KNOWLEDGE, INSTITUTIONS, AND FOREIGN ENTRY: THE INTERNATIONALIZATION OF U.S. VENTURE CAPITAL FIRMS

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ABSTRACT

We examine the institutional factors driving the decision by organizations to enter certain foreign markets and not others in the specific case of the venture capital industry. We argue that venture capital firms prefer countries with institutions that create an environment rich in entrepreneurial opportunities, legally secure, financially vibrant and politically stable, and that they replicate the past foreign entries of their syndicate partners. We report results using a sample of 1,010 American venture capital firms potentially investing in 95 countries during the 1990-2002 period. Countries with more opportunities, as measured by the level of scientific knowledge and technology, and those with more developed financial and political institutions receive more investments. We also find strong evidence of network effects.

After decades of neglect, the organizations literature is devoting increasing attention to the phenomenon of the international expansion of the firm. Research inspired by neo-institutional theory has explored whether firms imitate their relevant peers when expanding abroad as a way of mitigating the uncertainty surrounding the establishment of operations in a foreign country (Westney, 1993; Martin, Swaminathan and Mitchell, 1998; Henisz and Delios, 2001; Guillén, 2002; Henisz and Macher, 2004). Population ecology has proved useful to understand the founding and disbanding rates of foreign subsidiaries as well as the structural rigidities that make it difficult for firms to pursue opportunities abroad (Delacroix, 1993; Hannan et al., 1995; Podolny, Stuart and Hannan, 1996; Dobrev, Kim and Hannan, 2001; Guillén, 2002; Barnett and McKendrick, 2004). Knowledge flows between organizational subunits located in different countries have been studied in order to understand the cross-border effects of different types of social linkages (Hansen, 1999). Little research, however, has directly addressed the question of foreign location choice from an organizational perspective, namely, the characteristics of foreign countries that firms find attractive. This question is a fundamental one because organizations often have the choice among alternative locations or markets to enter (Haveman, 1993; Greve, 1998; Baum and Korn, 1999). The few organizational studies addressing the issue of foreign location choice have focused on experience and imitation effects in reference to political hazards (Henisz and Delios, 2001; Henisz and Macher, 2004) or cultural distance (Barkema, Bell and Pennings, 1996), without delving into the role that a complete and cohesive set of national institutions plays in attracting foreign firms, and finding only weak evidence for network effects.

This paper offers a conceptualization and empirical analysis of the country-level institutions and the network effects relevant to foreign market entry in the specific case of the venture capital industry. American venture capitalists have traditionally raised and invested money domestically. Research has documented that they tend to fund ventures located relatively close to their domicile so as to facilitate monitoring and control (e.g. Sorenson and Stuart, 2001). Since the early 1990s, however, cross-border venture capital activity has risen quickly. "VCs who once bragged about never driving more than half an hour to visit a portfolio company are jetting to Australia for optical engineers, Israel for security whizzes, India and Kazakhstan for brute software coding, South Korea for online gaming, and Japan for graphics chips. For growth across the board, China is the place to go."[1] According to one venture capitalist, "VCs in Silicon Valley used to pride themselves on being local… That was well and good when the U.S. was the mecca for technology."[2] Others point out that there is simply "too much venture capital being raised and too few good ventures." In many countries around the world, local practices and regulations are being overhauled so as to make it easier for foreign venture capital firms to operate. For instance, a Chinese legislator and economic expert recently argued that "venture capital is not conflicted with Socialism."[3]

In spite of the growing importance of international venture capital investing, rare is the study that seeks to understand why, where and how venture capitalists pursue foreign

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[1] "The Global Startup," Forbes Global, 29 November 2004.

[2] Erel Margalit, founder of Jerusalem Venture Partners. See "The Global Startup," Forbes Global, 29 November 2004.

[3] Interviews with K. O. Chia, formerly a principal at a Hong Kong VC firm, and Chen Siwei, National People's Congress and Chinese Academy of Sciences.

opportunities (for a review, see Zalan, 2004). Most of the little existing international research on venture capital is cross-national comparative in nature, focusing on differences in the characteristics of venture capital activity across countries as opposed to on cross-border venture capital investments, which are the focus of this paper. One line of comparative research examines differences in screening and valuation techniques (e.g. Manigart et al., 2000). Another, more recent stream offers detailed data on private equity and venture capital contracts in rich and developing countries, frequently identifying legal regimes as the main source of differences in contractual characteristics and modes of operation (Bottazzi, Da Rin and Hellman, 2005; Cumming, Schmidt and Walz, 2005; Kaplan, Martel and Stromberg, 2005; Lerner and Schoar, 2005). A third line of research seeks to explain why there is more venture capital activity in some countries than others, finding that the presence of large and dynamic equity markets and appropriate government policies and regulations foster venture capital activity (Jeng and Wells, 2000; Leachman, Kumar and Orleck, 2002). Some existing research examines cross-border issues such as the willingness to invest abroad (Hall and Tu, 2003), finding it to be statistically related to firm size, or the kinds of relationships foreign venture capitalists tend to establish with local entrepreneurs and/or local venture capitalists (Bottazzi, et al., 2005).

We build on these streams of international venture capital research to tackle a different question: Which countries in the world do venture capital firms find attractive for making an international investment? The issue of location choice lies at the core of other fields of research which we seek to integrate with scholarship on venture capital and on organizational foreign expansion. Four of these areas are especially relevant, and each draws from a different strand of institutional theory. First, the literature on comparative business systems and national systems of innovation offers an institutional framework for the comparative analysis of the characteristics,

organization and performance of countries, or regions within countries, in the areas of innovation and competition. This line of research draws on institutional analysis in economics, political science and/or sociology (Porter, 1990; Whitley, 1992; Nelson and Rosenberg, 1993; Patel and Pavitt, 1994; Furman, Porter and Stern, 2002). Second, the impact on corporate finance and equity markets of cross-national differences in legislation has recently given rise to myriad studies seeking to understand what makes some countries more attractive for investment in terms of the legal protection of investors' rights (La Porta et al., 1998; Guillén, 2000). Third, the literature on political hazards uses institutional economics and positive political theory to assess the effect on investors' strategies and returns of possible changes in host-country government policies (Henisz and Williamson, 1999; Henisz, 2000a; Henisz, 2000b). Lastly, neo-institutional theory and network analysis highlight that firms interact with each other, inducing exchange and imitative behavior that may result in similar patterns of market entry domestically (Haveman, 1993) or internationally (Henisz and Delios, 2001; Guillén, 2002).

While diverse in approach and method, these four institutional traditions share a relatively similar definition of institutions, namely, the "formal and informal rules, monitoring and enforcement mechanisms, and systems of meaning that define the context within which individuals, corporations, labor unions, nation-states, and other organizations operate and interact with each other" (Campbell, 2004:1). Thus, institutions empower as well as constrain behavior. They are taken for granted by actors, providing them with the stability and the meaning they need in order to be effective (Scott, 2001:50; Guillén and Suárez, 2005).

Based on these theories of institutions, the existing literature on cross-national venture capital activity, and information obtained through interviews with venture capitalists, we argue that venture capital firms scan the international environment in search for attractive investment

opportunities. Before investing, they assess the performance of the national system of innovation, the legal protections available to investors, the size and dynamism of the local equity market, and the extent to which the political environment is stable. We also conceptualize the institutional context in terms of the networks of relationships linking venture capital firms to one another, which constitute channels for the diffusion of information and the sharing of experience. In particular, we argue that, net of the institutional characteristics of countries, venture capital firms prefer to enter countries in which their syndicate partners have previously invested.

The Growth and Internationalization of Venture Capital Activity

Venture capitalists are intermediaries who raise money from investors of various kinds, placing it into a fund which they use to acquire equity stakes in entrepreneurial ventures. At the end of a predetermined period—typically 7-10 years—the investments are liquidated and the proceeds returned to the investors, except for a management fee of about 20 percent. Venture capitalists provide entrepreneurs and their companies with funding, strategic advice, contacts, and reputation.[4] They bring to the table a host of financial and organizational "technologies" including screening capabilities, due diligence processes, staged financing, syndication of investments, compensation contracts, covenants and restrictions, and corporate governance practices. In so doing, venture capitalists help bring risky and unproven innovative ideas to the marketplace, thus overcoming the uncertainty, information asymmetries, and intangible aspects inherent to new business development (Gompers and Lerner, 2000; Gompers and Lerner, 2001).

[4] We use the term "firm" solely to refer to venture capital firms and "company" to refer to portfolio companies (entrepreneurial ventures).

Dedicated venture capital firms first emerged in the United States. In 1946 a group of Boston academics and financiers created American Research and Development, incorporated as a publicly traded, closed-end fund. A key innovation came about in 1958, when one firm organized itself as a limited partnership, in which limited partners or investors provided funds to general partners or venture capitalists to invest in entrepreneurial ventures. This organizational form enabled the venture capitalist to be exempt from the prohibitions to own more than 10 percent of the equity and to serve on the board of directors of portfolio companies. Starting in the late 1960s, the limited partnership became the dominant form of incorporation for U.S. venture capital firms. Nowadays, the typical venture capital firm has anywhere between two and over thirty general partners. The amount of capital can range from 10 million to several billion dollars (Fenn, Liang and Prowse, 1997).

After languishing during the 1970s, venture capital activity in the United States took off during the 1980s and 90s. Capital was raised not only from wealthy individuals but also, and increasingly so, from private universities, foundations, corporate pension funds, and later, public pension funds. Venture capital invested in the United States between 1970 and 2000 created 7.6 million jobs and over $1.3 trillion in revenue. As of the end of 2000, venture capital-backed companies accounted for 13.1 percent of GDP and 20.6 percent of the total number of publicly listed companies, of which they represented 5.6 percent of jobs, 12.6 percent of total after-tax profits, and 32.8 percent of total market value.[5]

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[5] Fenn et al. (1997); Gompers and Lerner (2001:67-69); Guler (2003); "Three Decades of Venture Capital Investment Yields 7.6 million Jobs and $1.3 Trillion in Revenue.: www.nvca.com (accessed October 22, 2001).

Meanwhile, activity in other countries remained limited or almost non-existent, with the notable exception of the United Kingdom. Even such technologically advanced countries as Germany or Japan have failed to develop a vibrant venture capital industry, and this in spite of strong government and corporate backing (Kenney, Han and Tanaka, 2002; Becker and Hellmann, 2003). Precisely because of the small size of venture capital markets in many European countries, venture capital firms have traditionally tended to be more international than American firms in terms of the ventures they invest in. While less than 5 percent of total U.S.-raised venture capital funding is invested internationally, the corresponding figure for Switzerland is about 50 percent, Greece approximately 40 percent, Belgium and Sweden about 35 percent, the Netherlands 33 percent, and the United Kingdom 25 percent. The bulk of the foreign investments of European venture capital firms is in other European countries (Manigart, et al., 2000; Gompers and Lerner, 2001:195-196; Hall and Tu, 2003).

Institutions and the Foreign Expansion of Venture Capital Firms

The point of departure for our theoretical approach is the idea that firms enter a foreign market on the basis of some "ability" or "skill" (Hymer, 1960; Kindleberger, 1969; Zaheer, 1995; Caves, 1996). As noted above, venture capital firms are specialized intermediaries operating between investors and entrepreneurs. They bring to the table not only capital but also expertise and a host of financial and organizational technologies. Holding constant for each firm's propensity to invest abroad in general, the attractiveness of specific foreign locations will depend on the number and quality of investment opportunities, and on the presence of favorable legal, financial and political institutions. Thus, our argument is that the existence of both entrepreneurial opportunities and support institutions is necessary for the venture capital firm to

make an investment in a given foreign country. Venture capital firms prefer countries with institutions that create an environment rich in entrepreneurial opportunities, legally secure, financially vibrant, and politically stable. They are also attracted by foreign countries in which their syndicate partners have invested in the past, as this provides them with information and corroboration about the presence of entrepreneurial opportunities and the workings of support institutions. Let us analyze each of these effects in turn.

Entrepreneurial Opportunities

Venture capital firms scan the environment for attractive opportunities, i.e. new innovative ideas, in which to invest (Gompers and Lerner, 2000; Gompers and Lerner, 2001). The literature on national systems of innovation has conceptualized and documented that countries, and regions within countries, differ in terms of the inputs allocated to the creation of knowledge, technology and innovations, the quality of the institutions that help transform those inputs, and the resulting level of performance (Porter, 1990; Romer, 1990; Kogut and Zander, 1993; Nelson and Rosenberg, 1993; Patel and Pavitt, 1994; Furman, et al., 2002). Although business, science and technology have become more transnational in nature over the last two decades, the country continues to be a relevant unit of analysis. Globalization has not eliminated differences in effort or outcomes across countries, resulting in persistent knowledge and technological gaps. There are several reasons for this resilience. First, many of the institutional actors involved in the effort (i.e. governments, universities, trade associations) are distinctively national or subnational in character, and have developed peculiar understandings and routines as to how to promote knowledge, technology and innovation (Nelson and Rosenberg, 1993). Thus, national systems of innovation display remarkable degrees of internal cohesiveness and external

distinctiveness, just like national business systems in general (Whitley, 1992). Second, knowledge, technology and practices move more easily within than across national borders, as a large body of empirical research has established (Kogut and Chang, 1991; Guillén, 1994; Patel and Pavitt, 1994). National systems of innovation do not only result in the production of knowledge, technology and innovation, but also in their diffusion. And third, the country level of analysis is most relevant to understanding the impact of national systems of innovation on growth and investment trends over time (Freeman, 2002).

While studying inputs (e.g. expenditures on R&D, numbers of engineers and scientists) or process institutions (universities, research labs or networks of collaboration) helps understand why some countries are more innovative than others, venture capital firms evaluate neither resources nor effort, but rather performance. They are in the business of finding, assessing and funding opportunities, not necessarily creating them, although their backing of entrepreneurial ventures seems to contribute to a virtuous circle of enhanced innovative activity. For instance, Kortum and Lerner (2000) found that while companies backed by venture capital accounted for less than 3 percent of U.S. corporate R&D between 1983 and 1992, they were responsible for 8 percent of industrial innovations. Moreover, not only have venture capital firms been historically attracted to pockets of innovative activity, but also tended to emerge wherever there are knowledge, technology and innovations in the first place and contributed to making those locations even more innovative (Florida and Kenney, 1988; Kenney, et al., 2002; Stuart and Sorenson, 2003). Therefore, existing venture capital firms tend to spring from, and to focus their funding activities on, locations rich in knowledge, technology and innovation. Hence, we predict:

> Hypothesis 1: Entries by a foreign venture capital firm increase with the local level of knowledge and technology (national system of innovation).

Supporting Institutions

The mere existence of opportunities, however, does not guarantee that any investor, whether local or foreign, can profitably exploit them. New venture finance is a peculiar activity in that it requires a "leap of faith" (Gompers and Lerner, 2001:87). Venture capital activity occurs only when the obligations and rights of the various parties involved are specified in a way that maximizes the chances that the venture will succeed, and when monitoring and enforcement mechanisms are available to ensure that some kind of commercial activity obtains and, eventually, an initial public offering (IPO) or buyout takes place. This chain of events is only possible in the presence of appropriate legal, financial and political institutions. The most important legal institution is corporate law, which specifies the rights and obligations of owners and managers. The existence of large and active equity markets is required in order to materialize the venture capitalist's preferred exit option, namely, the IPO. Finally, political institutions need to provide a dose of stability so as to placate investors' fears about future changes in rules and regulations. Let us analyze each of these in turn.

Legal Institutions: Corporate Law. One of the central tenets of comparative organizational and economic sociology is that the modern economy is built on the foundations provided by the legal order. Weber (1978:328-329) observed that although "in most business transactions it never occurs to anyone even to think of taking legal action, […] economic exchange is quite overwhelmingly guaranteed by the threat of legal coercion. The normal intention in an act of exchange is to acquire certain subjective 'rights'." Thus, legal guarantees both contribute to, and are shaped by, economic interests. As a result, business organizations and

investors more generally prefer to operate in legal environments in which they can safely engage in transactions.

Recent research on the contractual relationship between entrepreneur and venture capitalist highlights that the latter seeks to diversify its holdings by investing small amounts in any one venture, and to delegate control to the entrepreneur during the normal course of operations, but to reassert its rights as owner when things take a turn for the worse. This combination of goals makes the separation of cash-flow, control and liquidation rights a useful strategy from the standpoint of the venture capitalist (Lerner and Schoar, 2005). In the United States, venture capitalists have refined over the years the contractual provisions that help them diversify their holdings across multiple ventures, encourage each entrepreneur to perform well with a view to a capital gain at exit, and protect the value of their investment in case of liquidation (Sahlman, 1990; Gompers and Lerner, 2000; Gompers and Lerner, 2001). The United States, however, provides a legal environment for the development of venture capital activity that is not present in every country around the world. Thus, the transfer to other countries of the contractual arrangements and operational routines specifically developed for the United States may prove problematic (Bottazzi, et al., 2005; Kaplan, et al., 2005; Lerner and Schoar, 2005). In particular, the limited partnership form and the reliance on convertible preferred stock are innovations that reflect features of the American legal and organizational landscape, and that provided the foundation for the growth of the venture capital industry (Sahlman, 1990; Gompers and Lerner, 2001). Recent research on the European venture capital industry emphasizes that differences in legal systems hinder cross-border investments (Baygan and Freudenberg, 2000; Mäkelä and Maula, 2005b). Given differences in laws and regulations, the venture capitalist may prefer to operate in countries that offer the best protection of investors' rights.

Comparative legal scholarship (Reynolds and Flores, 1989; Glendon, Gordon and Osakwe, 1994) and more recent economic analyses (La Porta, et al., 1998; La Porta, Lopez-de-Silanes and Shleifer, 1999) have documented that owners' interests receive different degrees of legal definition and protection, specifically against the decisions of the incumbent entrepreneur or management team. This line of research argues that owners' rights are defined and protected in varying ways and to different degrees depending on the legal tradition that provides the foundation for corporate law: (1) English common law, (2) French, (3) German, (4) Scandinavian, and (5) formerly socialist law. The English common law tradition is shaped by the decisions of judges ruling on specific issues, or, as Weber (1978:890) put it, "English legal thought is essentially an empirical art." By contrast, the French and German traditions emerged from Roman civil law, which "uses statuses and comprehensive codes as a primary means of ordering legal material" (La Porta, et al., 1998:1118). The French Commercial Code was issued by Napoleon in 1807, while the German Commercial Code was adopted in 1897 under Bismarck's influence. Scandinavian legal systems are in part based on civil law. Organizational researchers have also paid attention to similar cross-national differences in the legal order. They have explored, for instance, the effects of the legal constitution of individuals as sovereign actors in the Anglo-Saxon tradition as producing an environment in which business in general and stockholders in particular find themselves in a privileged position, especially relative to the "statist" or "corporatist" models pioneered by the Continental European countries (Jepperson and Meyer, 1991).

English, French, and German corporate law diffused widely throughout the world following patterns of imperial, military, economic, or cultural influence, which has resulted in varying degrees of protection of owners' rights. Thus the former British colonies—including the

U.S., Canada, Australia, Ireland, Singapore, and many others in Africa and South Asia—adopted English common law. French law spread not only to the francophone colonies in the Middle East, Africa, Indochina, Oceania, and the Caribbean but also to the Netherlands, Portugal, Spain, Italy, and their respective colonies. The German legal tradition shaped corporate laws in Austria, Switzerland, Greece, Hungary, Yugoslavia, Japan, Korea, Taiwan, and China, among other countries. Lastly, the former socialist countries constitute a separate category because their legal systems, though in many cases influenced by either French or German law, have been in flux since 1989 and have largely failed to provide a sound basis for effective corporate governance (Spicer, McDermott and Kogut, 2000).

A comparative analysis of corporate legal traditions reveals that the best protection of owners' rights is awarded by English common law, followed by Scandinavian and German law, while the French legal tradition provides the worst protection. Research has also demonstrated that enforcement of owner protections and dispute-resolution time differs greatly from country to country, and that both variables are highly correlated with the level of legal protection itself (Djankov et al., 2003). Thus, de jure and de facto owners' rights are effectively better protected in countries that adopted English common law.

The available cross-national micro evidence on venture capital contracts in developing and high-income countries indicates that private equity investors in general, and venture capitalists in particular, respond to legal regimes offering poor protection by relying to a much greater extent on common stock and debt as opposed to convertible preferred stock (Bottazzi, et al., 2005; Lerner and Schoar, 2005), by increasing the size of their equity stakes (Lerner and Schoar, 2005), and by maximizing their presence on the venture's board of directors (Lerner and Schoar, 2005), although other studies find less of a tendency to exercise board control in

countries with poor investor protection (Bottazzi, et al., 2005; Cumming, et al., 2005). Taken together, this set of results parallels the finding that legal tradition affects patterns of corporate ownership in general (La Porta, et al., 1999). In essence, when investing in common-law countries, venture capitalists are generally more comfortable with lower levels of control given that they can more easily achieve minority shareholder protection through contractual provisions such as convertible preferred equity, anti-dilution clauses, automatic conversion, and supermajority rules (Lerner and Schoar, 2005). Moreover, better investor protections are also associated with faster deal origination (Cumming, et al., 2005). It should be noted, however, that some empirical studies (e.g. Kaplan, et al., 2005) found legal effects to disappear when venture capital firm-specific characteristics are taken into account. As we point out in the discussion section, however, neither of the studies mentioned above corrects for the self-selection bias that may accrue when venture capitalists systematically avoid funding otherwise attractive ventures just because they are located in a country with poor investor protection, thus resulting in an econometric underestimation of the impact of legal tradition.

Based on this analysis and evidence, we argue that venture capitalists are discouraged from investing in countries with a legal framework not based on common law for several reasons. First, larger equity stakes constrain the ability of the venture capital firm to diversify its portfolio, thus lessening the attractiveness of providing funds to a venture located in a country that affords poor owner protection. Second, entrepreneurs' appetite for venture capital funding may also decline because of the additional cash-flow and control rights required by the venture capitalist. Third, research on private equity in general has shown that venture valuations tend to be greater in common-law countries (Lerner and Schoar, 2005), another aspect that may discourage investment in countries with a different legal tradition. For these reasons, we propose:

Hypothesis 2: Entries by a foreign venture capital firm will be greater in English common-law countries than elsewhere (legal institutions).

Financial Institutions: Equity Markets. Venture capitalists do not indefinitely hold on to the equity in the entrepreneurial venture but rather seek to realize capital gains (and distribute them to the limited partners) by exiting the investment, typically through IPOs, which historically represent the majority of venture returns (Gompers and Lerner, 2000). Unlike other types of firms, who tend to have a long-term interest in exercising managerial control over the invested company so as to secure an input, produce more efficiently or access a market, venture capital firms set up funds with a time horizon of about a decade (Gompers and Lerner, 2001). Hence, the size and dynamism of the equity market in the country in which the venture is located signals better prospects for a successful exit, thus providing incentives for investment (Black and Gilson, 1998; Leachman, et al., 2002). As venture capitalists exit investments successfully, they can help investors recycle capital towards new opportunities. Well developed stock markets also provide a means to show performance and profitability to potential investors, thus helping venture capital firms attract contributions to their funds (Black and Gilson, 1998).

Countries, however, differ massively in terms of equity market development. In some countries bank credit and other forms of debt play a much more important role in corporate financing (Whitley, 1992; Steinherr and Huveneers, 1994). While the average debt-equity ratios for non-financial companies barely exceed 100 percent in countries such as Austria, Canada, the Netherlands, the United Kingdom or the United States, they range between 130 and 170 percent in countries in which banks are more central players, like Finland, Sweden, Belgium, France, Spain, Germany or Taiwan. In Italy, Japan or South Korea the average ratios are as high as 300

or even 400 percent. Within OECD countries (plus Taiwan) these differences have fluctuated over time from a standard deviation just below 100 in the late 1960s to a high of 167 in 1982 and back to about 100 in the mid 1990s (Guillén, 2000). As a result of these patterns of corporate financing, total stock market capitalization as a percentage of GDP ranges from as low as 15 in Poland, 26 in India, 27 in Brazil, 35 in Germany, 37 in China, 44 in Israel and 46 in South Korea, to 68 in France or 71 in Chile, and to 106 in the United States and 119 in the United Kingdom, to name but a few examples.

Naturally, ventures backed by U.S. capital could also go public on the Nasdaq or the NYSE instead of the local stock market in the home country. However, the rule continues to be that most venture capital-backed companies go public in their country of origin. The dataset used in this paper includes 920 foreign ventures funded by at least one U.S. venture capital firm between 1991 and the end of 2002. We analyzed the IPO history of a subsample of 717 ventures, of which 68 went public at some point after the U.S. venture capital firm invested and before the end of our observation period. Only 24 of the 68 ventures went public on the Nasdaq or the NYSE (just one). Five of the 24 went public in the local stock market as well, and two Israeli ventures did so in Germany or Switzerland in addition to the United States. Thus, only 25 percent of the 717 U.S.-backed foreign ventures that went public did so exclusively in the United States, a finding consistent with the existing literature on corporate finance (e.g. Megginson, Smart and Gitman, 2004). Given the importance of the development of the local stock market for the attraction of capital to venture funds and for the realization of capital gains, we formulate:

> Hypothesis 3: Entries by a foreign venture capital firm increase with the development of the local equity market (financial institutions).

Political Institutions: Policy Stability. Political institutions are a key determinant of the attractiveness of a location from the vantage point of a foreign economic actor. As Cyert and March (1963) pointed out, organizations in general prefer to avoid high-uncertainty alternatives. Accordingly, the venture capital firm would generally prefer to invest in countries with low political hazards. The reason is that the existence of investment opportunities, the presence of appropriate legal institutions protecting investors' rights, and the availability of channels to realize capital gains do not preclude the possibility that local policymakers might be tempted to change laws, rules or regulations concerning any or all of those three aspects in order to appropriate investors' gains in full or in part. As institutional theorists argue, laws, rules and regulations are seldom completely objective, rational and unambiguous (Scott, 2001:169-170). The extent to which laws, rules and regulations can potentially be reinterpreted creates uncertainty for the regulated.

The established literature in this area points out that political hazards arise when the government's commitment to a set of rules for doing business in the host country (e.g. product and price regulations, taxation, property rights, etc.) can easily change either because the rules can be rapidly altered or because they can be reinterpreted in a way that changes their effects (Henisz and Williamson, 1999; Henisz, 2000a). This unpredictability may be caused by opportunistic behavior on the part of the local government itself when it tries to expropriate the investor by changing laws and regulations (direct political hazards), or on the part of a local partner or competitor lobbying the government to make changes detrimental to the interests of the investor (indirect political hazards).

Henisz (2000a; 2000b) proposes to empirically measure political hazards as a structural attribute of countries that may change over time. His indicator of "political constraints" captures

"a government's ability to credibly commit not to interfere with private property rights," a concept first advanced as relevant to the study of capital investment by North and Thomas (1973) (see also North, 1990). Henisz's political constraints index is based on positive political theory, and incorporates information on the number of independent branches of government with veto power (executive, higher legislature, lower legislature, judiciary, subnational governments), and the distribution of preferences across and within those branches. The index increases with the number of de jure veto points in the political system, the degree to which veto points are controlled by different parties (i.e. when the various branches of government are not aligned), and the extent to which preferences of the decision maker who can potentially change the conditions for foreign investment are aligned with party preferences within the legislature or the judiciary, tempered by the fact that party preferences may be more or less fractionalized.

Foreign investors, including venture capitalists, should anticipate little change in relevant regulations or property rights protections, or in their interpretation, to the extent that policymaking is subject to institutional constraints, thus providing for a more stable political environment for investment. The empirical evidence confirms that firms prefer to do business in countries with low political hazards (Henisz and Delios, 2001). Thus, we formulate:

> Hypothesis 4: Entries by a foreign venture capital firm increase with the local level of policy stability (political institutions).

Inter-Organizational Networks

The environment of the firm is not only shaped by institutions of a technological, legal, financial or political kind. Neo-institutional theory and network analysis highlight that firms interact with each other in a variety of ways, resulting in patterns of control, exchange, and

imitation. Interconnected firms share information and experience, might feel peer pressure to engage in mimetic behavior, and are likely to find a common ground for justifying the adoption of similar practices or strategies (DiMaggio and Powell, 1983; Tolbert and Zucker, 1983). Information and stimuli flowing through inter-organizational networks provide firms with clues as to new opportunities for action or for exchange. They also contribute to forming a shared understanding of the norms of behavior that every firm in the inter-organizational network ought to observe. Several studies have shown that organizations sharing a director on their boards, holding a stake in each other's equity or depending on the same sources for critical resources tend to adopt similar patterns of behavior (Davis, 1991; Burns and Wholey, 1993; Haunschild, 1993; Davis and Greve., 1997; Westphal, Gulati and Shortell, 1997; Hong and Page, 2001).

Research on the foreign expansion of the firm has also argued and demonstrated that interconnected firms follow each other to foreign locations (Henisz and Delios, 2001; Guillén, 2002). In addition to the normative effect of social networks, these studies propose that a focal firm connected to another with a presence in a foreign country may learn two kinds of precious information. First, the focal firm may not have realized the extent to which there is an opportunity in the foreign country (Aharoni, 1966). Second, even if the focal firm is aware of the foreign opportunity it may not exactly know how to pursue it. Establishing foreign operations requires negotiations with governments, suppliers, distributors, and customers, and a labor force needs to be hired and trained. The access to the experience of other interconnected firms with a presence in the foreign country facilitates the identification and pursuit of opportunities.

One of the most distinctive characteristics of the venture capital industry is that firms tend to co-invest with others. They do so in order to share information, resources, expertise, and risks (Gompers and Lerner, 2000; Gompers and Lerner, 2001; Sorenson and Stuart, 2001;

Castilla, 2005; Hochberg, Ljungqvist and Lu, 2005). The widespread practice of syndicating venture capital investments raises the question of whether such collaborations affect patterns of international expansion. Interviews and reports published by national venture capital associations indicate that venture capital firms accustomed to investing relatively close to their offices find it useful to learn about what other actors, including their syndication partners, do in farther locations, especially foreign ones. In general, syndication helps venture capital firms economize on time and obtain corroborative information about their own decisions. Moreover, the syndication network also provides its members with a shared sense of what actions are appropriate or advisable (Podolny, 2001; Piskorski and Anand, 2005). These benefits of syndication extend not only to domestic but also to international deals. For both informational and normative reasons, one would expect venture capital firms to be no different than other types of organizations in their tendency to follow their interconnected peers to foreign locations. Thus, we propose:

> Hypothesis 5: Entries by a foreign venture capital firm increase with the number of ventures that its syndication partners have funded in the same country in the past (network effect).

Data and Methods

We test the effects of institutions and inter-organizational networks on foreign entry with information on U.S. venture capital firms and their investments between 1990 and 2002. The U.S. venture capital industry grew significantly during this period, in terms of both capital available for investment and the number and amount of actual investment. Activity in the U.S. and abroad peaked in the year 2000, which lies within our period of observation. We compiled

the venture capital investment data from the VentureXpert database provided by Venture Economics,[6] which collects information through an annual survey of over one thousand private equity partnerships in the U.S. This database has been used extensively in venture capital research (Barry et al., 1990; Sahlman, 1990; Megginson and Weiss, 1991; Gompers and Lerner, 2000; Shane and Stuart, 2001). Although it tends to oversample investments in California companies, most of the concerns about VentureXpert's quality have to do with issues surrounding capital disbursed and valuations (Kaplan, et al., 2005), which are not the focus of this paper.

Given that our analysis focuses on the foreign investments of venture capital firms, we observed a sample of 1,010 U.S.-domiciled firms between 1990 and 2002. Each of these firms has a substantial presence in the venture capital industry, although some of them also do other forms of later-stage private equity. In order to capture causal relationships between the dependent variable and the independent variables, we lag all independent variables by one year. We therefore examine empirically investments over the twelve-year period between 1991 and 2002. As of the end of 2002, 216 of the 1,010 venture capital firms made 1,714 rounds of investment in 920 ventures located in 40 different foreign countries. The largest investors were Warburg Pincus, Advent International Corporation, and Japan/America Ventures. The distribution of rounds by investment stage is as follows: startup or seed (6 percent), early stage (22), expansion (51), later stage (7), buyout or acquisition (7), and other (6). We included all of these rounds in our primary analysis and then checked if excluding the latter three categories

[6] VentureXpert includes "standard U.S. venture investing" in portfolio companies, as long as the company is domiciled in the U.S., at least one of the investors is a venture capital firm, venture investment is a primary investment, and it entails an equity transaction.

affected the results. We excluded from all analyses 17 investments in companies that had gone public before the U.S. venture capital firm invested.

Dependent Variable and Unit of Analysis. The dependent variable is a non-negative integer count of venture capital investments in each country during a given year. We used two different ways of constructing the dependent variable. First, we took into consideration the first round of investment in each venture undertaken by each venture capital firm i in each country j and year t, yielding 688 nonzero combinations because some of the 920 foreign ventures obtained funding in the same country-year. Second, we considered each investment round as a separate investment by each venture capital firm in a given country-year, yielding 897 nonzero combinations. (Again, some of the 1,714 rounds of investment took place in the same country-year). We obtained reasonably complete background data on 95 countries. Hence, the potential number of venture capital firm-country-year combinations is 1,151,400 (1,010 firms × 95 countries × 12 years). However, due to the fact that many venture capital firms were founded or became inactive during the observation period, and to missing background data for some country-years, our sample for analysis includes 517,981 observations.

Independent Variables. We use two separate indicators to measure the availability of innovative opportunities in country j: the number of patents granted by the U.S. Patent and Trademark Office to establishments in country j during year t-1, and the number of scientific and technical articles authored by residents of country j during year t-1 as compiled by the Institute of Scientific Information. Patents and articles are widely used empirical indicators of the performance of national systems of innovation (Kumaresan and Miyazaki, 1999; Furman, et al., 2002; Guler, Guillen and Macpherson, 2002; Noisi, 2002), although they do not capture the full extent of innovative activity (Nelson and Rosenberg, 1993). They are especially well-suited to a

study of the factors that attract U.S. venture capital firms to foreign locations because they are the result of both the level of inputs and the productivity of the system. It is also important to note that the U.S. Patent and Trademark Office and the Institute of Scientific Information are sources of information on knowledge, technology and innovation routinely used by U.S. venture capital firms. We obtained the patent data from the NBER database (Hall, Jaffe and Trajtenberg, 2001), and the publication data directly from the Institute of Scientific Information's Science Citation Index. We normalized both measures by the GDP of each country j as of time t-1.

We used various sources to calculate the indicators of supporting institutions. In order to capture the effect of legal institutions, we use La Porta et al.'s (1998) classification of countries according to legal tradition, omitting common-law countries for ease of interpretation. We measure the level of development of the local stock market with total market capitalization as a percentage of GDP (World Bank, 2004). We also considered the stock market turnover ratio and changes in the numbers of listed companies as further indicators of the availability of exit options.[7] Finally, we measure political institutions with the political constraint index, which captures the constraints on policymakers to unilaterally change the policy regime (Henisz, 2000b). A higher number of independent government branches that have veto power over a policy change in a country reduces the political hazard. This indicator ranges between 0 (most hazardous) and 1 (most constrained, i.e. stable). The political constraint index is historically highly correlated with the risk indexes included in the International Country Risk Guide (ICRG, 1996), and with the seven-point index of executive constraints of the Polity Database (Gurr and

[7] We also considered using the data on IPO activity compiled by the World Federation of Exchanges (http://www.fibv.com). Unfortunately, it covers fewer than 50 countries since the mid-1990s only.

Jaggers, 2000). Unlike these other indicators, however, the political constraint index is forward looking in that it assesses the possibility that policy will be constrained rather than the government's historical record of doing so.

So as to assess the effect of inter-organizational networks, we constructed a measure of the extent to which the focal firm's syndication partners have invested in each foreign country j as of t-1. We followed a three-step procedure. First, we identified the syndication ties between each pair of venture capital firms in our sample as of each year t-1. If the pair of venture capital firms did not invest together in the United States during t-1, we entered a code of zero. Otherwise, we entered a code of one. We organized this information as a matrix with 1,010 rows for each venture capital firm in our sample and 216 columns for each of the venture capital firms that invested abroad at least once. (Note that as far as the influence on foreign investing behavior is concerned, the network information on the non-investing venture capital firms is not relevant, thus reducing the complexity of our calculations.) Second, we identified the investments undertaken by each of the 216 venture capital firms in each of 95 countries, cumulative as of the end of year t-1. We arranged this information as a matrix with 216 rows for each foreign investing venture capital firm and 95 columns for each foreign country. Third, and taking advantage of the fact that the first matrix has a number of columns (investing firms) that is exactly the same as the number of rows in the second matrix (also investing firms), we multiplied the two matrices, yielding another matrix with the total of 1,010 venture capital firms as rows, and the 95 countries as columns. After repeating this operation for each lagged year t-1 between 1990 and 2001, we obtained a time-varying measure of the effect of syndication ties with previously investing firms in each country. It is important to note that this variable is uniquely defined and calculated for each venture capital firm-country-year combination. In our

sample, it ranges between a minimum of zero (for combinations in which no syndication partner, if the firm had any, invested in the country as of t-1), and a maximum of 36.

Firm-Level Control Variables. We included in all models two firm-level controls. First, we included the number of ventures funded by the venture capital firm in the United States as of year t-1 in order to account for unobserved firm heterogeneity in terms of skills or capabilities, what researchers have called venture capital firm "sophistication" (Gompers and Lerner, 2000:236; Bottazzi, et al., 2005; Kaplan, et al., 2005). Second, we also included the number of ventures funded by the venture capital firm in foreign countries as of year t-1, which controls both for unobserved firm heterogeneity in general, and for the propensity to invest abroad in particular.

Country-Level Control Variables. We included a control for the size of the economy, measured as GDP in constant 1995 U.S. dollars (World Bank, 2004). We also control for other sources of unobserved cross-national heterogeneity in the first stage of our estimation procedure (see below).

Year Controls. We also included a year trend, a full set of year dummies, or both a linear and a quadratic term for year in order to control for time.

Estimation Method. The usual approach in estimating models with a non-negative count as the dependent variable is to assume that the error structure follows a Poisson distribution (Cameron and Trivedi, 1998). However, the dependent variable exhibits a large number of zero counts since the dataset includes all possible venture capital firm-country-year combinations. In such cases, where overdispersion may occur as a result of excess zeros, a zero-inflated count model can be used. Zero inflated count models assume that the process generating the excess zeros is qualitatively different from the process that generates the non-zeros (Greene, 1997; Tu,

2002). Since our data contain evidence of excess zeros as well as overdispersion due to unobserved heterogeneity, we estimated the number of investments by venture capital firm i in country j during year t with a zero-inflated negative binomial model, nested within a logit model estimating the likelihood of zero investments for the venture capital firm-country pair during year t. In estimating the probability of zero investments, we used two predictor variables as well as a year control. The first variable is the cumulative number of ventures that U.S. venture capital firms had funded in country j as of year t-1. This measure accounts for unobserved cross-national differences in taxes and other incentives, for which available data only covers the OECD countries (Jeng and Wells, 2000). The second variable is the cumulative number of foreign countries entered by venture capital firm i as of year t-1, which serves as an additional control for firm heterogeneity concerning the pursuit of foreign opportunities and for a greater propensity to go abroad. Finally, since multiple observations for the same venture capital firm may create correlations between the error structure and the independent variables, we estimated all models with the Huber-White-Sandwich estimator of variance yielding robust standard errors, clustered on the venture capital firms.

Descriptive Statistics. Table 1 shows the distribution of rounds and ventures by year between 1991 and 2002. The numbers increase until the peak year of 2000, although with some ups and downs. Thus, our data for analysis includes the beginnings of foreign venture capital investing, the boom years, and the decline during the early 2000s. Table 2 indicates that the most important recipients of U.S. foreign venture capital investment were rich countries such as the United Kingdom, Canada, France, Germany, Israel and Japan. Among emerging economies, India and China were the most important destinations. Tables 3 and 4 display the sample descriptive statistics and the correlations, which are based on the sample of 517,981 venture

capital firm-country-year observations. Most of the pairwise correlations are very low. The few exceptions involve the number of U.S. patents, which is highly correlated with some of the legal tradition dummies, stock market capitalization, and political constraints. The results reported below are robust to the removal of one, two or three of these variables, indicating that the multicolinearity does not affect the results.

Results

Table 5 displays the zero-inflated negative binomial results, using different right-hand specifications. The overdispersion parameter is significant in all models (not shown), indicating that one cannot assume equal mean and variance. Hence, the negative binomial model is appropriate. We also conducted Vuong tests in order to compare the estimates of the zero-inflated and non-nested negative binomial models. The test statistics are significantly larger than zero for each of the models we estimated, confirming that at least some of the unobserved heterogeneity is due to an excess zero count. Thus, correcting for zero-inflation is appropriate.

The results of the first-stage logit analysis predicting zero counts appear at the bottom of the table. Both the cumulative number of ventures in each country funded by U.S. venture capital firms as of year t-1, and the cumulative number of countries entered by each venture capital firm as of year t-1 are significant. The negative signs mean that the two variables reduce the likelihood of zero counts. The year trend is not significant.

The results of the second-stage negative binomial regressions predicting the numbers of ventures or rounds invested lend support to four of our five predictions. The first models include the control variables and the measures for opportunities (columns 1-4). The second set of

specifications adds the legal tradition dummies (columns 5-8). French legal tradition countries attract less investment than the omitted English common law countries, although the effect does not reach significance when using rounds as the dependent variable. Formerly Socialist countries consistently attract less U.S. venture capital investment. However, the effects of the legal tradition dummies largely vanish when stock market capitalization and political constraints are included in the equation (columns 9-12). Finally, columns 13-16 show the fully specified models. They lend support to the predictions that the numbers of ventures and rounds invested by U.S. venture capital firms increase with local technology or knowledge (H1), the size of financial markets (H3), and policy stability (H4). As the number of ventures invested by the focal firm's syndication partners increase, so do its own investments, in support of the argument that the country-specific experience of syndication partners creates an informational and normative context that increases the focal firm's own investments (H5). It is important to note that these results are robust to using ventures or rounds as the basis for constructing the dependent variable.

The control variables behave as would be expected in most cases. The venture capital firm's U.S and international experience variables are both significant, although the former loses its explanatory power in the fully specified model. The size of the economy, contrary to expectation, does not seem to exert a consistent effect.

The results reported in Table 5 are robust to a number of manipulations in addition to the use of ventures or rounds as the basis for calculating the dependent variable. First, we included dummy variables controlling for the three most assiduous investors (Warburg Pincus, Advent International Corporation, and Japan/America Ventures). The results did not change. (It is important to note that all of the models reported in Table 5 already control for each venture capital firm's U.S. and international experience.) Second, we estimated each model excluding

from the dependent variable the 20 percent of rounds coded by VentureXpert as "late stage," "buyout/acquisition" or "other." Again, the results were similar in that patterns of significance for the five hypothesized variables did not change. Third, we explored other indicators for the size and vibrancy of the local equity market. In particular, we calculated for the 95 countries in the sample the net change in the number of listed firms from year t-1 to year t. This variable tended not to be significant. Fourth, we controlled for each venture capital firm's international experience in early-stage venture capital deals, measured as the number of early-stage and start-up investments in foreign countries as of year t-1, to account for the fact that early financing is more difficult to undertake over a long distance, i.e. in a foreign country (Wasserman, 2003). This variable was not significant, and the other results did not change. Fifth, we controlled for the domestic lending interest rate, as a proxy for investment conditions in each country. This variable was negative and significant, perhaps because high interest rates discourage local entrepreneurship in the first place. The hypothesized effects remained qualitatively similar. Sixth, we controlled for the number of students at U.S. universities who are nationals of each country j as of year t-1 to see if flows of skilled personnel between countries affected the pattern of investments. While this crude control variable exerted a significant and positive effect, it did not change the other results. Finally, we included a dummy variable indicating the 27 venture capital firms with the highest network centrality scores, as calculated by Piskorski and Anand (2005). This variable neither reached significance nor altered the pattern of statistical significance of our results.[8]

[8] It should be noted that, from a theoretical perspective, centrality may be correlated with the decision to go abroad, but not necessarily with the decision to invest in a specific foreign country, which is the question addressed in this paper. It is also important to realize that previous

The estimates reported in Table 5 are not only robust to a variety of changes in the model's specification and the inclusion of additional control variables, but also large in magnitude. Table 6 shows the effect on the number of ventures or rounds of a one standard deviation change in each of the significant independent variables. To gain some perspective, countries like Austria, Belgium, Canada, France, the Netherlands, Japan, Germany or the United Kingdom tend to score about one standard deviation higher on patents, publications, market capitalization or political constraints than countries such as Argentina, Brazil, Indonesia, Thailand, Malaysia, the Philippines, Poland or the Czech Republic. According to the estimates reported in Table 5, a one standard deviation change in U.S. patents leads to a 28.0 percent increase in the number of ventures invested and a 58.9 percent increase in the number of rounds. The estimated percent increases for scientific publications was 24.1 percent in the number of ventures (in the rounds model this variable did not reach significance). The estimated changes for stock market capitalization and for political constraints range between 28.9 and 50.1 percent, depending on the model. Finally, the network effect was also large. A one standard deviation change in the number of ventures invested in a country by the focal firm's syndication partners yields an increase of between 14.6 and 21.0 percent, depending on the model.

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research has found very high correlations between centrality and experience (we include U.S. and international experience variables in all of our analyses), ranging from .37 (Castilla, 2005; Hochberg, et al., 2005; Piskorski and Anand, 2005) to as much as .78 (Sorenson and Stuart, 2001).

Discussion and Conclusion

Institutions are essential to the unfolding of economic activity. Venture capital foreign expansion is no different in this respect. Our empirical results indicated that national innovation systems, financial markets and political institutions play an important role in facilitating the arrival of foreign venture capitalists. Like previous organizational research on interlocking directors, cross-shareholdings and other types of inter-firm networks, we found that the past foreign investment behavior of the focal firm's syndicate partners affected its own investment decisions. This result corroborates the importance of studying the foreign expansion of the firm in the context of the social structure in which it is embedded. Thus, our results confirm the central tenet in organizational theory that the environment of the firm is shaped not only by economic, legal, financial and political institutions with a long historical pedigree but also by the more immediate actions of the firm's peers. Organizations look for opportunities and supporting institutions, and take into account the experience of relevant peers, as they pursue foreign expansion.

The only disconcerting aspect of our empirical results had to do with legal institutions. Like Kaplan et al. (2005), we found that legal effects, especially the French legal tradition and the formerly Socialist dummies, tended to vanish when other variables were controlled for. This result is puzzling because U.S.-style venture capital contracts are not easy to implement in countries without common-law provisions. We suspect that the use of a time-invariant dummy variable to indicate legal effects is too crude a measure, although it is widely used in empirical research as the only indicator available for a large number of countries. Future research ought to develop definitions and measures of laws and regulations more specifically relevant to venture capital investing.

In spite of the little evidence in support of the legal argument, we believe that our research can help improve previous research on cross-national differences in venture-capital contracts. Our theoretical argument was that in countries with poor protection of investors' rights, venture capitalists will seek more control, but that greater stakes would interfere with the logic of portfolio diversification, thus discouraging investment. Research on the observed contractual arrangements between venture capitalists and entrepreneurs ought to control for the possibility that the former avoid certain countries because the legal system provides weak protections. Our approach and empirical evidence can be readily used to calculate the chances that a common-law firm will fund a venture in a country with a different legal regime, thus improving the chances of assessing the true effect of legal tradition on investment by taking into account the information provided by the non-occurrence of investments, i.e. by eliminating the self-selection bias.

Our empirical results have implications for both organizations and governments. The main lesson is that, as with other types of foreign investments, foreign location choice in venture capital is driven by a combination of factors, and not just by one magic bullet. A number of different institutions have large effects on the attractiveness of a foreign location. The results also suggest that the best way for a government to encourage venture capital investment from abroad is to introduce "horizontal" improvements in the scientific, financial, and political institutional infrastructures, i.e. reforms that benefit all firms and entrepreneurs as opposed to just a chosen few. The network effect of previous investments by the firm's syndication partners indicates that information and normative aspects are relevant to the decision of a venture capitalist to invest abroad. Hence, governments would be wise to make information about local opportunities and institutional mechanisms as widely available as possible, and to showcase the

experiences of previous foreign venture capital investors in order to encourage others to follow suit.

The research reported in this paper is limited in several respects. First, we only examined the foreign investments of U.S. venture capital firms, ignoring the fact that European firms are more internationally oriented, largely because of the small size of their individual home markets. Second, we considered only the investments made by firms with a significant commitment to venture capital, thus excluding from the analysis venture capital deals made by other types of U.S.-based investors. Third, we did not take into account whether the venture capital firm opened at some point an office in a foreign country, and the effect of such an action on subsequent investing behavior (although we controlled for the overall propensity to go abroad by means of an experience variable). Finally, we have not explored the possibility that the "diasporas" of U.S.-trained foreign scientists and engineers may play a role in helping countries attract U.S. venture capital. In one of our robustness checks, we found that the number of foreign students at U.S. universities classified by country of origin—arguably a crude and noisy indicator of this effect—was a significant predictor of venture capital investments in each foreign country. Hence, there is a need for more detailed studies of the backgrounds and training of the entrepreneurs involved in the foreign ventures that obtain venture capital funding from U.S. firms. These shortcomings offer opportunities to continue integrating research on venture capital with the literature on organizations, institutions, and networks.

References

Aharoni, Y.
1966 "The foreign investment decision process." Boston: Division of Research, Graduate School of Business Administration, Harvard University.

Barkema, Harry G., John H.J. Bell, and Johannes M. Pennings
1996 "Foreign entry, cultural barriers, and learning." Strategic Management Journal, 17: 151-166.

Barnett, William P., and David G McKendrick
2004 "Why are some organizations more competitive than others? Evidence from a changing global market." Administrative Science Quarterly, 49: 535-571.

Barry, C.B., J.W. Muscarella, J.W. III Peavy, and M.R. Vetsuypens
1990 "The role of venture capital in the creation of public companies: Evidence from the going public process." Journal of Financial Economics, 27: 447-471.

Baum, J., and Helaine J. Korn
1999 "Dynamics of dyadic competitive interaction." Academy of Management Journal, 20: 251-278.

Baygan, G., and M. Freudenberg
2000 "The internationalization of venture capital activity in oecd countries: Implications for measurement and policy." STI Working Papers no. 2000/7. Paris/OECD.

Becker, Ralf, and Thomas Hellmann
2003 "The genesis of venture capital: Lessons from the german experience." In C.Keuschnigg, and V.Kanniainen (eds.), Venture capital, entrepreneurship, and public policy. Cambridge: MIT Press.

Black, Bernard S., and Ronald J. Gilson
1998 "Venture capital and the structure of capital markets: Banks versus stock markets." Journal of Financial Economics, 47: 243-277.

Bottazzi, Laura, Marco Da Rin, and Thomas Hellman
2005 "What role of legal systems in financial intermediation? Theory and evidence." Working paper.

Burns, Lawton R., and Douglas R. Wholey
1993 "Adoption and abandonment of matrix management programs: Effects of organizational characteristics and interorganizational networks." Academy of Management Journal, 36: 106-138.

Cameron, A.C., and P.K. Trivedi
1998 Regression analysis of count data. Cambridge, UK: Cambridge University Press.

Campbell, John
2004 Institutional change and globalization. Princeton, NJ: Princeton University Press.

Castilla, Emilio J.
2005 "Venture capital firms and entrepreneurship: A study of start-up companies and their funding." Working Paper.

Caves, Richard E.
1996 Multinational enterprise and economic analysis. Cambridge: Cambridge University Press.

Cumming, Douglas J., Daniel Schmidt, and Uve Walz
2005 "Legality and venture capital governance around the world." Working paper.

Cyert, R.M., and J.G. March
1963 A behavioral theory of the firm. Englewood Cliffs, NJ: Prentice Hall.

Davis, Gerald F
1991 "Agents without principles? The spread of the poison pill through the intercorporate network." Administrative Science Quarterly., 36: 583-613.

Davis, Gerald F., and Henrich R. Greve.
1997 "Corporate elite networks and governance changes in the 1980s." American Journal of Sociology, 103: 1-37.

Delacroix, Jacques
1993 "The european subsidiaries of american multinationals: An exercise in ecological analysis." In S. Ghoshal, and E. Westney (eds.), Organizational theory and the multinational enterprise: 105-131. New York: McMillan.

DiMaggio, Paul J., and Walter W. Powell
1983 "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields." American Sociological Review, 48: 147-160.

Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer
2003 "Courts." Quarterly Journal of Economics, 118: 453-517.

Dobrev, Stanislav D., Tai-Young Kim, and Michael T. Hannan
2001 "Dynamics of niche width and resource partitioning." American Journal of Sociology, 106: 1299-1337.

Fenn, G. W., N. Liang, and S. Prowse
1997 "The private equity market: An overview." Financial Markets and Instruments, 6: 1-106.

Florida, Richard, and Martin Kenney
1988 "Venture capital and high technology entrepreneurship." Journal of Business Venturing, 3: 301-319.

Freeman, Chris
2002 "Continental, national and sub-national innovation systems—complementarity and economic growth." Research Policy, 31: 191-211.

Furman, Jeffrey L., M. E. Porter, and Scott Stern
2002 "The determinants of national innovative capacity." Research Policy: 899-933.

Glendon, Mary Ann, Michael W. Gordon, and Christopher Osakwe
1994 Comparative legal traditions. St. Paul, MN: West.

Gompers, Paul, and Josh Lerner
2000 The venture capital cycle. Cambridge, MA: MIT Press.

2001 The money of invention: How venture capital creates wealth. Boston, MA: Harvard Business School Press.

Greene, William H.
1997 Econometric analysis. 3rd ed. Upper Saddle River, NJ: Prentice-Hall.

Greve, Henrich R.
1998 "Managerial cognition and the mimetic adoption of market positions: What you see is what you do." Strategic Management Journal, 19: 967-988.

Guillén, Mauro F, and Sandra L. Suárez
2005 "The institutional context of multinational activity." In S. Ghoshal, and E. Westney (eds.), Organization theory and the multinational corporation. New York: St Martin's (forthcoming).

Guillén, Mauro F.
1994 Models of management: Work, authority and organization from a comparative perspective. Chicago: University of Chicago Press.

2000 "Corporate governance and globalization: Is there convergence across countries?" Advances in Comparative International Management, 13: 175-204.

2002 "Structural inertia, imitation, and foreign expansion: South korean firms and business groups in china, 1987-1995." Academy of Management Journal, 45: 509-525.

Guler, Isin
2003 "A study of decision making, capabilities, and performance in the venture capital industry." Dissertation, University of Pennsylvania.

Guler, Isin, Mauro F Guillen, and J. Muir Macpherson
2002 "Global competition, institutions, and the diffusion of organizational practices: The international spread of the iso 9000 quality certificates." Administrative Science Quarterly, 47: 207-232.

Gurr, Ted Robert, and Keith Jaggers
2000 "Polity98 project: Regime characteristics, 1800-1998."

Hall, Bronwyn H., Adam B. Jaffe, and Manuel Trajtenberg
2001 "The nber patent citations data file: Lessons, insights and methodological tools." NBER Working Paper Series: 8498.

Hall, Graham, and Ciwen Tu
2003 "Venture capitalists and the decision to invest overseas." Venture Capital, 5: 181-190.

Hannan, Michael T, Glenn R Carroll, Elizabeth A Dundon, and John Charles Torres
1995 "Organizational evolution in a multinational context: Entries of automobile manufacturers in belgium, britain, france, germany, and italy." American Sociological Review, 60: 509-528.

Hansen, Morten T.
1999 "The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits." Administrative Science Quarterly, 44: 82-111.

Haunschild, Pamela R.
1993 "Interorganizational imitation: The impact of interlocks on corporate acquisition activity." Administrative Science Quarterly, 38: 564-592.

Haveman, Heather A.
1993 "Follow the leader: Mimetic isomorphism and entry into new markets." Administrative Science Quarterly, 38: 593-627.

Henisz, Witold J.
2000a "The institutional environment for economic growth." Economics and Politics, 12: 1-31.

2000b "The institutional environment for multinational investment." Journal of Law, Economics and Organization, 16: 334-364.

Henisz, Witold J., and Andrew Delios

2001 "Uncertainty, imitation, and plant location: Japanese multinational corporations, 1990-1996." Administrative Science Quarterly, 46: 443-475.

Henisz, Witold J., and Jeffrey T. Macher
2004 "Firm- and country-level trade-offs and contingencies in the evaluation of foreign investment: The semiconductor industry, 1994-2002." Organization Science, 15: 537-554.

Henisz, Witold J., and Oliver E. Williamson
1999 "Comparative economic organization—within and between countries." Business and Politics, 1: 261-277.

Hochberg, Yael, Alexander P. Ljungqvist, and Yang Lu
2005 "Whom you know matters: Venture capital networks and investment performance." Working paper.

Hong, Lu, and Scott E. Page
2001 "Problem solving by heterogeneous agents." Journal of Economic Theory, 97: 123-163.

Hymer, Stephen
1960 The international operations of national firms: A study of foreign investment. Cambridge, MA: MIT Press.

ICRG
1996 International country risk guide: Political and financial risk tables. East Syracuse, NY: Political Risk Services Group.

Jeng, Leslie A., and Phillippe C. Wells
2000 "The determinants of venture capital funding: Evidence across countries." Journal of Corporate Finance, 6: 241-289.

Jepperson, Ronald L., and John W. Meyer
1991 "The public order and the construction of formal organizations." In P. J. DiMaggio, and W. W. Powell (eds.), The new institutionalism in organizational analysis. Chicago: The University of Chicago Press.

Kaplan, Steven N., Frederic Martel, and Per Stromberg
2005 "How do legal differences and learning affect financial contracts?" Working Paper.

Kenney, Martin, Kyonhee Han, and Shoko Tanaka
2002 "Venture capital industries in east asia." Davis, CA: World Bank Report.

Kindleberger, C.P.
1969 American business abroad. New Haven: Yale University.

Kogut, Bruce, and Sea Jin Chang
1991 "Technological capabilities and japanese foreign direct investment in the united states." Review of Economics & Statistics, 73: 401-413.

Kogut, Bruce, and Udo Zander
1993 "Knowledge of the firm and the evolutionary theory of the multinational corporation." Journal of International Business Studies, 24: 625-645.

Kortum, S., and J. Lerner
2000 "Assessing the contribution of venture capital to innovation." Rand Journal of Economics, 31: 2000.

Kumaresan, Nageswaran, and Kumiko Miyazaki
1999 "An integrated network approach to systems of innovation—the case of robotics in japan." Research Policy, 28: 563-585.

La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer
1999 "Corporate ownership around the world." Journal of Finance, 54: 471-517.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny
1998 "Law and finance." Journal of Political Economy, 106: 113-155.

Leachman, L., V. Kumar, and S. Orleck
2002 "Explaining variations in private equity: A panel approach." Duke Journal of Economics, 14.

Lerner, Josh, and Antoinette Schoar
2005 "Does legal reinforcement affect financial transactions? The contractual channel in private equity." Working paper.

Mäkelä, Markus, and Markku V.J. Maula
2005b "Attracting cross-border venture capital: The role of a local investor." Helsinki University of Technology, Working Paper.

Manigart, Sophie, Koen De Waele, Mike Wright, Ken Robbie, Philippe Desbrieres, Harry J. Sapienza, and Amy Beekman
2000 "Venture capitalists, investment appraisal and accounting information: A comparative study of the USA, uk, france, belgium and holland." European Financial Management, 6: 389-403.

Martin, Xavier, Anand Swaminathan, and Will Mitchell
1998 "Organizational evolution in the interorganizational environment: Incentives and constraints on international expansion strategy." Administrative Science Quarterly, 43: 566-601.

Megginson, W.L., and K.A. Weiss
1991 "Venture capitalist certification in initial public offerings." Journal of Finance, 46: 879-903.

Megginson, W.L., Scott B. Smart, and Larry J. Gitman
2004 Corporate finance. Cincinnati: Southwestern Publishing Company.

Nelson, Richard R., and Nathan Rosenberg
1993 "Technical innovation and national systems." In R. R. Nelson (ed.), National innovation systems: 3-21. New York: Oxford University Press.

Noisi, J.
2002 "National systems of innovation are "x-efficient" (and x-effective). Why some are slow learners." Research Policy, 31: 291-302.

North, Douglass C.
1990 Institutions, institutional change and economic performance: Cambridge University Press.

North, Douglass C., and R.P. Thomas
1973 The rise of the western world: A new economic history. Cambridge: Cambridge University Press.

Patel, Parimal, and Keith Pavitt
1994 "National innovation systems: Why they are important, and how they might be measured and compared." Economics of Innovation & New Technology, 3: 77-95.

Piskorski, Mikolaj Jan, and Bharat Anand
2005 "Resources, power, and prestige: Formation of structural inequality in social exchange networks." Working Paper.

Podolny, Joel M.
2001 "Networks as the pipes and prisms of the market." American Journal of Sociology, 107: 33-60.

Podolny, Joel M., Toby E. Stuart, and Michael T. Hannan
1996 "Networks, knowledge, and niches: Competition in the worldwide semiconductor industry, 1984-1991." American Journal of Sociology, 102: 659-689.

Porter, Michael
1990 The competitive advantage of nations. New York: Free Press.

Reynolds, Thomas H., and Arturo A. Flores
1989 Foreign law. Littleton, CO: Rothman.

Romer, Paul
1990 "Endogenous technological change." Journal of Political Economy, 98: S71-S102.

Sahlman, W.A.
1990 "The structure and governance of venture capital organizations." Journal of Financial Economics, 27: 473-521.

Scott, Richard
2001 Institutions and organizations, 2nd ed. Thousand Oaks, CA: Sage.

Shane, S., and T. Stuart
2001 "Organizational endowments and performance of university start-ups." Management Science, 48: 154-170.

Sorenson, O., and T. E. Stuart
2001 "Syndication networks and the spatial distribution of venture capital investments." American Journal of Sociology, 106: 1546-1588.

Spicer, Andrew, Gerald A. McDermott, and Bruce Kogut
2000 "Entrepreneurship and privatization in central europe: The tenuous balance between destruction and creation." Academy of Management Journal, 25: 630-650.

Steinherr, A., and C. Huveneers
1994 "On the performance of differently regulated financial institutions: Some empirical evidence." Journal of Banking & Finance, 18: 271-306.

Stuart, Toby E, and Olav Sorenson
2003 "The geography of opportunity: Spatial heterogeneity in founding rates and the performance of biotechnology firms." Research Policy, 32: 229-253.

Tolbert, Pamela S., and Lynne G. Zucker
1983 "Institutional sources of change in the formal structure of organizations." Administrative Science Quarterly, 28: 22-39.

Tu, Wanzhu
2002 "Zero-inflated data." In A. H. El-Shaarawi, and W. W. Piegorsch (eds.), Encyclopedia of environmetrics. Chichester: John Wiley & Sons.

Wasserman, Noam
2003 "The non-division of labor: Knowledge separability, structure, and the upside-down venture capitalist." Working paper. Harvard Business School.

Weber, Max

1978 Economy and society. Berkeley, CA: University of California Press.

Westney, Eleanor
1993 "Institutionalization theory and the multinational corporation." In S. Ghoshal, and E. Westney (eds.), Organization theory and the multinational corporation: 53-76. New York: St. Martin's Press.

Westphal, James D., Ranjay Gulati, and Stephen M. Shortell
1997 "Customization or conformity? An institutional and network perspective on the content and consequences of tqm adoption." Administrative Science Quarterly, 42: 366-394.

Whitley, Richard
1992 Business systems in east asia: Firms, markets, and societies. London: Sage Publications.

World Bank
2004 "World development indicators." Washington, DC: World Bank.

Zaheer, Srilata
1995 "Overcoming the liability of foreignness." Academy of Management Journal, 38: 341-363.

Zalan, Tatiana
2004 "The secret multinationals of the new millennium: Internationalization of private equity firms." JIBS Literature Review.

Table 1: Foreign Venture Capital Investments by U.S. Firms by Year, 1991-2002

Year	# of ventures	# of ventures (sample for analysis)	# of rounds	# of rounds (sample for analysis)
1991	17	16	22	21
1992	23	20	39	35
1993	10	9	35	30
1994	8	7	26	22
1995	33	29	61	56
1996	114	94	163	138
1997	69	59	121	105
1998	60	47	125	107
1999	142	116	238	198
2000	319	299	508	474
2001	154	146	352	331
2002	87	78	215	197

Table 2: Foreign Venture Capital Investments by U.S. Firms by Host Country, 1991-2002

Country	# of ventures	# of ventures (sample for analysis)	# of rounds	# of rounds (sample for analysis)
United Kingdom	183	176	441	431
Canada	135	128	242	233
Israel	109	107	147	145
Japan	91	86	103	95
France	55	41	101	83
Germany	54	53	96	95
China	43	38	81	73
India	35	35	95	95
Ireland	31	30	50	48
Netherlands	30	29	65	63
Singapore	25	22	49	46

Note: Only the top 11 countries shown.

Table 3: Descriptive Statistics

		Obs	Mean	Std. Dev.	Min	Max
1	Number of rounds VC invested in country	517981	0.00	0.09	0.00	53.00
2	Number of ventures VC invested in country	517981	0.00	0.15	0.00	54.00
3	Patents/GDP	517981	0.89	1.57	0.00	9.72
4	Scientific publications/GDP	517981	0.03	0.03	0.00	0.20
5	English legal tradition =1	517981	0.35	0.48	0.00	1.00
6	French legal tradition =1	517981	0.37	0.48	0.00	1.00
7	German legal tradition =1	517981	0.06	0.23	0.00	1.00
8	Scandinavian legal tradition =1	517981	0.06	0.24	0.00	1.00
9	Socialist legal tradition =1	517981	0.16	0.37	0.00	1.00
10	Stock market capitalization (% GDP)	517981	42.96	50.80	0.02	329.96
11	Political constraints	517981	0.57	0.28	0.00	0.89
12	Syndication effect	517981	0.05	0.44	0.00	36.00
13	VCF's US experience (# of ventures)	517981	0.53	3.99	0.00	115.00
14	VCF's international experience (# of foreign ventures)	517981	10.70	23.52	0.00	363.00
15	GDP ($*10^{-12}$)	517981	0.38	1.15	0.00	8.98
16	Foreign VC experience in country (# of ventures)	517981	4.85	15.89	0.00	157.00
17	VCF's international experience (# of countries)	517981	0.77	4.52	0.00	40.00
18	Year	517981	1998.04	3.16	1991.00	2002.00

Table 4: Correlations (N=517,981)

		1	2	3	4	5	6	7	8	9	10	11
1	Number of rounds VC invested in country	1.00										
2	Number of ventures VC invested in country	0.75	1.00									
3	Patents/GDP	0.03	0.03	1.00								
4	Scientific publications/GDP	0.01	0.01	0.18	1.00							
5	English legal tradition =1	0.01	0.01	0.05	-0.07	1.00						
6	French legal tradition =1	-0.01	-0.01	-0.25	-0.40	-0.56	1.00					
7	German legal tradition =1	0.01	0.01	0.46	-0.08	-0.18	-0.18	1.00				
8	Scandinavian legal tradition =1	0.00	0.00	0.23	0.06	-0.19	-0.20	-0.06	1.00			
9	Socialist legal tradition =1	-0.01	-0.01	-0.17	0.62	-0.33	-0.34	-0.11	-0.11	1.00		
10	Stock market capitalization (% GDP)	0.02	0.03	0.43	-0.03	0.18	-0.12	0.20	0.11	-0.27	1.00	
11	Political constraints	0.01	0.01	0.37	0.09	0.04	-0.18	0.18	0.18	-0.05	0.26	1.00
12	Syndication effect	0.07	0.09	0.17	0.05	0.07	-0.04	0.02	-0.01	-0.05	0.12	0.07
13	VCF's US experience (# of ventures)	0.07	0.13	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.00
14	VCF's international experience (# of foreign ventures)	0.03	0.05	0.00	0.03	0.00	-0.01	-0.01	0.00	0.02	0.02	0.00
15	GDP	0.01	0.01	0.57	-0.03	0.04	-0.11	0.37	-0.05	-0.10	0.25	0.21
16	Foreign VC experience in country (# of ventures)	0.04	0.05	0.48	0.09	0.11	-0.13	0.21	-0.03	-0.09	0.31	0.17
17	VCF's international experience (# of countries)	0.04	0.06	0.00	0.01	0.00	-0.01	0.00	0.00	0.01	0.01	0.00
18	Year	0.01	0.01	0.00	0.15	-0.01	-0.06	-0.03	-0.03	0.13	0.10	0.00

		12	13	14	15	16	17	18
12	Syndication effect	1.00						
13	VCF's US experience (# of ventures)	0.06	1.00					
14	VCF's international experience (# of foreign ventures)	0.24	0.30	1.00				
15	GDP	0.04	0.00	0.00	1.00			
16	Foreign VC experience in country (# of ventures)	0.28	0.02	0.04	0.29	1.00		
17	VCF's international experience (# of countries)	0.08	0.40	0.30	0.00	0.02	1.00	
18	Year	0.06	0.07	0.19	-0.01	0.22	0.10	1.00

Table 5: Zero-Inflated Negative Binomial Regression Models Predicting U.S. Venture Capital Firm Investments, 1991- 2002

	(1) Ventures	(2) Rounds	(3) Ventures	(4) Rounds	(5) Ventures	(6) Rounds
Patents	0.251***	0.259***			0.207***	0.221***
	(0.031)	(0.034)			(0.037)	(0.039)
Scientific Publications			13.665***	14.438***		
			(2.755)	(2.928)		
French legal tradition					-0.494**	-0.339
					(0.178)	(0.207)
German legal tradition					-0.314	-0.369
					(0.253)	(0.301)
Scandinavian legal tradition					-0.225	-0.099
					(0.255)	(0.258)
Socialist legal tradition					-0.661*	-0.682*
					(0.271)	(0.300)
Stock market capitalization						
Political constraints						
Syndication effect						
VCF's international experience	0.036***	0.054***	0.031***	0.049***	0.037***	0.055***
	(0.006)	(0.013)	(0.007)	(0.013)	(0.007)	(0.013)
VCF's US Experience	0.010***	0.011***	0.010***	0.012***	0.010***	0.011***
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)
GDP	-0.023	-0.055	0.162*	0.131*	0.023	0.006
	(0.000)	(0.000)	(0.068)	(0.063)	(0.056)	(0.068)
Year dummies	Included	Included	Included	Included	Included	Included
Constant	-3.492***	-3.698***	-3.682***	-3.856***	-3.232***	-3.508***
	(0.561)	(0.729)	(0.640)	(0.807)	(0.618)	(0.776)
Stage 1						
Foreign VC experience in countr	-0.241***	-0.242***	-0.289***	-0.293***	-0.235**	-0.235**
	(0.063)	(0.070)	(0.058)	(0.064)	(0.077)	(0.086)
VCF's # of foreign countries	-1.007***	-1.323***	-0.895***	-1.143***	-1.015***	-1.339***
	(0.219)	(0.243)	(0.217)	(0.191)	(0.229)	(0.272)
Year	0.001	0.104	0.061	0.151*	-0.014	0.091
	(0.069)	(0.072)	(0.061)	(0.067)	(0.076)	(0.080)
Constant	2.701	-202.158	-117.406	-297.573	31.847	-176.279
	(136.871)	(144.785)	(122.733)	(133.970)	(151.503)	(159.781)
Log pseudo-likelihood	-4210.44	-5615.71	-4251.957	-5661.631	-4199.826	-5605.266
Observations	517981	517981	517981	517981	517981	517981
Nonzero observations	688	897	688	897	688	897

Robust standard errors in parentheses

Table 5 (continued): Zero-Inflated Negative Binomial Regression Models Predicting U.S. Venture Capital Firm Investments, 1991- 2002

	(7) Ventures	(8) Rounds	(9) Ventures	(10) Rounds	(11) Ventures	(12) Rounds
Patents			0.217***	0.412***		
			(0.050)	(0.040)		
Scientific Publications	12.540***	12.707***			10.809**	9.882**
	(3.402)	(3.496)			(4.063)	(4.174)
French legal tradition	-0.556**	-0.401	-0.214	-0.115	-0.330	-0.167
	(0.190)	(0.217)	(0.190)	(0.200)	(0.201)	(0.209)
German legal tradition	0.066	0.015	-0.157	-0.646*	0.187	0.132
	(0.259)	(0.295)	(0.203)	(0.257)	(0.233)	(0.256)
Scandinavian legal tradition	-0.050	0.096	-0.373	-0.899***	-0.189	-0.063
	(0.264)	(0.264)	(0.301)	(0.238)	(0.283)	(0.280)
Socialist legal tradition	-1.298***	-1.252***	0.113	0.211	-0.540	-0.154
	(0.302)	(0.323)	(0.251)	(0.265)	(0.326)	(0.385)
Stock market capitalization			0.007***	0.010***	0.006***	0.008***
			(0.001)	(0.001)	(0.001)	(0.001)
Political constraints			1.125**	1.044**	1.403***	1.588***
			(0.401)	(0.340)	(0.381)	(0.346)
Syndication effect						
VCF's international experience	0.034***	0.051***	0.038***	0.051**	0.035***	0.051***
	(0.007)	(0.013)	(0.006)	(0.007)	(0.006)	(0.012)
VCF's US Experience	0.010***	0.012***	0.009***	0.004	0.009***	0.010***
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)
GDP	0.104	0.087	-0.030	0.095	0.050	0.028
	(0.061)	(0.069)	(0.053)	(0.071)	(0.054)	(0.057)
Year dummies	Included	Included	Included	Included	Included	Included
Constant	-3.401***	-3.635***	-4.163***	-4.620***	-4.399***	-4.799***
	(0.678)	(0.864)	(0.631)	(0.727)	(0.737)	(0.884)
Stage 1						
Foreign VC experience in country	-0.250***	-0.260***	-0.157**	-0.033***	-0.179***	-0.174**
	(0.067)	(0.067)	(0.059)	(0.005)	(0.056)	(0.055)
VCF's # of foreign countries	-0.950***	-1.215***	-1.123***	-2.148***	-1.029***	-1.421***
	(0.215)	(0.205)	(0.253)	(0.236)	(0.218)	(0.229)
Year	0.024	0.126	-0.054	-0.016	-0.011	0.086
	(0.074)	(0.074)	(0.074)	(0.052)	(0.081)	(0.069)
Constant	-43.723	-245.937	111.084	36.057	26.595	-168.515
	(147.268)	(148.168)	(146.806)	(103.526)	(161.472)	(138.723)
Log pseudo-likelihood	-4218.734	-5629.229	-4153.113	-5487.886	-4175.024	-5547.273
Observations	517981	517981	517981	517981	517981	517981
Nonzero observations	688	897	688	897	688	897

Robust standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Table 5 (continued): Zero-Inflated Negative Binomial Regression Models Predicting U.S. Venture Capital Firm Investments, 1991- 2002

	(13) Ventures	(14) Rounds	(15) Ventures	(16) Rounds
Patents	0.157***	0.295***		
	(0.047)	(0.044)		
Scientific Publications			8.029*	7.518
			(3.931)	(4.343)
French legal tradition	-0.101	0.011	-0.160	0.014
	(0.195)	(0.218)	(0.209)	(0.225)
German legal tradition	0.154	-0.102	0.410	0.408
	(0.201)	(0.247)	(0.227)	(0.254)
Scandinavian legal tradition	-0.056	-0.428	0.091	0.209
	(0.284)	(0.238)	(0.276)	(0.270)
Socialist legal tradition	0.198	0.292	-0.258	0.029
	(0.240)	(0.254)	(0.283)	(0.344)
Stock market capitalization	0.005***	0.008***	0.005***	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)
Political constraints	0.958*	0.983**	1.101***	1.231***
	(0.375)	(0.329)	(0.338)	(0.300)
Syndication effect	0.310***	0.365***	0.333***	0.433***
	(0.029)	(0.036)	(0.029)	(0.039)
VCF's international experience	0.047***	0.061***	0.045***	0.062***
	(0.005)	(0.006)	(0.005)	(0.009)
VCF's US Experience	0.001	-0.003	0.001	-0.000
	(0.002)	(0.002)	(0.002)	(0.002)
GDP	-0.019	0.037	0.043	0.017
	(0.000)	(0.000)	(0.000)	(0.000)
Year dummies	Included	Included	Included	Included
Constant	-3.849***	-4.309***	-3.968***	-4.268***
	(0.556)	(0.662)	(0.630)	(0.705)
Stage 1				
Foreign VC experience in country	-0.171**	-0.041***	-0.185***	-0.162***
	(0.054)	(0.011)	(0.053)	(0.049)
VCF's # of foreign countries	-1.421***	-2.312***	-1.354***	-2.063***
	(0.229)	(0.237)	(0.220)	(0.304)
Year	-0.085	-0.041	-0.059	0.027
	(0.071)	(0.053)	(0.075)	(0.059)
Constant	173.270	85.366	123.034	-48.135
	(142.394)	(105.525)	(149.144)	(119.411)
Log pseudo-likelihood	-4082.964	-5396.811	-4092.926	-5421.738
Observations	517981	517981	517981	517981
Nonzero observations	688	897	688	897

Robust standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Table 6: Magnitude of the Statistically Significant Hypothesized Effects on the Numbers of Ventures or Rounds (in percentages)

	Leads to an Estimated Percent Change in:			
One Standard Deviation Change in:	**Ventures Model 13**	**Rounds Model 14**	**Ventures Model 15**	**Rounds Model 16**
Patents	28.0	58.9	...	…
Scientific publications	…	…	24.1	n.s.
Stock market capitalization	28.9	50.1	28.9	42.7
Political constraints	30.5	31.4	35.8	40.8
Syndication effect	14.6	17.5	15.8	21.0

Note: Based on the regression estimates reported in Table 5, models 13-16. The formula for calculating the percent change in the number of investments in response to a one standard deviation change in the independent variable is: $\{[\exp(\beta \times sd)-1]\} \times 100$, where β is the parameter estimate and sd is the standard deviation.