is defined not in the creation of new ventures, goods or services but in making markets where none previously existed. My aim in conducting this study was to address the question: How do entrepreneurs identify opportunities for international exchange? In a departure from previous work done at the level of the business network, I examined the communication of information via entrepreneurs' social ties with others. Consistent with what others have found, the majority of opportunities recorded in this study

(87%) were discovered rather than sought. Yet these discoveries were far from accidental and in no case was the meeting of exchange partners based on pure luck. Although an element of chance may be present in many exchange ventures, the evidence of this study suggests that the role of chance has been exaggerated in past research. Foreign market entries appear to "lack rhyme or reason" only because researchers have an inadequate understanding of the social exchange that precedes opportunity identification (Ellis & Pecotich, 2001).

My analysis of 665 entrepreneurial exchange ventures revealed that entrepreneurs in relatively open economies are more likely to rely on social ties than entrepreneurs in less open economies; that tie-use increases with international experience (but only marginally so); and that tie-based opportunities lead to generally better exchanges than opportunities identified via non-network means such as trade fairs and advertising. These findings are broadly consistent with previous work showing the internationalization benefits of network participation (Crick & Spence, 2005; Ellis & Pecotich, 2001; Sharma & Blomstermo, 2003). The findings also support the conjectures of network theorists regarding the benefits of far-reaching networks and experience (Aldrich & Zimmer, 1986; Lin, 1999; Mitchell, 1969). However, this study also revealed the limitations of social networks (Brass et al., 2004). Tie-based opportunities were found to be constrained in terms of geographic, psychic and linguistic distance, suggesting that networks are bounded by communication horizons. Potentially lucrative opportunities that lie beyond these horizons will be missed by the entrepreneur who relies solely on ties. The implication is that tie-based methods of opportunity identification may inhibit entrepreneurial initiative, leading to sub-optimal internationalization trajectories. The circumstances under which this happens remain to be explored.

In summary, the results show that key events in the international expansion of the firm – namely, the formation of exchange agreements with new partners in new markets – can be understood as an entrepreneurial process involving the identification and exploitation of international opportunities. The main takeaway of this study is that social ties with known others provide access to distant and valuable opportunities, but only up unto a point. Given that social ties accounted for nearly 40% of the exchanges observed in this study, this inevitably has consequences for future theory development. The challenge now becomes one of integrating these insights into a truly dynamic theory of firm internationalization.

ACKNOWLEDGEMENTS

I am grateful for the valuable research assistance provided by Ha Lau Ching, Kwan Loh Yien, Wong Pei Wai and Wilson Chan in Hong Kong; Zhuang Guijun in Xi'an; Chao Gangling and Li Huihui in Shanghai; Zheng Xian Yan in Guangzhou; and to the editor Anand Swaminathan, three anonymous referees, and Keith Brouthers, Sylvie Chetty and Pavlos Dimitratos for their constructive feedback on earlier drafts of this paper. The research reported in this paper was supported by an Internal Research Competitive Grant provided by the Hong Kong Polytechnic University (Project G-YF44).

NOTES

[1]Prior to the emergence of business network research in the 1980s, market entry decisions were thought to be the result of unspecified stimuli emanating from unknown sources in the firm's operating environment (Olson & Wiedersheim-Paul, 1978). When Thorelli (1986: 38) observed that "the most salient part of the environment of any firm is other firms," he was advocating the idea that the analysis of business networks offered theorists a greater level of precision than studies of vaguely defined environmental stimuli. Scholars could now choose between impersonal markets that exist as givens "out there," and networks that are both the antecedent and consequence of exchanges among firms (Håkansson & Snehota, 1995).

[2]Some scholars define *social ties* narrowly distinguishing them from other types of interpersonal tie such as business and family ties (Coviello, 2006). Others interpret *social ties* as describing the set of all interpersonal ties, as opposed to inter-organizational ties (Ellis, 2000; Shane, 2003). In this paper the more generic meaning is intended: social ties are ties between people. This is not to diminish the significance of different tie types, of which many varieties have been identified in studies of firm internationalization (e.g., familial and friendship ties, corporate ties such as links with previous employers and employees, channel ties with current and former customers and suppliers, and scientific and academic ties such as those linking researchers and practitioners; Ellis & Pecotich (2001), Sharma & Blomstermo (2003), Zain & Ng (2006)). Yet while the description of ties is interesting, the conceptual benefits gained from speculating about the effects of different tie types remain unclear. This is because ties change over time:

friends become business partners and vice versa; customers may become competitors; employees sometimes become customers (Ellis & Pecotich, 2001; Harris & Wheeler, 2005).

[3]This limitation is implicitly acknowledged in recent work that seeks to supplement the business network perspective with social networks held by individual managers (Loane & Bell, 2006; Rutashobya & Jaensson, 2004; Sharma & Blomstermo, 2003). As the analysis of social networks falls outside a strict definition of the business network perspective, scholars have positioned this work as an "extension to the network approach" (Loane & Bell, 2006).

[4]Another example of the restricted focus of business network research is found in the limited role attributed to weak ties. Although networks are built on both strong and weak ties, industrial networks are characteristically defined by "strongly bonded relationships" (Easton, 1992: 15). Inter-firm relationships tend to be "thicker" inside the network as a consequence of mutual interdependence, commitment and trust-building over time (Håkansson & Snehota, 1995). The analysis of business networks thus has limited relevance for exchange settings where firms do not need to form lasting relationships with their exchange partners. Further, in the traditional business network perspective, weak ties are almost always indirect. Yet social network theorists have shown that entrepreneurs can glean valuable information from weak, interpersonal ties, which may be direct or indirect (Burt, 1992; Granovetter, 1973; Sharma & Blomstermo, 2003).

[5]Many studies adopt a case-based research strategy, which is appropriate when the phenomenon (the recognition of international opportunities) and the context (networks of interpersonal ties) must be considered simultaneously (Yin, 2003). The difficulty with this strategy is that researcher biases and errors of judgment are hard to detect. The independent reader cannot easily tell, for example, whether the researcher has been selective about the presentation of data. Have all the opportunities been accounted for, or only those that illuminate a favored conclusion? This puts the onus on researchers to adopt a number of procedures that enhance the validity and reliability of their studies. Several such tactics are described by Miles & Huberman (1994: Chapter 10) and Yin (2003: Chapter 2).

[6]This figure overstates Hong Kong's actual degree of openness, as it reflects a high volume of re-export trade passing through Hong Kong to and from other markets. As some unknown portion of this re-export trade originates in non-Hong-Kong-owned factories located in the Pearl River Delta, Hong Kong's true level of openness will be lower, and closer to that of other coastal cities.

[7]It is not uncommon for researchers to draw conclusions about observed effects by conducting tests of statistical significance. However, the p values generated by significance tests are confounded indices, as they reflect both the size of the effect as it occurs in the population and the statistical power of the test used to detect it. In many studies the biggest determinant of statistical power is sample size. Consequently a p value usually says less about the size of the effect than it does about the size of the sample used to estimate it. Conclusions that are wholly based on p values run the risk of missing small effects obtained in low-power settings (leading to a Type II error) or making too much of trivial effects observed in high-power settings (essentially leading to a Type I error). The best way to avoid either outcome is to interpret effect sizes independently of tests of statistical significance (Ellis, 2010). Tests of statistical significance are regarded by some as useful for insuring against the possibility of incorrectly rejecting a null hypothesis, but ultimately the product of any research enquiry is an estimate of the size of the effect being investigated (Cohen, 1990). In this paper relevant effect sizes include odds, odds ratios, probabilities, differences in probabilities and part correlations.

[8]Not included in the analysis were 20 market entries where the respondent could not recall with sufficient detail the means by which they first met their international exchange partner. Consequently the usable data (665 exchanges) constitute 97% of the total number of export ventures personally set up by the interviewees. While previous market entry studies have attributed a heavy hand to the null hypothesis of luck (e.g., Meyer & Skak, 2002), virtually all of the exchange ventures observed in this study could be explained as a consequence of one of the methods of opportunity identification described in this measure. This is not to say that chance was absent. Many of the exchanges had a measure of serendipity about them. But international entrepreneurs are generally intentional in their identification of exchange opportunities, and make their own luck by exploiting network connections or attending trade fairs. During the interviews the managers were also asked to identify who had been the initiating actor in each exchange. Unsolicited orders from buyers (N=134) or third parties (N=143) accounted for 42% of the exchanges recorded. Despite being the passive party in this subset of exchanges, interviewees were able to identify the means for opportunity recognition in nearly every case (99.1%). This represents a significant departure from

the past practice of leaving unsolicited orders unclassified, and provides further evidence of the effectiveness of the measurement procedure.

[9]During their training, interviewers were presented with a number of hypothetical examples to illustrate how to classify exchanges that appeared to be the result of overlapping methods of identification. Classification challenges might arise, for example, if an entrepreneur met an old friend at a trade fair, or conducted market research to identify importers in a country where they had some prior connection (e.g., previous work experience). Two coding rules were used to decide ambiguous cases. First, interviewers were advised to consider precedence. A deal struck at a fair with an old friend or former business associate was considered a tie-based exchange (the tie preceded the fair), while a deal struck with a stranger would be considered fair-based (i.e., non-tie-based). Second, interviewers were advised to focus on partner selection and ignore market selection. An existing connection to a particular market was considered immaterial if the actual exchange partner was identified via other means. Exchanges link people, not markets. While there may have been some overlap between different types of non-tie exchange (e.g., market research that involves scanning published directories straddles the line between a formal search and an advertising-based search), tie-based exchanges are, by definition, fully measurable. If the interviewer was not able to establish a prior and instrumental tie linking the exchange partners, the exchange could not be classified as tie-based.

[10]Shanghai was deemed to be the closest port to Xian by rail. Exports from Guangzhou were assumed to depart from the nearby container port of Nansha in the Pearl River Delta.

[11]Pampel (2000: 27) describes the procedure used for calculating the difference in probabilities for two groups. In this procedure the mean value of the dependent variable serves as the probability of the omitted group (P_o). In this case P_o, or the overall proportion of tie-based exchanges, is 0.385 (256/665), and L_o, or the predicted logit for the omitted group (exchanges originating in the three coastal cities)$=\ln(P_o/(1-P_o))=-0.468$. The predicted logit (L_d) for the dummy variable group is -1.462 or L_o+b_d or $-0.468+-0.994$. The probability for the dummy variable group (P_d) is $1/(1+e^{-Ld})$ or 0.188. The difference in probabilities (P_d-P_0) is $0.188-0.385=-0.197$.

[12]To facilitate interpretation I calculated a range of logits for tie-use, using the coefficients generated by the analysis and inserting into different regression equations the mean scores for all the variables and different scores for personal experience. The scores for personal experience corresponded to the full range of observed values on this dimension. (I am grateful to *JIBS* editor Anand Swaminathan for directing me to Hoetker (2007) and Wiersema and Bowen (2009) in this regard.) Logits generated by these equations were then transformed into probabilities ($e^b/(1+e^b)$), and an average effect was calculated from the full range of probabilities.

[13]Assuming the effect size and the proportion of highly experienced exporters observed in the sample are identical to their corresponding population parameters, a sample size greater than 4000 would have been required to detect the accumulated effects of experience with α_2 set at 0.05 and β set at 0.80. The difficulty of detecting the isolated effect of experience stems from the small size of the effect. The difficulty of detecting the aggregate effect stems from the relatively small proportion of highly experienced entrepreneurs in the population.

[14]The results for three of the statistically significant control variables – market size, product type and colonial trade – are unsurprising. That finished goods tend to be exported 1490 nm further than intermediate goods reflects the dispersion of markets for both product types: components tend to be traded between suppliers and manufacturers located within Asia, whereas finished goods tend to be sold in the more distant and larger consumer markets of Europe and the USA. The large, positive coefficient for the colonial dummy reflects the long-distance trade linking Hong Kong entrepreneurs with buyers in the UK.

[15]The predicted logit for the omitted group (L_0) (non-tie-based exchanges) is 1.225 when the mean proportion of exchanges involving non-Chinese partners ($P=0.773=379/490$) is adopted as the mean value of the dependent variable. The predicted logit (L_d) for the dummy variable group is 0.640 or L_0+b_d or $1.225+-0.585$. The probability for the dummy variable group (P_d) is $1/(1+e^{-Ld})$ or 0.655. The difference in probabilities (P_d-P_0) is -0.118 (or $0.655-0.773$).

[16]Discovery, in this context, means that the awareness of the exchange opportunity was the result of either an approach made by parties outside the exporting firm (i.e., an unsolicited order; $n=277$) or a chance meeting that occurred at a trade fair ($n=300$). A sought-out opportunity, in contrast, is one where the exporter first identified and then took the initiative in approaching the potential foreign buyer ($n=88$).

[17]Unlike the nonlinear relationships estimated in binary logistic regression, in ordinal regression the effect of the independent variable is assumed to be the same for each level of the dependent variable.

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APPENDIX

International Exchange Opportunities Observed

See Table A1.

Table A1 Responses to the question "How did you identify your first customer in this foreign market?"

	Hong Kong	*Guangzhou*	*Shanghai*	*Xian*	*Total*
Tie-based					
they are a relative or "old friend"	0	7	9	1	17
through personal contacts (e.g., friends/acquaintances)	16	9	15	6	46
we knew them from a previous job or business relationship	40	9	53	12	114
referral from an existing client	4	15	50	8	77
they are a former classmate or neighbor	0	1	1	0	2
Formal search					
through govt./other agency	2	0	21	5	28
via market research/formal search	0	3	13	4	20
We met at a trade fair/exhibition/mission	47	12	184	57	300
In response to an advertisement	47	0	14	0	61
Total	156	56	360	93	665

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Accepted by Anand Swaminathan, Area Editor, 15 December 2009. This paper has been with the author for three revisions.