De facto Property Rights Protection and MNC Location Choices

Srividya Jandhyala*
Department of Management
The Wharton School
University of Pennsylvania
2000 Steinberg Hall-Dietrich Hall
Philadelphia, PA 19104-6370
Tel: (215) 898-4369
E-mail: srividya@wharton.upenn.edu

12 June 2008

Preliminary Draft
Please Do Not Cite or Distribute

* I thank the Mack Center for Technological Innovation, the Penn Lauder – CIBER and the Wharton Risk Management & Decision Processes Center for their generous financial support. I would also like to thank Witold Henisz, Heather Berry, Steve Kobrin, Evan Rawley, anonymous referees from the Academy of Management and Academy of International Business and the 2nd Annual Offshoring Research Network Conferences as well as seminar participants at The Wharton School, University of Southern California, George Washington University, Emory University, London Business School, Indian School of Business and Offshoring Research Network Forum for comments on earlier drafts of the paper.

De facto Property Rights Protection and MNC Location Choices

Abstract:

Although similar formal regulations to protect property rights have proliferated across many parts of the world, the adherence to these norms is not consistent across countries. As a result, countries with seemingly similar formal regulations pose very different hazards for investors. Departing from traditional studies that have focused on the formal regulations of host countries in explaining Multinational Corporations' (MNCs) perceptions of hazards and hence strategic actions, this paper argues that firms' location choices are influenced not just by de jure norms but also by their expectation of *de facto* protection. In addition, I examine the moderating effect of a firm's international operations in mitigating this expected hazard. Using a panel of 161 firms from 16 home countries and their foreign investments in up to 66 host countries in the information services offshoring sector from 2002-2005 and novel measures, the empirical results show that MNC location choices are impacted by the estimated de facto protection of a host country. The effects are also moderated by the extent of a firm's multinational operations.

1. INTRODUCTION

Multinational investors are influenced in their strategic choices by the institutional hazards of host countries in general (Murtha & Lenway, 1994) and specifically the ability of the host country to credibly commit to policies on property rights protection (North, 1990). Recent studies have linked secure property rights to high rates of economic growth and investment (Knack & Keefer, 1995; Johnson, McMillan & Woodruff, 2002). Multinational firms make location choices for their investments or other strategic choices based on their expectations of the future property rights protection in a host country.

The empirical literature has generally analyzed a firm's strategic choices to be based on formal regulations or institutions of a host country. *De jure* institutions, including laws, regulations, administrative procedures and policies, are observable characteristics that are generally persistent over time. Hence, they allow MNCs to build expectations of future treatment of assets in the host country. MNC's strategic choices such as location, entry mode characteristics and corporate finance decisions have been studied as a function of the host country's policy making structure (Delios & Henisz, 2003; Henisz & Macher, 2004), legal regulations governing FDI (Chung & Beamish, 2005), tax (Altshuler & Grubert, 2003), and strength of Intellectual Property laws (Oxley, 1999).

However, such an assumption is inconsistent with the growing body of evidence that documents extensive decoupling – divergence of practice from policy – resulting in imperfect correlation between formal regulations and their effectiveness (Simmons, 2000; Hafner-Burton & Tsutsui, 2005). Decoupling between policy and practice occurs due to the conflicting demands of external and internal constituencies (Meyer & Rowan, 1977; Meyer et al, 1997). As a result, even when laws and regulations appear similar across countries, there is significant variation in the extent to which they provide effective enforcement (Pistor, 2002; Pistor, Raiser & Gelfer, 2000).

Drawing upon this line of research, this paper argues that MNC's perception of hazards for property rights protection arises not just from policies of the state but actual practices as well. Their expectation of future de facto protection – or the extent of actual protection – influences

their location choices. Failure to take de facto protection into account will result in lower returns due to the threats to a firm's assets and may eventually affect firm survival. As a result, firms are less likely to invest in host countries where they expect poor de facto protection. I also demonstrate how firms can assess de facto protection based on observable characteristics – the demand for effective protection at both global and local levels – by building on Jandhyala (2008).

Further, this paper also empirically analyzes strategies that multinational firms can adopt to mitigate the hazard of poor de facto protection by focusing on a firm's extent of multinational operations. A large multinational with operations in multiple countries is advantaged in at least two ways – first, such a firm learns to manage poor institutions from its international operations and can transfer learning across its operations in different host countries. Second, this firm also has the ability to exploit international differences in labor costs and quality of human capital while limiting its exposure in any one country by transferring and integrating activities across its operations in multiple countries. Hence, large multinational firms with operations in multiple countries are able to circumvent poor protection in a particular host country better than those firms with limited international experience. Such an analysis builds on prior studies that have shown the importance of these effects for *de jure* institutions (Henisz & Delios, 2001; Zhao, 2006) but empirically examines these effects by considering *de facto* protection.

In order to analyze such effects, I build and use a unique data set on foreign investments by 161 firms in information services from 2002 to 2005. I observe firms from 16 home countries making investments in up to 66 host countries. Firm investments in information services projects are drawn from the Locomonitor database, a worldwide database of foreign direct investment projects. I create a novel measure of the expectation of protection of assets by estimating the *de facto* protection in a host country based on formal regulations and the international and domestic demand for effective protection. The analyses show that a more complete measure of *de facto* protection is a significant predictor of location choices for multinational companies. In addition, among countries that have strong formal regulations, the probability of investment by MNCs is significantly decreased for those states that fail to provide *de facto* protection. Hence, investors' perceptions of the potential hazards are influenced by more than just the formal regulations. The

effect is larger for smaller, less multinational firms. Taken together, the results suggest that firms take into account both the signals of formal institutions as well as the informal institutions in altering their beliefs of how their assets will be treated in a host country and that these effects are more pronounced for less international firms.

The remainder of the paper is organized as follows: Literature and hypotheses on firm location choices are described in Section 2. Section 3 introduces the industry setting describing the offshoring of information services. The data and variables are described in Section 4. The empirical results and discussion are presented in Sections 5 and 6.

2. THEORY & HYPOTHESES

2.1 De facto protection and MNC investment

Although traditional studies of cross national location choices of firms focused on variations in market attractiveness, more recently, the influence of institutional environments has been highlighted (Henisz & Macher, 2004; Oxley, 1999; Kobrin et al, 1980). Potential investors are concerned about the institutional protection for their assets in the host country (Delios & Henisz, 2000).

Clearly specified and well functioning property rights are an important area of concern for firms as these regulations allow firms to use, transform and sell their assets thus utilizing them in economic activity and trade (Besley, 1995). Well functioning property rights also reduce the uncertainty with respect to the future treatment of assets by the state by lowering the threats of discretionary regulations and extortion by public officials. Second, clearly defined property rights lower appropriability hazards by allowing for the better specification and monitoring of contracts (Oxley, 1999) and by establishing common rules of engagement that are understood by other actors such as partners, competitors, clients or suppliers. There are also clear expectations of the mechanisms of compliance, especially relating to judges' rulings and the enforcement of those rulings (Hay & Shleifer, 1998). Finally, strong property rights decrease the costs of doing business by providing formal alternatives to private mechanisms of dispute resolution (Hay &

Shliefer, 1998). In the absence of property rights, firms invest in alternatives such as building reputations or relationships (McMillian & Woodruff, 1999). These alternatives are not efficient as some commercial transactions may not be repeated interactions and the rules of private mechanisms may not be clear to all parties (Hay & Shleifer, 1998). Hence, strong property rights provide legal recourse in the case of violations.

Given the importance of well functioning property rights, firms' investment behavior is influenced by their expectation of future property rights protection. So, the question that has to be examined is how firms build expectations about future property rights protection in a host country.

The literature has identified the role of formal policies and regulations in building firms' expectations about future state behavior. Specifically, MNCs use formal regulations, including laws, regulations, administrative procedures and policies as signals in estimating future state behavior (Simmons, 2000). Commitment of the state to formal regulations focuses expectations on a clear, codified standard in addition to generating reputational costs of violation and the threat of sanction for violation (Simmons, 2000). In addition, since the adoption/modification of formal regulations requires distinctive action on the part of the dominant political coalition (Rodrik & Zeckhauser, 1988), they tend to persist over time. Hence, MNCs' perceptions of hazards in a host country are built upon the strength of formal regulations. MNC's strategic choices such as location, entry mode characteristics and corporate finance decisions are influenced by formal regulations such as the host country's policy making structure (Delios & Henisz, 2003; Henisz & Macher, 2004), legal regulations governing FDI (Chung & Beamish, 2005), tax (Altshuler & Grubert, 2003), and strength of Intellectual Property laws (Oxley, 1999).

In spite of the costs associated with adopting formal regulations, extensive decoupling – divergence of practice from policy – occurs in a number of policy settings and formal regulations are imperfectly correlated with their effectiveness (Simmons, 2000; Hafner-Burton & Tsutsui, 2005). Extensive decoupling between policy and practice occurs due to the conflicting demands of external and internal constituencies (Meyer & Rowan, 1977; Meyer et al, 1997). Regulations governing property rights protection are increasingly being considered as the norm for

participating in the global trading system. In addition to being viewed as necessary for economic development, they are espoused by multilateral agencies. As a result, property rights regulations become institutionalized at the global level and the failure to incorporate legitimized regulations leads to a loss in status in the system, increases internal dissidence and is considered negligent and irrational (Elkins & Simmons, 2005; Meyer et al, 1997). Meyer & Rowan (1977: 349) noted that "by designing a formal structure that adheres to the prescriptions of myths in the institutional environment, an organization demonstrates that it is acting on collectively valued purposes in a proper and adequate manner." Hence, external pressures compel states to adopt formal regulations governing property rights.

Nevertheless, enforcing the law in practice entails greater costs to the state including those of distinctive action by the dominant coalition, implementation processes, creating enforcement systems and other regulatory bodies. In addition, the norms may be inconsistent with other institutionalized elements such as local culture (Marron & Steel, 2000). Finally, the entrenchment of elites also causes resistance to change (Acemoglu & Robinson, 2006). Given the conflicting demands of external and internal constituencies, decoupling of policy and practice occurs, with de facto protection lagging behind de jure protection. Decoupling of policies and practice has been documented with regards to a number of state policies including Article VIII of the IMF, human rights agreements and labor conventions (Simmons, 2000; Hafner-Burton & Tsutsui, 2005).

If formal regulations are adopted for symbolic reasons, their influence on firm strategic choices is not obvious. Some studies building on neo-institutional theory have argued that symbolic actions, or the adoption of formal policies, can engender significant positive returns despite growing evidence of decoupling (Westphal & Zajac, 1998; Zajac & Westphal, 2004). Examining stock market reactions to the adoption of particular corporate practices such as stock repurchase plans and long term incentive plans, they argue that quick market reactions to announced events require audience members to estimate how others are likely to respond in determining their own responses. Such estimates, in turn, are influenced by prior market responses to similar events. As a result, as more firms adopt a policy and receive favorable market responses, an individual

investor's uncertainty about the likely response decreases leading to more positive reactions, even when there is evidence of decoupling.

However, such institutionalized responses do not completely translate to the current context and I argue that, in fact, a firm's location choices are influenced not just by the formal policies of the state (de jure) but also by the actual practices (de facto). The above case on institutionalized responses is built on two inter-related assumptions –quick responses and the returns of any one actor influenced by actions of other actors – which are not as relevant in the context of investment. First, contrary to immediate stock market returns, firms investing in host countries are operating on longer time horizons. For instance, examining manufacturing foreign direct investment in the US, Ulgado (1997) found that it took firms 6 months to a year to reach a location decision. As a result, firms have longer time horizons to internalize information about actual practices of property rights protection in a host country. Second, compared to the returns of an individual investor in the stock market, the returns of a firm investing in a host country are dependent to a much smaller degree on the actions of other firms. Rather, a firm's returns in a host country are dependent on the uncertainty arising from the institutional environment. Poor de facto protection is a threat to any firm which could lead to lower returns and may eventually affect firm survival. A firm cannot change the level of this uncertainty by acquiring information about it and is thus less likely to imitate other firms in this regard (Henisz & Delios, 2001). Given the longer time horizons and the independence of their returns, I argue that as evidence of poor protection accumulates, firms incorporate this information into their future expectations as not doing so entails high costs in the form of threats to property rights. When they expect poor de facto protection, they take hazard mitigating strategies. A basic strategy that has been documented is to avoid investments in countries that have high political hazards (Henisz & Delios, 2001; Henisz & Macher, 2004). Extending this to the case of de facto protection, I argue that firms are less likely to invest in those countries where de facto protection is lower.

The above argument assumes that firms can build perceptions about states' future practices and hence potential hazards for their investments based on observable characteristics of the state. Building on Jandhyala (2008), I argue that demand for effective protection arising at both global and local levels provide such observable characteristics for firms. These demand characteristic

indicate pressures towards a particular outcome and stronger these pressures, the more likely is the outcome of better de facto protection. At the domestic level, the strength of interest groups with interests vested in strong de facto protection leverage the legitimacy of the policy and take unilateral measures to pressure states to provide effective de facto protection. At the global level, the extent of de facto protection of peer countries and actions of powerful state and non-state actors raise awareness about the changing global norms and influence the extent of de facto protection. In the absence of local and global pressures, there is no 'demand' for protection and poor de facto protection results (Jandhyala, 2008). Together with the administrative capabilities of the state (Weiss & Jacobson, 1998) and the political and economic conditions, demand characteristics allow firms to build expectations about de facto protection and hence potential hazards for their investments.

Hence, taking the above arguments together, I hypothesize that

H1: The likelihood of investment in a given country will be greater the stronger the *de facto* protection for assets in that country.

2.2 Moderating role of firm multinationality

Since acquiring information about the uncertainty arising from the structure of the host country's institutional environment does not change the hazard it poses, firms need to adopt a strategy that directly mitigates the hazard (Henisz & Delios, 2001). Acquiring extensive multinational experience has been shown to provide distinct capabilities that allow a firm to invest in different locations (Delios & Henisz, 2000; Berry, 2006).

By operating in foreign markets, MNCs learn to deal with political risk, regulatory changes and other issues that impact firm strategy in various types of environments (Barkema, Bell & Pennings, 1996; Delios & Henisz, 2000). Firms with low levels of multinationality have few foreign subsidiaries and have less ability to manage or hedge risk, and fewer learning experiences from previous foreign investments. Firms with high levels of multinationality, on the other hand, have much more extensive operations abroad and thus much greater ability to

manage and hedge risk and apply learning from other foreign investments (Kogut, 1985; Berry, 2006).

A firm learns from its international operations to manage political actors, identify preferences and behavior patterns in other institutional environments, assess sources and nature of uncertainty, negotiate or lobby with less familiar political officials, and evaluate investments in a host country. To the extent that firms face similar policy challenges in multiple environments – such as the lack *de facto* protection for their assets – they utilize established practices that reflect their prior experience in dealing with these issues (Boddewyn & Brewer, 1994). These practices can be transferred across their international operations (Delios & Henisz, 2003; Henisz & Macher, 2004; Holburn & Zelner, 2006). When faced with entry decisions, these firms utilize the routines that they build through their experience in other markets to limit the exposure of their assets to risks that arise from a poor institutional environment. They could, for instance, enter with a better pricing strategy, negotiate more efficient contracts, be aware of potential pitfalls, be more adept at identifying mechanisms for the private enforcement of regulations or lobbing with host country governments, or choose a less risky mode of entry. Thus, highly multinational firms are less dependent on their institutional environments in managing their global operations.

In addition, investors could also face poor institutional environments in some countries that nevertheless have other attractive characteristics such as low costs, high quality human capital etc. In order to take advantage of these attractive characteristics and arbitrage international differences, firms must be able to generate alternative mechanisms for property rights protection. Extensive multinational networks provide such an alternative to enable international location arbitrage (Ghemawat, 2003). MNCs can circumvent local institutional conditions by utilizing their internal networks (Desai, Foley & Hines, 2004) and increasing their operating flexibility (Allen & Pantzalis, 1996). If firms can transfer resources within a transnational network and integrate their activities across different locations, then they will limit their exposure to any one host institutional environment. For instance, R&D intensive MNCs that develop technologies with strong internal linkages, ie., technologies that require the firm to transfer resources and integrate the output across multiple locations, can appropriate value from their R&D activities even in the absence of strong IPR protection (Zhao, 2006). Similarly, an extensive multinational

network allows a firm to modularize its functions and perform each function in a location best suited for it. Hence, the lack of *de facto* protection has a smaller effect of deterring entry for highly multinational firms.

Hence, combining the effects of learning and transfer of firms with extensive multinational networks with the ability to substitute for institutional environments, I hypothesize the following:

H2: The positive effect of *de facto* protection for assets on the likelihood of investment in that country is diminishing in the investing firm's extent of international operations.

3. INDUSTRY SETTING

To analyze firm location choices based on legal regulations and their enforcement, I use data from the Information Services offshoring industry. Recent advances in information and communication technologies have solved the traditional problems of non-transportability and non-storability of many service functions (WIR, 2004). This has led to a growth in the international outsourcing of services that has been steadily increasing over the last few years and is expected to reach $750bn by 2009[1]. It generally involves FDI in the establishment of a service facility and the export of those services (WIR, 2004). Nearly three quarters of Fortune 2000 firms surveyed in 2005 considered offshoring to be an important part of their growth strategy[2].

In their search for factor, product and service markets, both service and non-service firms are increasingly offshoring their service components to a large number of countries, some of which have poor institutional support for protecting their intellectual property (Hahn, Doh & Bunyaratavej, 2007). As states compete to attract a larger share of this market, we observe some degree of harmonization of regulation governing Intellectual Property (IP). International conventions such as the World Trade Organization's Trade Related Aspects of Intellectual Property Rights (TRIPS) and World Intellectual Property Organization's conventions establish

[1] 'The Future of Outsourcing' Gartner Report 2006. Kurt Potter & Robert Brown
[2] 2005 Duke University CIBER/Archstone Consulting Study

the norms for protection of IP in member countries. In addition, states adopt specific domestic laws to protect an investor's intellectual assets. However, the convergence of formal laws does not translate to uniform protection across countries. Table 1 shows the average piracy rates for 61 countries in 2005 (BSA, 2006). While there is vast variation in the average piracy rates among these countries, they all have a domestic copyright law that protects computer programs. As a specific example, India's new copyright law was passed in June 1994 and became effective in May 1995. The law, importantly, was substantively compatible with TRIPS and criminal punishments included a minimum six months mandatory jail term for violators. The law was aimed at reducing piracy in India significantly, but due to lax enforcement both foreign and domestic copyright owners continue to suffer high losses and face high rates of piracy. While some raids and pre-trial arrests have taken place, only a few convictions have been made and, as of 2004, India continues to remain on the Priority Watch list of the International Intellectual Property Alliance (IIPA) as of 2004[3].

Insert Table 1 about here

I observe investments in call/contact centers (such as helpdesks, technical support, after sales, employee enquiries, and answering services) and in shared service centers (such as claims processing, account processing, transaction processing, HR & data processing). In order to protect confidential firm-specific data that is placed in the offshored venue, investors look to intellectual property and copyright protection for databases and software. Specifically, they are concerned about the integrity of their data, information security and cybercrime. Examples of the hazards include, but are not limited to, the theft of customer information from call centers, loss of proprietary databases, illegal copying of technical manuals from technical support centers and the loss of critical software. Firms that are subjected to these hazards could face significant costs, both financial and reputational. For instance, data breaches, or the loss of sensitive data such as customer records, credit card information or social security numbers, could cost a company between $90 and $305 per record (Forrester Group, 2007). This includes the cost of discovery,

[3] International Intellectual Property Alliance website, Country Reports for 2004,1999

notification and response, lost employee productivity, opportunity cost, regulatory fines, restitution, additional security and audit requirements, and other liabilities. This means that cost of a single, significant data breach could potentially cost a firm millions or even billions of dollars.

Given firms' emphasis on offshoring of services and the prevalence of dissonance between laws on the books and regulations in practice in many countries, this provides an interesting setting to study firm location choices. While most prior studies have looked at the location choices for manufacturing (see, for example, Henisz & Macher, 2004), this industry allows us to examine these effects in a service setting.

4. DATA AND ANALYSIS

I observed a sample of 161 firms that invested in a greenfield or expansion project in information services over the time period 2002-2005. Roughly half of the firms in the sample are from the ICT sector. Table 2 shows the distribution of firms across manufacturing and service industries. Firms originated from 16 countries, with the vast majority from the US. I observed entry into a potential set of 66 host countries[4]. Home and host countries are listed in Tables 3a and 3b.

Insert Tables 2 & 3 about here

4.1 Dependent variable: Firm investment

I define foreign investment by a firm as the investment in a Greenfield or an expansion project in the information services sector. This included investments in call/contact centers (such as help desk, technical support, after sales, employee enquiries, and answering services) and in shared

[4] The potential set of host countries included all countries that received at least 1 service investment by any firm (not restricted to the 161 firms in the sample) during 2002-2005. Missing data reduced this to a set of 66 host countries. A smaller sub-sample of 44 host countries is used in alternate specifications of the analyses. These 44 countries accounted for nearly 85% of all investments made in this sector during the time period 2002-2005

service centers (such as claims processing, account processing, transaction processing, HR & data processing). The data for these investments were drawn from the LOCOmonitor database, a worldwide database of foreign direct investment projects maintained by OCO Consulting. This sample is a sample of the investments used by UNCTAD in their World Investment Report (2004) on Services and in other studies looking at outsourcing (Doh et al 2007). The dependent variable is coded 1 if a firm invests in a given host country at time t, 0 otherwise.

4.2.1 Independent variables: Institutional protection for assets

I measure institutional protection for assets in two ways. First, following extent literature, I construct an index of formal regulations that provide protection for the types of investments described above (formal regulations index). I then include a measure of *de facto* protection which is described below.

Formal Regulations: As described above, investors concerns include those of data integrity, information security and cybercrime. In order to observe formal regulations, I consider a set of domestic laws and international treaties that address these specific concerns. First, I code a dummy for each year which indicates the country's adoption of a copyright law to protect software. Not all national laws provide retroactive protection for previously published or unpublished software so I use the effective date of law adoption for the entire sample. This data is drawn from the Collection of Laws for Electronic Access (CLEA)[5] of the World Intellectual Property Organization (WIPO) and law directories that have country reports for copyright law (Nimmer & Geller, 2005). I augment this data with reports from Intellectual Property law, consulting firm reports and country websites.

Second, I code a dummy to indicate if a country has laws on electronic commerce. Specifically, if a country has implemented legislation based on the Model Law on Electronic Commerce[6] as identified by the United Nations Commission on International Trade Law (UNCITRAL), this dummy is coded 1.

[5] Accessed on 8 November 2006

[6] http://www.uncitral.org/uncitral/en/uncitral_texts/electronic_commerce/1996Model_status.html - accessed on 31 July 2007

Next, I code dummy variables to indicate if a state is a signatory to an international agreement that provides protection for IP. Specifically, I consider signatures to the Berne Convention that provides protection for literary work (WIPO). This convention forms the basis for all types of copyright protection, including copyright protection for computer programs. The World Intellectual Property Organization (WIPO) established a Copyright Treaty to provide protection for computer programs and databases and if a state is a signatory to this treaty I code the dummy variable 1. Finally, I also consider signatures to the Council of Europe's Convention on Cybercrime (COE). Although primarily intended for countries in the European Union, this treaty is open for signatures by all countries.

Each of these regulations address slightly different concerns of the investors, however, all investors are likely to have all of these concerns given the standardized nature of activities in the data. When these elements are aggregated, the formal regulations index ranges from 0 (Yemen) to 5 (USA). Countries such as Canada, France and the US score high on this measure while countries such as Argentina, Brazil and Indonesia have low scores.

De facto protection: A good measure for *de facto* protection is not obvious. One way to measure *de facto* protection is to observe the number of prosecutions or court cases tried in the relevant sector (Bhattacharya & Daouk, 2002). However, when there are only a few registered cases, we cannot distinguish between the absence of violations and instances where complaints are not filed even in the face of widespread violations under the general expectation that the law is not enforced. Alternately, we could measure the instances of negative events such as data theft or security breaches. However, such events tend to be underreported by businesses, especially in countries where the regulations may not require them to do so. Hence, obtaining an internationally comparable, time varying measure of such events is difficult.

To get around this issue, I use (1) the national level software piracy rates and (2) estimated levels of software piracy rates. Software piracy rates are commonly used by analysts in assessing the institutional environment for offshoring of services. One of the industry standards, AT Kearney's Offshore Location Attractiveness Index, for example, uses piracy rates as an objective measure of the security of intellectual property. The data on piracy rates come from the Global Software

Piracy Study of the Business Software Alliance (BSA, 2006) and have been used in prior studies of software services (Marron & Steel, 2000; Shadlen et al, 2005). The BSA, with support from local associations, provides annual data (from 1994) on estimated levels of software piracy in more than 80 countries. They estimate a country's existing and newly purchased hardware infrastructure by tracking shipments to predict the national software demand. Then they obtain data on licensed software sales from local distributors and retailers. The piracy rate is estimated based on the difference between the demand and the licensed sales. A decrease in piracy rate thus implies better current *de facto* protection. While this measure is imperfect to the extent that it fails to account for free (and other shareware) software, the change in software and hardware consumption patterns by the prevalence of higher market prices, and underreporting of legitimate software sales by local vendors for tax purposes, these biases may not be more pronounced in a specific country or year (Shadlen et al, 2005). Given that is the most direct measure of protection available and the extended annual coverage I use this data source to measure *de facto* protection. Specifically, de facto protection is 1 – piracy rate for a given host country-year.

In addition, in order to assess firms' expectations of future de facto protection, I estimate the *de facto* protection of a host country as a function of formal regulations and the set of global and local demand pressures for effective protection (Jandhyala, 2008). Specifically, at the global level, norms of good protection among peer countries that are closely related through trade ties (cohesion) or are trade competitors with similar export and import characteristics (role equivalence) provide external pressures for good de facto protection. In addition, pressures exerted by salient state and non-state global actors provide additional demand. In order to capture these effects, I code the country's membership in the WTO and the United States Trade Representative's annual 301 Reports on the extent of IP protection. Second, at the local level, pressure arising from interest groups that favor protection is measured using the log of a country's exports in the Computer and Information sector as identified in the UNCTAD Handbook of Statistics (2006). Finally, I control for administrative capabilities of a country by including a measure of the bureaucratic quality from ICRG (International Country Risk Guide), the political structure by using Polcon (Henisz, 2000a), democratic transitions (Marshall & Jaggers, 2005), economic conditions using per capita GDP (WDI), and FDI inflows as a percentage of GDP (WDI).

Table 4 presents the estimation of *de facto* protection using a sample of up to 52 countries for the time period 1994-2004. The set of countries include both developing and developed countries. Results are shown using different specifications of the model. The predicted values from model 1 are used in subsequent analysis. Estimated *De facto* protection is measured as (1 – predicted piracy rate). Hence, higher values indicate expectations of better protection.

4.2.2 Independent variables: Firm multinationality

I follow extant literature (Berry, 2006; Morck & Yeung, 1991) to measure the extent of a firm's international operations as the number of foreign countries a firm has subsidiaries in. These data come from the Directory of Corporate Affiliates.

4.3 Controls

I control for firm size using the log of a firm's total assets from Compustat North America for US firms and Compustat Global for other firms. As I consider investments in information services, firms in the service sector may be advantaged in their ability to learn or in their ability to manage projects across different countries. To control for this advantage, I create a dummy that is equal to 1 if a firm is belongs to the 'ICT' or 'Business & Financial Service' sectors. Firms with high knowledge intensity may face additional risks in foreign countries (Berry, 2006). To control for a firm's knowledge intensity, I include the ratio of R&D expenditure to total sales (Compustat). A firm's experience in international markets and in the specific host country has been shown to impact entry (Henisz & Delios, 2001). I am unable to observe a firm's total experience or history in a host country in my data. However, I include investments of the firm in the prior year in a given country.

To control for a direct influence of the host country's policy making structure on the likelihood of investment, I add the Polcon (Henisz, 2000) measure. Countries with good telecommunication infrastructure may also be more attractive to investors. Hence I include the total number of mainline telephones per 1000 people in the host country (WDI).

Low costs are generally assumed to drive offshoring projects. Since consistent cross national data on wages in the service sector are not available, I proxy for this construct by using per capital GDP (constant 2000 usd) from WDI[7]. Finally, locations for call centers and back office processing may be chosen based on a shared language or the time difference between the home and host countries. Hence I include a dummy that takes the value 1 if the home and host countries share a common language (CIA World Fact Book, 2006) and the time difference between the capital cities of the home and host countries[8] (CIA World Fact Book, 2006).

4.4 Empirical Specification

I can only observe the dichotomous entry decision and not the latent unobserved variable that is the propensity of the firm to invest. Assuming that the error term is randomly distributed, I use the standard probit model in estimation (Allison, 1984). Since each year is considered as an independent observation, I include year fixed effects. I also cluster standard errors on the firm to allow for unobserved firm heterogeneity that impacts a firms' choices across locations.

5. EMPIRICAL RESULTS

Table 4 presents the results from the estimation of piracy rate. Results are shown using different measures of formal regulations and specifications of the model. The predicted values from model 1 are used in subsequent analysis. Specifically, the measure of *de facto* protection is constructed by reverse coding the predicted piracy rate (1 – predicted piracy rate). As a result, high values of *de facto* protection imply better protection.

Insert Table 4 about here

---

[7] Per capita GDP is highly correlated with limited data on compensation costs (0.92). These data on compensation are available for a subsample of countries and years from the AT Kearney report on Global Services Location Index (2005). The costs are based on average wages and compensation costs for call center representatives, BPO analysts , IT programmers and local operations managers

[8] The directionality of the time difference is not obvious, having large time differences may allow for continuous delivery of services but also introduce other types of costs

Table 5 presents the summary and correlation statistics for the variables used in the estimation of equation (2). Table 6 contains a description of the variables with their definitions and sources. Primary results are presented in Tables 7 & 8 while additional specifications are presented in Table 9.

In Table 7, model 1 includes the country and firm level controls. Model 2-6 add the different components of formal regulations individually. Model 7 includes the formal regulations index and model 8 the country level measure of de facto protection. In model 9, both formal regulations and de facto protection are included, as in model 10, but using the estimated value of de facto protection. All independent variables are lagged by 1 year.

Insert Tables 5 & 6 about here

Across all models, we find that large firms and those in the service sector are more likely to enter, as are those firms that have made prior investments in such services. The negative and significant effect for per capita GDP indicates a wage related negative effect. Institutional quality measured by the extent of veto points (Polcon) is positive and significant. Additionally, shared language between the home and host countries has a significant effect on investment.

Insert Table 7 about here

Across model 2-6, I find that adopting domestic laws or subscribing to international regimes governing information services increase the likelihood of investment, except in the case of signing the World Copyright Treaty. In model 7, the formal regulations index is included. The positive and significant coefficient suggests that these regulations have an independent impact on the hazard in a host country and hence the likelihood of investment. In model 8, I introduce the

measure of de facto protection based on piracy rate. The coefficient of de facto protection is positive and highly significant.

Model 9 includes the measures of both formal regulations and de facto protection. Consistent with the prior models, both coefficients are positive and significant. Setting all variables at their mean levels (and dummies equal to zero), increasing the level of the formal regulations index by one standard deviation from the mean increases the probability of entry from 0.3% to 0.5%, an increase of about 75%. A similar increase of one standard deviation in de facto protection, while setting all other variables at their mean levels and dummies equal to zero, corresponds to an increase in the likelihood of entry from 0.3% to 0.43% or an increase of about 45%.

In model 10, I introduce the alternate measure of *de facto* protection, using the estimated values of piracy rate. The coefficient of the estimated *de facto* protection is positive, large and highly significant providing support for Hypothesis 1. Setting all variables at their mean levels (and dummies equal to zero), increasing the level of the estimated *de facto* protection by one standard deviation from the mean increases the probability of entry from 0.5% to 4.3%, an increase of about 8 times. This change in probability of entry is also statistically significant (with a standard error of 0.007 and absolute z statistic of 5.14).

Insert Table 8 about here

In Table 8, models 11-14 test for the interaction effects of multinationality. As shown in model 11, the interaction effect of firm multinationality with formal regulations is negative and significant. The negative coefficient suggests that the positive effects of formal regulations are lower for highly multinational firms. For an average firm (all variables including multinationality at mean values and dummies equal to zero), a one standard deviation increase in the formal regulations index increases the likelihood of entry by approximately 85%. However, for a highly multinational firm (multinationality is one standard deviation above the mean), a corresponding

increase of one standard deviation in formal regulations index only corresponds to a 60% increase in the likelihood of investment.

In model 12, I introduce the interaction effect of firm multinationality with de facto protection. The interaction effect by itself is not significant in this model or in model 13, where I include both of the interaction effects.

In model 14, both of the interaction terms are introduced again, but using the estimated value of de facto protection. In this model, the interaction effect of the estimated de facto protection with firm multinationality is negative and significant, providing additional support for hypothesis 2a. In addition, setting all variables, including estimated *de facto* protection, at their mean values (and dummies equal to zero), increasing the level of multinationality by one standard deviation from the mean increases the probability of entry (as expected) from about 0.5% to 0.61%, corresponding to a change of about 21%. When estimated *de facto* protection is low, however, the entry sensitivity to multinationality changes substantially. Consider firms that are investing in countries that have really poor protection, ie, are one standard deviation below the mean in *de facto* protection: increasing the level of multinationality by one standard deviation from the mean increases the probability of entry from 0.03% to 0.05%, a change of about 61%. Thus, all else equal, countries with poor protection are much more likely to attract investments from highly multinational firms. One surprising result in model 13 is the positive and significant coefficient of the interaction between formal regulations and firm multinationality, although this coefficient is only significant at the 10% level. This could be due to the positive main effects of formal regulations and firm multinationality.

Robustness

Table 9 presents alternate empirical specifications that are described in turn. One potential concern is the high correlation between per capita GDP and the measure of *de facto* protection. To ensure that the results are not driven purely by level of development, I split the sample into investments in developed countries and those in developing countries. Models 15 and 16 show the results using only the developed country sub-sample. Consistent with the prior results, I find that both formal regulations and estimated *de facto* protection are both positive and significant.

The interaction effects with firm multinationality, however, are not significant. Models 17 and 18 report results using the developing country sub-sample. In these models, while the coefficient of estimated de facto protection is positive and significant, as expected, the coefficient of formal regulations index is negative and significant suggesting that firms are less likely to invest in developing countries even when they adopt stronger formal regulations. Developing countries in general are more prone to ceremonial adoption of regulations and these results suggest that multinational investors identify such ceremonial adoption. This is consistent with the findings of Pistor et al (2000). By looking at transition economies, they found that the effectiveness of legal institutions had a significant impact on external finance decisions of firms whereas the laws on the books did not influence this choice. Hence, extensive legal reforms or legal transplants may not be sufficient for the evolution of effective market institutions. This also provides some evidence of the conditional nature of formal regulations acting as effective signals. Developed and developing countries are significantly different in their institutional settings, administrative resources and infrastructure (Berry, 2006). While developed countries have the complementary resources for formal regulations to act as credible signals, developing countries lack such resources.

Insert Table 9 about here

In addition to using the developed-developing sub-samples, I characterize countries based on the distributions of formal regulations and *de facto* protection. I create a dummy called high_low which takes the value 1 for those countries that are above the mean in formal regulations but below the mean in *de facto* protection. Examples of such countries include Bulgaria, Poland & Venezuela. The correlation between this variable and per capita GDP is much lower (-0.16). Model 19 describes the results using this variable. The negative and significant coefficient of high_low suggests that investors are less likely to invest in countries that have a gap between the laws on the books and those in practice. The positive and significant interaction effect again provides evidence that firm capabilities may help to overcome institutional deficiencies. These results are mimicked in model 20 where I restrict the sample to only those countries that all have

above mean levels of formal regulations. Hence, firms are significantly less likely to invest in countries that have poor de facto protection even when they have strong formal regulations, although this effect is smaller for more multinational firms.

Finally, I include two additional robustness checks by including a dummy for India (model 21) which has attracted a large share of the offshored service investments in this time period and an alternate measure of firm host-country experience (model 22) by including the total experience in the sample time-frame. Results are generally robust to these alternate specifications as well.

6. DISCUSSION

6.1 Firms' perceptions of institutional hazards

Host country governments signal their underlying ability to protect property rights to investors by adopting formal regulations. Prior studies in international business have focused on the *de jure* institutions in determining how investors build expectations about the future hazards that they face in the host country (see for example, Delios & Henisz, 2003; Henisz & Macher, 2004). They suggest that managers base their perceptions of regulations or the quality of institutions in the host country depending on the relative stringency of *de jure* laws (Pierre & Scarpetta, 2004). However, *de jure* laws are but a noisy measure of protection as countries with seemingly similar laws provide vastly different protection for investors. The results here show that manager's investment decisions are not based solely on their considerations of how their assets will be protected by the laws on the books. Rather, they consider *de facto* protection in their location choices and this expectation of *de facto* protection is built on both the mechanisms the state use to provide protection (formal regulations) and the motivation of the state to protect property rights (international diffusion pressures and domestic interest group pressures). The empirical results indicate that, in the case of offshoring of services, having formal regulations but poor *de facto* protection significantly reduces the likelihood of investment MNCs.

6.2 Firm multinationality matters

The literature in international business has established the role of a firm's international experience in overcoming poor institutional environments in host countries. While most of this literature has characterized these effect based on formal regimes, I highlight the role of multinationality in dealing with different levels of *de facto* protection. Specifically, large multinational firms are impacted by the *de facto* regimes to a smaller degree as they can overcome poor *de facto* protection in a host country either by transferring learning across its international operations or by their ability to arbitrage international location differences. For managers investing in countries with poor institutional safeguards, these results reveal that greater international experience would enable them to build managerial capabilities to overcome associated difficulties. There may be economic and strategic reasons – such as lower wages, access to human capital or competition – to invest in host countries with poor *de facto* protection. However, if firms lack the capability to manage the risks associated with such investments, they place their assets at risk and shareholders do not value such investments (Berry, 2006). The potential pitfalls may be large enough to wipe out any gains from economic or strategic factors. In addition, a firm's capabilities alone may be insufficient to overcome the institutional environment when the quality of those institutions is really poor.

6.3 Legal harmonization and developing countries

More generally, there has been a proliferation in efforts to harmonize key aspects of law related to global trade and finance. Legal harmonization across countries is evident, for example, in banking regulations, accounting, corporate governance and securities market regulations (Pistor, 2002). Multilateral agencies such as the European Union, the World Trade Organization and APEC are pushing member states to adopt consistent and similar regulations governing a whole host of activities including trade and investment policies. As the membership in these organizations grows, and member countries comply with their international obligations, legal differences across countries will be diminished. For multinational corporations (MNCs), whose activities span national boundaries, this standardization should help to reduce the costs of dealing with different standards. When the harmonized standard exceeds the pre-existing domestic standards, homogenization also helps to increase the quality of legal institutions in countries where institutions are poorly developed. However, the convergence in formal law does not

translate to uniform enforcement across countries. Formal regulations may not be effective when they have been transplanted (Berkowitz, Pistor & Richard, 2003), adopted under coercion by multilateral agencies (Henisz, Holburn & Zelner, 2005) or undertaken for symbolic reasons (Jandhyala, Henisz & Mansfield, 2007). Developing countries remain particularly prone to such adoption, given their dependence on multilateral lending and competition to attract investors, leading to poor enforcement of formally adopted regulations.

This has implications both for states and multinational investors. For developing countries competing to attract foreign investors, formal regulations cease to be a differentiating factor and *de facto* protection begins to play a more important role. The signaling function of formal regulation is likely to erode if there are some countries that adopt legal standards without enforcement (Pistor, 2002). For a country that wishes to pursue real reforms, the positive signals of *de jure* laws may be undermined when other countries pursue merely formal adoption. Instead, for such a country to credibly signal reforms, it would not only have to adopt laws but also ensure that it has the capacity to enforce those laws and demonstrate this capacity. From a managerial perspective, investments in developing countries would require managers to assess *de facto* protection and de-emphasize the stringent formal regulations. Going beyond the publicly declared formal regulation is essential in protecting a firm's assets from a poor institutional environment.

Limitations and future work

The capabilities and experience of the firm allow it to overcome the lack of enforcement of formally adopted regulations. However, this analysis is limited in its empirical examination of the particular mechanisms that allow a highly multinational firm to overcome the host country institutional deficits. MNCs advantage could arise through their ability to use a portfolio hedging strategy where they arbitrage international location differences in risk. MNCs could also benefit by building firm level capabilities by learning from their international operations and experience in other host countries with similar institutional contexts. To empirically establish the relative magnitudes of these effects further is subject to future research. In addition, a firm's own experience in the host country could moderate the credibility of formal regulations. These effects are also subject to further empirical examination.

While the results provide insights into firm investment and location choices, there are other potential limitations to this study. One concern is that I cannot identify a firm's total experience in a given host country. I only observe if a firm has operations in a given country at a particular point in time. Hence, I am unable to differentiate between firms that have had extensive experience with the institutional environment of the host country and those whose length of experience is much more limited. Second, the data on FDI and investing firm's other country experience come from different data sources and measure different types of activities. The FDI that I measure is purely in offshored information services and the database that these data come is limited to these activities. However, to measure the extent of the investing firm's other international operations, I use an alternate database that is drawn from corporate directories. While I can identify the countries that the investing firm has operations in using this second database, I cannot distinguish between offshored information services and manufacturing or other types of activities that the firm could be pursuing in these countries. Hence, if the knowledge gained by a firm by operating a manufacturing plant in a foreign country does not transfer to operating a service facility, I would inappropriately assign experience to a firm that did not have any. Third, data derived from corporate directories is often a concern as these directories primarily capture information on large subsidiaries. However, investment in service sectors is generally smaller and is less likely to be reported in these directories. Fourth, I only observe firm investments in sectors such as call centers and back office operations. In the absence of strong institutions, these firms face threats such as loss of propriety databases, theft of customer data etc. However, firms that invest in new content development, such as software development, R&D etc, face even higher risks and potential losses. Fifth, I cannot capture all instances of outsourcing in services. Hence, if a US firm outsources its customer service to a firm in India, this will not be captured in my data. Finally, there is also the question of generalizability of the findings. Most of the regulations in the type of service sectors considered in this analysis are consistent across countries. However, formal regulations governing other sectors may not be as similar. In such cases, while we would expect both *de jure* and *de facto* regulations to influence firm investment decisions, the magnitude of the two effects may not be the same.

A multitude of institutional characteristics and firm variables influence foreign investment decisions of firms. But the micro level datasets that include sufficient levels of variations among those phenomena needed to explore the tradeoffs among factors are difficult to obtain. In this study, by focusing on investments in the information services sector, I can begin to identify key aspects of formal regulation and *de facto* protection and identify their tradeoffs. I find that firm level capabilities influence investment strategies, and that this influence is contingent on country level factors.

References

Acemoglu, D., & Robinson, J. A. (2006). De facto political power and institutional persistence. *American Economic Association Papers and Proceedings,* , 126-130.

Allen, L., & Pantzalis, C. (1996). Valuation of the operating flexibility of multinational corporations. *Journal of International Business Studies, 27*(4)

Allison, P. D. (1984). *Event history analysis.* Sage Publications Beverly Hills, Calif.

Altshuler, R., & Grubert, H. (2003). Repatriation taxes, repatriation strategies and multinational financial policy. *Journal of Public Economics, 87*(1), 73-107.

Barkema, H. G., Bell, J. H. J., & Pennings, J. M. (1996). Foreign entry, cultural barriers, and learning. *Strategic Management Journal, 17*(2), 151-166.

Berkowitz, D., Pistor, K., & Richard, J. F. (2003). Economic development, legality, and the transplant effect. *European Economic Review, 47*(1), 165-195.

Berry, H. (2006). Shareholder valuation of foreign investment and expansion. *Strategic Management Journal, 27*, 1123.

Besley, T. (1995). Property rights and investment incentives: Theory and evidence from ghana. *The Journal of Political Economy, 103*(5), 903-937.

Bhattacharya, U., & Daouk, H. (2002). The world price of insider trading. *The Journal of Finance, 57*(1), 75-108.

Boddewyn, J. J., & Brewer, T. L. (1994). International-business political behavior: New theoretical directions. *The Academy of Management Review, 19*(1), 119-143.

Chung, C. C., & Beamish, P. W. (2005). The impact of institutional reforms on characteristics and survival of foreign subsidiaries in emerging economies*. *Journal of Management Studies, 42*(1), 35-62.

Delios, A., & Henisz, W. J. (2000). Japanese firms' investment strategies in emerging economies. *Academy of Management Journal, 43*(3), 305-323.

Delios, A., & Henisz, W. J. (2003). Political hazards, experience, and sequential entry strategies: The international expansion of japanese firms, 1980-1998. *Strategic Management Journal, 24*(11), 1153-1164.

Desai, M., Foley, C. F., & Hines, J. R. (2004). A multinational perspective on capital structure choice and internal capital markets. *The Journal of Finance, 59*(6), 2451-2487.

Elkins, Z., & Simmons, B. (2005). On waves, clusters, and diffusion: A conceptual framework. *The Annals of the American Academy of Political and Social Science, 598*(1), 33.

Ghemawat, P. (2003). Semiglobalization and international business strategy. *Journal of International Business Studies, 34*(2), 138-152.

Hafner-Burton, E. M., & Tsutsui, K. (2005). Human rights in a globalizing world: The paradox of empty promises. *AJS, 110*(5), 1373-1411.

Hahn, E.D., Doh, J.P., & Bunyaratavej, K. (2007) The evolution of risk in IS offshoring: The impact of home country risk, firm learning and competitive dynamics. *Working Paper, Villanova University School of Business, Villanova, PA.*

Hay, J. R., & Shleifer, A. (1998). Private enforcement of public laws: A theory of legal reform. *The American Economic Review, 88*(2), 398-403.

Henisz, W. J. (2000). The institutional environment for economic growth. *Economics and Politics, 12*(1), 1-31.

Henisz, W. J., & Delios, A. (2001). Uncertainty, imitation, and plant location: Japanese multinational corporations, 1990-1996. *Administrative Science Quarterly, 46*(3), 443-475.
Henisz, W. J., & Macher, J. T. (2004). Firm- and country-level trade-offs and contingencies in the evaluation of foreign investment: The semiconductor industry, 1994–2002. *Organization Science, 15*(5), 537-554.
Henisz, W. J., Holburn, G., & Zelner, B. A. (2005). *Deinstitutionalization and institutional replacement: State-centered, neoliberal and hybrid models in the global electricity supply industry.* Unpublished manuscript.
Holburn, G. & Zelner, B. (2006). Domestic Experience and International Investment Strategy. *Best Paper Proceedings of the 2006 Academy of Management Annual Meeting, Atlanta, GA.*
IIPA (2005). International Intellectual Property Alliance, Country Reports. Available at http://iipa.com
Jandhyala, S. (2008). *De jure & De facto* Protection for Intellectual Property. *Working Paper, Wharton School, University of Pennsylvania, Philadelphia, PA.*
Jandhyala, S., Henisz, W.J. & Mansfield, E. (2007). Pooling Dyads is a BIT Inappropriate. *Working Paper, Wharton School, University of Pennsylvania, Philadelphia, PA.*
Johnson, S., McMillan, J., & Woodruff, C. (2002). Property rights and finance. *The American Economic Review, 92*(5), 1335-1356.
Knack, S., & Keefer, P. (1995). Institutions and economic performance: Cross-country tests using alternative institutional measures. *Economics & Politics, 7*(3), 207-227.
Kobrin, S. J., Basek, J., Blank, S., & La Palombara, J. (1980). The assessment and evaluation of noneconomic environments by American firms: A preliminary report. *Journal of International Business Studies, 11*, 32-47.
Kogut, B. (1985). Designing global strategies: Profiting from operational flexibility. *Sloan Management Review, 27*(1), 27-38.
Marshall, M.G. and Jaggers, K. (2005) Polity IV project: Political regime characteristics and transitions, 1800–2003. Available at: http://www.cidcm.umd.edu/inscr/polity/.
Marron, D. B., & Steel, D. G. (2000). Which countries protect intellectual property? the case of software piracy. *Economic inquiry, 38*(2), 159-174.
McMillan, J., & Woodruff, C. (1999). Interfirm relationships and informal credit in vietnam. *The Quarterly Journal of Economics, 114*(4), 1285-1320.
Meyer, J. W., Boli, J., Thomas, G. M., & Ramirez, F. O. (1997). World society and the nation-state. *AJS, 103*(1), 144-181.
Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology, 83*(2), 340.
Morck, R., & Yeung, B. (1991). Why investors value multinationality. *The Journal of Business, 64*(2), 165-187.
Murtha, T. P., & Lenway, S. A. (1994). Country capabilities and the strategic state: How national political institutions affect multinational corporations' strategies. *Strategic Management Journal, 15*, 113-129.
Nimmer, M. B. & Geller, P. E. International Copyright Law and Practice. New York, NY: Matthew Bender & Co.
North, D. C. (1990). *Institutions, institutional change and economic performance.* Cambridge University Press.

Oxley, J. E. (1999). Institutional environment and the mechanisms of governance: The impact of intellectual property protection on the structure of inter-firm alliances. *Journal of Economic Behavior and Organization, 38*(3), 283–309.

Pierre, G., & Scarpetta, S. (2004). *Employment regulations through the eyes of employers: Do they matter and how do firms respond to them?* World Bank, Human Development Network, Social Protection Team.

Pistor, K. (2002). The demand for constitutional law. *Constitutional Political Economy, 13*(1), 73-87.

Pistor, K., Raiser, M., & Gelfer, S. (2000). Law and finance in transition economies. *The Economics of Transition, 8*(2), 325-368.

Polillo, S., & Guillén, M. F. (2005). Globalization pressures and the state: The worldwide spread of central bank independence. *American Journal of Sociology, 110*(6), 1764-1802.

Rodrik, D., & Zeckhauser, R. (1988). The dilemma of government responsiveness. *Journal of Policy Analysis and Management, 7*(4), 601-620.

Shadlen, K. C., Schrank, A., & Kurtz, M. J. (2005). The political economy of intellectual property protection: The case of software. *International Studies Quarterly, 49*(1), 45-71.

Simmons, B. A. (2000). International law and state behavior: Commitment and compliance in international monetary affairs. *The American Political Science Review, 94*(4), 819-835.

Ulgado, F. M. (1997). Location decision-making characteristics of foreign direct investment in the united states. *International Business Review, 6*(3), 271-293.

Weiss, E. B., & Jacobson, H. K. (1998). *Engaging countries: Strengthening compliance with international environmental accords*MIT Press.

Westphal, J. D., & Zajac, E. J. (1998). The symbolic management of stockholders: Corporate governance reforms and shareholder reactions. *Administrative Science Quarterly, 43*(1)

Zajac, E. J., & Westphal, J. D. (2004). The social construction of market value: Institutionalization and learning perspectives on stock market reactions. *American Sociological Review, 69*, 433-458.

Zhao, M. (2006). Conducting R&D in countries with weak intellectual property rights protection. *Management Science, 52*(8), 1185.

Table 1: Average software piracy rates in 2005

Country	Piracy Rate (2005)	Country	Piracy Rate (2005)
USA	0.21	Colombia	0.57
New Zealand	0.23	Croatia	0.57
Austria	0.26	Latvia	0.57
Finland	0.26	Lithuania	0.57
Denmark	0.27	Poland	0.58
Germany	0.27	Malaysia	0.6
Sweden	0.27	Qatar	0.6
Switzerland	0.27	Oman	0.63
UK	0.27	Brazil	0.64
Belgium	0.28	Egypt	0.64
Japan	0.28	Greece	0.64
Netherlands	0.3	Mexico	0.65
Norway	0.3	Turkey	0.65
Australia	0.31	Chile	0.66
Israel	0.32	Costa Rica	0.66
Canada	0.33	Kuwait	0.66
UAE	0.34	Bulgaria	0.71
Ireland	0.37	Panama	0.71
Czech Republic	0.4	India	0.72
Singapore	0.4	Romania	0.72
Hungary	0.42	Lebanon	0.73
Taiwan	0.43	Argentina	0.77
South Korea	0.46	Dominican Republic	0.77
Spain	0.46	Thailand	0.8
France	0.47	Serbia & Montenegro	0.81
Slovakia	0.47	Nigeria	0.82
Slovenia	0.5	Venezuela	0.82
Saudi Arabia	0.52	China	0.86
Italy	0.53	Pakistan	0.86
Estonia	0.54	Indonesia	0.87
Hong Kong	0.54		

Source: BSA, 2006

Table 2: Industry distribution of firms

Industry	Number of firms
Business & Financial Services	3
Chemicals, Plastics & Rubber	8
Consumer Products	7
Electronics	20
Food/Beverages/Tobacco	3
Heavy Industry	16
ICT	71
Life Sciences	9
Light Industry	3
Property, Tourism & Leisure	6
Transport Equipment	15

Table 3a: Home countries in sample

Home country	Number of firms
Australia	2
Bermuda	2
Canada	2
Finland	2
France	8
Germany	11
India	3
Japan	13
Netherlands	1
Norway	1
South Korea	3
Sweden	7
Switzerland	3
Taiwan	2
UK	8
USA	93

Table 3b: Host countries with investments by firms in estimating sample (2002-2005)

Host country	Number of investments	Host country	Number of investments
Algeria	0	Latvia	0
Argentina	3	Lebanon	0
Australia	9	Lithuania	0
Austria	0	Malaysia	5
Bahrain	0	Mauritius	0
Belgium	0	Mexico	1
Brazil	2	Morocco	1
Bulgaria	2	Netherlands	2
Canada	22	New Zealand	0
Chile	4	Oman	0
China	14	Pakistan	0
Colombia	0	Panama	1
Costa Rica	1	Philippines	6
Croatia	0	Poland	2
Czech Republic	8	Portugal	2
Denmark	4	Romania	2
Dominican Republic	0	Russia	1
Egypt	1	Saudi Arabia	0
El Salvador	1	Singapore	5
Estonia	0	Slovakia	6
Finland	0	South Africa	1
France	2	South Korea	0
Germany	5	Spain	5
Greece	0	Sweden	0
Hungary	7	Switzerland	1
India	46	Thailand	4
Indonesia	0	Tunisia	0
Ireland	23	UAE	1
Israel	1	UK	11
Italy	1	USA	8
Japan	5	Uruguay	1
Jordan	0	Venezuela	0
Kuwait	0	Vietnam	0

Table 4: Estimation of *de facto* property rights protection
Dependent variable is Piracy Rate for Country-Year unit of analysis

	PA model, AR(1) Robust std errors	Xtreg FE
Global Pressures		
WTO	-0.1518***	-0.0484***
	(0.0401)	(0.0087)
USTR	0.0305	0.0089
	(0.0224)	(0.0058)
Cohesion	1.2738*	0.3539***
	(0.7382)	(0.1042)
Role equivalence	0.0168*	0.0055***
	(0.0101)	(0.0018)
Local Pressures		
ln(computer service exp/GDP)	-0.8174*	-0.1679*
	(0.4695)	(0.0951)
De jure		
Software copyright law	-0.0410	-0.0261**
	(0.0395)	(0.0120)
Laws on electronic commerce	-0.1298**	0.0097
	(0.0577)	(0.0104)
WCT	-0.0783**	-0.0156
	(0.0343)	(0.0095)
Berne	-0.0390	-0.0503**
	(0.1053)	(0.0211)
Convention on cybercrime	-0.0290	-0.0239***
	(0.0278)	(0.0082)
Controls		
ICRG Bureaucratic quality	-0.1042**	-0.0051
	(0.0442)	(0.0111)
polcon	-0.4161**	-0.1198***
	(0.1752)	(0.0425)
ln(GDP/C)	-0.4092***	-0.2058***
	(0.0549)	(0.0481)
democratization	0.0507	0.0400**
	(0.0525)	(0.0155)
FDI inflows as % of GDP	-0.0014	-0.0001
	(0.0014)	(0.0009)
Constant	4.0938***	2.3914***
	(0.5550)	(0.4150)
Observations	386	400
Number of countries	47	52
R-squared	.	0.63

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5: Summary statistics and correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Mean	0.01	3.48	0.49	0.47	16.75	8.60	0.47	0.08	0.01	5.96	0.34	0.67	8.92	5.72
	SD	0.10	0.82	0.18	0.16	18.72	2.07	0.50	0.10	0.09	4.24	0.48	0.21	1.13	0.70
	Min	0.00	2.00	0.08	0.16	1.00	2.72	0.00	0.00	0.00	0.00	0.00	0.00	6.17	3.23
	Max	1.00	5.00	0.79	0.74	102.00	13.53	1.00	0.76	1.00	17.00	1.00	0.89	10.55	6.60
1	Firm investment	1.00													
2	Formal regulations	0.01	1.00												
3	De facto	0.00	0.43	1.00											
4	Estimated de facto	0.01	0.54	0.86	1.00										
5	Number of countries (subsidiaries)	0.05	0.01	0.00	0.00	1.00									
6	ln(assets)	0.04	0.01	0.00	0.00	0.47	1.00								
7	Service	0.03	0.00	0.00	0.00	-0.09	-0.22	1.00							
8	R&D/sales	-0.01	-0.01	0.00	0.00	-0.07	-0.36	0.28	1.00						
9	Prev year experience	0.09	0.01	0.01	0.02	0.02	0.03	0.02	-0.01	1.00					
10	Time difference	0.00	-0.15	0.06	0.03	-0.11	-0.11	0.06	0.05	0.00	1.00				
11	Common language	0.02	-0.27	-0.08	-0.01	-0.10	-0.14	0.07	0.10	0.03	0.06	1.00			
12	Polcon	0.01	0.34	0.64	0.56	0.00	0.00	0.00	0.00	0.01	-0.01	-0.10	1.00		
13	ln(GDP/C)	-0.01	0.56	0.85	0.96	0.00	0.00	0.00	0.00	0.00	0.04	-0.08	0.54	1.00	
14	ln(mainline telephones)	-0.01	0.56	0.74	0.77	0.00	0.00	0.00	0.00	0.00	0.02	-0.23	0.59	0.86	1.00

Table 6: Data definitions

Parameter	Variable	Definition	Source
Dependent variable	Firm investment	0/1 dummy for investment by firm i in country j at time t. Includes greenfield and expansion investments in export oriented services including call/contact centers, shared service centers and technical support centers	Locomonitor
IP Regimes	Formal Regulations	Country's formal regulations governing the service industry. Scores signatory to WIPO Copyright Treaty, signatory to Berne Convention, presence of domestic law to provide copyright protection for computer programs, adoption of UNCITRAL's model law on electronic commerce and signatory to CoE's Cybercrime regulations	WIPO, CLEA, UNCITRAL, CoE
	De facto protection	1 - Piracy rate	BSA
	Estimated *De facto* protection	(1-predicted piracy rate)	Estimated value (Table 4)
Firm multinationality	Number countries	Number of countries in which the firm has subsidiaries	Directory of Corporate Affiliations
Firm controls	ln_assets	Log of the reported assets of the firm	Compustat
	Service	Dummy to indicate if the firm belongs to a service sector (Business & Financial services or ICT).	Locomonitor
	Rd_to_sales	The ratio of firm R&D expenditure to its total sales	Compustat
	Prev year exp	Dummy = 1 if the firm made a prior investment in the preceding year	Locomonitor
	Insampleexp	The total number of prior investments made by the firm in the host country in the sample time period.	Locomonitor
Country controls	time_diff	The time difference between the capital cities of home and host countries	CIA world fact book
	Common_lang	Dummy =1 if the home and host countries share a common language	CIA world fact book
	Polconv	Host country institutions	Henisz (2000)
	ln_gdppc_const2000usd	Log of host country per capita GDP	WDI
	ln_telephone mainlines	log of Number of telephone lines per 1000 people	WDI

Table 7: Probit model of firm entry decision

Dependent variable is Entry (1 = Entry, 0 = No Entry) for Firm-Country-Year unit of analysis

	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-
De jure										
Software copyright law		0.3656***								
		(0.0855)								
Laws on electronic commerce			0.2123***							
			(0.0697)							
WCT				-0.0337						
				(0.0553)						
Berne					0.3628**					
					(0.1687)					
Convention on cybercrime						0.2340***				
						(0.0720)				
Formal regulations index							0.1659***		0.1652***	0.0821*
							(0.0329)		(0.0352)	(0.0421)
De facto										
De facto protection								0.6629***	0.6072***	
								(0.2103)	(0.2331)	
Estimated de facto protection										5.3410***
										(0.6156)
Firm main effects										
number of countries with subsidiaries							0.0072***	0.0070***	0.0072***	0.0060***
							(0.0022)	(0.0021)	(0.0022)	(0.0023)
Controls										
ln(assets)	0.0935***	0.0934***	0.0932***	0.0933***	0.0939***	0.0957***	0.0542***	0.0529***	0.0540***	0.0582***
	(0.0213)	(0.0216)	(0.0217)	(0.0214)	(0.0213)	(0.0212)	(0.0164)	(0.0163)	(0.0164)	(0.0185)
service	0.3348***	0.3407***	0.3403***	0.3353***	0.3362***	0.3335***	0.3448***	0.3398***	0.3441***	0.3084***
	(0.0841)	(0.0848)	(0.0847)	(0.0840)	(0.0842)	(0.0845)	(0.0770)	(0.0766)	(0.0772)	(0.0766)
R&D/Sales	-0.6386	-0.6484	-0.6303	-0.6385	-0.6432	-0.6535	-1.0931**	-1.0652**	-1.0889**	-0.8028
	(0.4349)	(0.4414)	(0.4357)	(0.4351)	(0.4358)	(0.4407)	(0.5343)	(0.5253)	(0.5346)	(0.5210)
experience	0.9572***	0.9387***	0.9410***	0.9560***	0.9479***	0.9438***	0.9080***	0.9251***	0.9006***	0.8273***
	(0.1307)	(0.1328)	(0.1306)	(0.1312)	(0.1311)	(0.1311)	(0.1287)	(0.1304)	(0.1281)	(0.1609)

time difference	0.0049	0.0040	0.0002	0.0038	0.0051	0.0082	0.0101	0.0052	0.0093	0.0117
	(0.0060)	(0.0060)	(0.0063)	(0.0063)	(0.0060)	(0.0066)	(0.0064)	(0.0061)	(0.0064)	(0.0076)
common language	0.2092***	0.1767***	0.1750***	0.2056***	0.2102***	0.2676***	0.2324***	0.2319***	0.2433***	0.0876
	(0.0533)	(0.0567)	(0.0551)	(0.0558)	(0.0535)	(0.0673)	(0.0586)	(0.0565)	(0.0592)	(0.0718)
polcon	0.4984***	0.3866***	0.5408***	0.5096***	0.4753***	0.3770***	0.3494**	0.3486***	0.2064	-0.0972
	(0.1336)	(0.1405)	(0.1428)	(0.1324)	(0.1328)	(0.1344)	(0.1527)	(0.1233)	(0.1412)	(0.2042)
ln(GDP/C)	-0.0799*	-0.0747	-0.1060**	-0.0793*	-0.0605	-0.0889*	-0.1042*	-0.1564***	-0.1796***	-0.8688***
	(0.0479)	(0.0474)	(0.0540)	(0.0475)	(0.0492)	(0.0476)	(0.0538)	(0.0558)	(0.0653)	(0.1306)
ln(mainline telephones)	0.0538	0.0147	0.0666	0.0589	0.0316	0.0092	-0.0109	0.0625	0.0067	0.2278**
	(0.0646)	(0.0670)	(0.0676)	(0.0651)	(0.0659)	(0.0649)	(0.0683)	(0.0668)	(0.0693)	(0.0975)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-3.4202***	-3.4832***	-3.3050***	-3.4292***	-3.8072***	-3.1845***	-3.1065***	-2.8048***	-2.7439***	0.4931
	(0.2931)	(0.2921)	(0.3078)	(0.2895)	(0.2974)	(0.3082)	(0.2595)	(0.2968)	(0.3127)	(0.5564)
Observations	28347	28347	28347	28347	28347	28347	28347	28347	28347	18066
Number of firms	161	161	161	161	161	161	161	161	161	161

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 8: Firm- & Country- Interaction effects
Probit models of firm entry decision
Dependent variable is Entry (1 = Entry, 0 = No Entry) for Firm-Country-Year unit of analysis

	-11-	-12-	-13-	-14-
De jure				
Formal regulations index	0.2154***	0.1657***	0.2114***	0.0247
	(0.0399)	(0.0352)	(0.0406)	(0.0558)
De facto				
De facto protection	0.6257***	0.7764***	0.6674**	
	(0.2310)	(0.2660)	(0.2939)	
Estimated de facto protection				5.8803***
				(0.5942)
Firm main effects				
number of countries with subsidiaries	0.0135***	0.0104***	0.0138***	0.0080
	(0.0043)	(0.0033)	(0.0043)	(0.0051)
Firm- & country- tradeoffs				
num countries * formal	-0.0019**		-0.0018	0.0024*
	(0.0010)		(0.0012)	(0.0013)
num countries * de facto		-0.0068	-0.0017	
		(0.0051)	(0.0062)	
num countries * estimated de facto				-0.0223***
				(0.0080)
Controls	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Constant	-2.8421***	-2.8050***	-2.8462***	0.4623
	(0.3567)	(0.3319)	(0.3589)	(0.5843)
Observations	28347	28347	28347	18066
Number of firms	161	161	161	161

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 9: Robustness tests
Probit models of firm entry decision
Dependent variable is Entry (1 = Entry, 0 = No Entry) for Firm-Country-Year unit of analysis

	-15-	-16-	-17-	-18-	-19-	-20-	-21-	-22-
	developed		developing					
De jure								
Formal regulations index	0.1691**	0.2185**	-0.1742**	-0.3846***			0.0504	0.0127
	(0.0861)	(0.0959)	(0.0698)	(0.0848)			(0.0672)	(0.0552)
De facto								
Estimated de facto protection	2.2637*	2.4708*	4.8929***	5.0412***			4.1163***	5.7893***
	(1.2843)	(1.3154)	(0.8184)	(0.8390)			(0.5862)	(0.5909)
De jure - de facto gap								
High-Low					-0.7123***	-0.6930***		
					(0.1602)	(0.2135)		
Firm main effects								
number of countries with subsidiaries	0.0024	0.0202	0.0098***	-0.0114*	0.0060***	0.0018	0.0109**	0.0074
	(0.0023)	(0.0127)	(0.0028)	(0.0068)	(0.0022)	(0.0021)	(0.0054)	(0.0053)
Firm- & country- tradeoffs								
num countries * formal		-0.0023		0.0077***			0.0024	0.0025*
		(0.0036)		(0.0021)			(0.0015)	(0.0013)
num countries * estimated de facto		-0.0129		-0.0053			-0.0271***	-0.0219***
		(0.0349)		(0.0172)			(0.0092)	(0.0081)
num countries * high_low					0.0115***	0.0147***		
					(0.0028)	(0.0033)		
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
India dummy							1.7950***	
							(0.1890)	
total sample experience								0.5117***
								(0.0840)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.2977	-0.7541	1.1412	1.8401**	-3.0743***	-3.4029***	-2.9050***	0.4814
	(2.4199)	(2.5050)	(0.8581)	(0.9027)	(0.2576)	(0.9823)	(0.5160)	(0.5856)
Observations	7948	7948	10118	10118	28347	10673	18066	18066
Number of firms	161	161	161	161	161	161	161	161

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1