Incidence of Business and Economic Uncertainty over Technology-Intensity and Organizational Choice when forming Cooperative Ventures: Evidence from Latin America

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Abstract

I analyze the determinants of organizational form adopted by two companies and the possibility of knowledge transfer when these companies decide to enter a highly volatile environment. Using a unique dataset of 305 cooperative ventures, I focus my attention on alternative organizational forms – different from acquisitions – adopted by multinationals entering Latin American countries during the period 1998-2004. I consider two types of cooperative ventures: strategic alliances and joint ventures. Overall results strongly support the idea that differences in the business environment uncertainty between the countries where the partners are incorporated negatively affects (1) the likelihood of forming joint ventures which usually are associated with higher commitment of corporate resources, and (2) the likelihood of forming ventures that potentially allow for high knowledge transfer. I also find partial evidence regarding the effect of economic environment uncertainty over the likelihood of organizational form selection and technology venture formation: High economic uncertainty is associated with a greater likelihood of joint venture formation to control for opportunistic behavior. However, we find a weak effect of economic uncertainty over the technology/non-technology decision.

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Introduction

The growth in cooperative ventures among corporations over the last two decades has caught the attention of the academic community (Chan, Kensinger, Keown and Martin, 1997; Allen and Phillips, 2000; Bleeke and Ernst, 1995; Rondinelli and Black, 2000; Cinnamon, 2000; Murray, 2001; and Pablo and Subramanian, 2003). Broadly these cooperative ventures can be classified either as strategic alliances or joint ventures.

Through a strategic alliance, two or more firms share knowledge and corporate resources to pursue a common objective. A strategic alliance can be formed either as an arm-length contract or an equity link can be established among the partners. I will call these two types of alliances non-equity alliance and equity alliance respectively. It is possible that in an equity alliance just one partner buys equity in the other partner's capital. Sometimes however, the equity link is structured in such a way that each partner takes an equity position in the other partner's capital. James and Weidenbaum (1993) refer to this latter type of equity alliance as a joint-equity swap. It is important to highlight that these equity positions never imply control of the partner.

The main difference between joint ventures and strategic alliances is that in a joint venture a new organizational form is established. Relative to strategic alliance, joint ventures are more rigid cooperative ventures. This new organization is funded by the partners involved in the joint venture. According to Doz and Hamel (1998), strategic alliances differ from joint ventures in that: (1) joint ventures are formed to exploit specific business opportunities, which not necessarily are directly related with the activities pursued by their parent companies. Alliances meanwhile, are more focused with their partners current business interests; and (2) in a joint venture, the resources invested

and the risks taken are better known or measurable by the parent companies. The input and output in a strategic alliance is more difficult to know ex-ante. Joint Ventures also imply on average greater monetary investment by both partners.

Cinnamon (2000) considers joint ventures and strategic alliances important market-entry organizational forms when expanding activities abroad. Studying the capital flows received by Latin America and the Caribbean during 1998, Cinnamon concludes that relevant factors involved in an international negotiation are similar to those found between two companies within the same country. However, different cultures, expectations, and legal systems make this international negotiation more expensive and time consuming.[1]

This study seeks to empirically determine in an international setting the relevant factors that influence the market-entry organizational form chosen by two companies when pursuing a business opportunity. Specifically, I evaluate if a high degree of uncertainty in the country where business is pursued, determine (1) the business organizational form adopted by the partners and, (2) the level of potential knowledge transfer of the business opportunity.

First, I analyze if joint ventures differ from strategic alliances in dealing with economic- and business-related uncertainty. Controlling for the type of contract, I find evidence that business environment uncertainty determines the organizational form adopted. When one of the partners is incorporated in a Latin American country, and does not share the same legal code with the foreign partner, there is a lower probability of structuring the venture through a joint venture. This result is consistent with the idea that higher legal uncertainty is associated with lower the probability of corporate resource

[1] See for example La Porta, et alt. (1998, 2000) for the effect of differences in the legal environment.

commitment by the foreign partner. Furthermore, joint ventures are also less likely to occur if there is a big difference between the level of property rights protection and regulation of the countries were the partners are incorporated.

When I test the effect of economic uncertainty over the organizational form chosen, I find an opposite result: Consistent with cost transaction economics, greater economic uncertainty seems to be managed through more rigid structures like joint ventures. This result is statistically significant at the univariate and multivariate level. Economic uncertainty seems to be an important determinant particularly in those alliances were both partners are not Latin American companies.

Finally, I also find compelling statistical evidence associated with a negative and significant effect of the business environment over the probability of forming a high transfer of knowledge venture. Technology ventures are more likely if both partners share the same legal code, and their countries of incorporation share similar levels of regulation and property rights protection.

The rest of the paper is organized as follows. Section 2 formulates the hypotheses related to the effect of the environment uncertainty over the choice of organizational form and the potential level of knowledge transfer. Section 3 describes the data and the definition of the variables. Section 4 presents a breakdown of the results. Finally, Section 5 concludes.

Uncertainty and Organizational Form

Several theories in the literature on organizational economics may be adapted to explain the adoption and usefulness of different types of organizational forms that lie

between an arms length contract and a full fledged merger when they are subject to different types and levels of uncertainty. In what follows, I provide a brief description of these theories and set out the hypotheses extracted from them.

A. Environment Uncertainty and Cooperative Ventures

If a transaction requires investments into transaction specific assets and if there is uncertainty about the future, the room for opportunistic behavior increases. In general, restricting this kind of behavior demands replacing market mechanisms by hierarchical mechanisms (Williamson, 1985; 1991). Therefore, the higher the uncertainty other things being equal, the greater the number of more rigid structures such as Mergers and Acquisitions (M&As) relative to the number of flexible structures such as strategic alliances and joint ventures. In a continuum, joint ventures are intermediate structures between strategic alliances and a full merger of two companies.

In an international setting, potential partners not only face uncertainty intrinsically related to the business opportunity being pursued but also additional uncertainty about the economic and business environment that surrounds the activity jointly developed. Burgers, Hill and Kim (1993) link cooperative venture formation with environment uncertainty. They argue that cooperative ventures – specifically alliances – are a means to reduce environment uncertainty. Dickson and Weaver (1997) extend Burgers, Hill and Kim (1993) analysis identifying three different sources of uncertainty, being the third one the growing demand for internationalization. When a foreign company expands its activities beyond its borders, it may face added uncertainty about the economic and business environment in the targeted country. To reduce this uncertainty it makes sense to partner a local company through a cooperative venture. The local partner usually have

better knowledge of the cultural, economic, and business environment that will guide the activity.

High uncertainty however, makes very difficult to write a contract that not only specifies the exact contribution of each partner to the cooperative venture but also allocates the final output and profits from the venture. Furthermore, the level of uncertainty faced by each of the partners is not symmetrical. Local partners may enjoy informational advantages about the economic and legal environment. Foreign partners may enjoy informational advantages over the business idea or proprietary technology to be used. This asymmetric level of uncertainty creates the perfect setting for opportunistic behavior by one of the partners or both. One way to eliminate this problem is acquiring the local business by the foreign partner. However, equity linkages between the partners can reduce significantly the opportunistic behavior of the partners avoiding the additional costs associated with merging two companies.[2] When a partner buys a small portion of the other partner's equity, there is an explicit cost of behaving opportunistically through the value reduction of the equity portion bought. Equity cooperative ventures and joint ventures are intermediate governance structures that may better cope dealing with environment uncertainty and the increased opportunistic behavior. *Therefore, I expect that the higher the level of environment uncertainty, the higher the probability of finding cooperative ventures with an equity link or joint ventures instead of non-equity strategic alliances.*

However, joint ventures imply a higher level of investment for both partners relative to strategic alliances. La Porta et alt. (1998, 2000) among others shows that the legal code is

[2] Besides costs associated with the environment uncertainty already mentioned, see Berger and Ofek (1995; 1999), Meyer, Milgrom, and Roberts (1992), Rajan, Servaes, and Zingales (2000), and Scharfstein and Stein (2000) for other type of costs.

associated with the level of investor protection. I recognize however, that there are other variables different from legal code that also determine the level of investor protection. The level of investor protection usually is related to other business-related variables. Most of Latin American countries share the same legal code but are perceived very differently in their levels of regulation, government intervention, and property rights protection, among other variables. Contract-based cooperative ventures provide rapid entry into foreign markets without a large resource commitment. *Therefore, I expect a greater proportion of strategic alliances over joint ventures the higher the level of legal and business environment uncertainty.*

B. Environment Uncertainty and Transfer of Knowledge

Learning can motivate cooperative ventures formation (Badaracco, 1991; Lei and Slocum, 1992; Mowery, Oxley, and Silverman, 1996). Chan et al (1997) shows that technology alliances create significantly more value than non-technology alliances. In an international setting, it is not difficult to find situations where a venture can be of mutual benefit for the partners; a foreign company may enter into a cooperative venture to avoid direct investments while the local partner might be interested in learning new skills through a technology transfer contract type. Note that the motivation to form a venture is different for each of the partners involved.

However, when a foreign company enters a new market through a cooperative venture, the success of the venture not only depends on the uncertainty about the activity being pursued but also on the environment uncertainty that surrounds the venture. A highly volatile environment or known preexisting negative conditions can preclude technology-based endeavors. For example, there is ample evidence about the effect of the

legal environment on investor's protection and the usage of capital markets by companies (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998, 2000). Since technology ventures are subject to high contract-specific uncertainty, they are likely to be developed in places with low economic volatility and a relatively safe business environment. *Therefore, I expect the higher the level of environment uncertainty, the lower the probability of forming a technology-based venture.*

Data and Variable Definitions

In order to test the hypotheses formulated, I need to construct a sample of cooperative ventures and acquisitions that were formed in countries with relatively sustained levels of high environment uncertainty. Latin America seems to be the perfect setting to construct this unique database. I identify a sample of strategic alliances and joint ventures formed in the Latin American region during the period 1998 to 2004 from announcements gathered from Lexis / Nexis Academic Universe and Factiva databases. For each cooperative venture announcement, I initially record information on the companies involved, their respective country of incorporation, if they are public, private, or state-owned entities, the country or area where the venture was taken place, the date on which the venture was announced, the aim and description of the venture, and the equity linkages – if any – between the partners.

To narrow the analysis, I focus my attention on those ventures formed by two partners, finding an initial sample of 315 cooperative ventures.[3] In 47 of these ventures, the partners are both Latin American companies. In 199 ventures a local (Latin

[3] I have not taken into account cooperative ventures formed in Brazil since there is an evident survivorship bias due to the language selection settings (English and Spanish) in the databases mentioned above.

American) company is partnering a foreign (Non-Latin American) company, and in the rest of the announcements (69) two foreign companies are partnering to form a venture in the Latin American region. Out of this initial sample, I find only 10 cooperative ventures where a Latin American company is partnering with another company to initiate business activities outside Latin America. (8 ventures in USA, 2 in Japan, and 1 in Europe). Table 1 Panel A shows the number of alliances and joint ventures per venture location. Since the focus is high volatile environments, I do not consider the above mentioned ventures whose locations are not in the Latin American region. The refined sample is composed by a total of 166 alliances and 135 joint ventures[4]. Most of the cooperative ventures are located in the biggest economies in Latin America. About 17% of the alliances and 15% of the joint ventures are regional in their nature or oriented to cover the whole Latin America. Panel B of the same table shows descriptive statistics about the numbers of strategic alliances and joint ventures per year. Atypically to previous findings (Chan et alt, 1997; Pablo and Subramaniam, 2003), cooperative ventures do not increase in number during the period under analysis.

[Insert Table 1 here]

Table 2 shows descriptive statistics about the contract type of the ventures formed in Latin America. I employ a similar classification to the one used in Chan et alt. (1997), identifying six types of contracts, half of them being associated with low transfer of knowledge (licensing, marketing and supply agreements) and the other half associated with high transfer of knowledge (development, technology and manufacturing[5]

[4] There are four observations where it was not possible to determine the specific country in Latin America from the announcement.

[5] Manufacturing agreements are not always associated with a high transfer of knowledge. However, they may allow the local partner to learn new skills or technologies from the foreign partner.

agreements). I construct two additional variables in order to consolidate the individual information of the contract type. The first variable called *technology dummy* takes the value of one if the contract is associated with high transfer of knowledge and zero otherwise. The second variable called c*ontract-complexity dummy* takes the value of one if the venture has more than one objective (i.e. marketing and development agreement) and zero otherwise. It is evident from the table that the majority of the cooperative ventures in Latin America are associated with a low transfer of knowledge. Only 37% of the total number of endeavors is associated with the possibility of a high transfer of knowledge. Also, only 32% of the cooperative ventures are complex according to the definition of the dummy variable. Although these results are descriptive and preliminary, they support the idea that environment uncertainty may explain somewhat the low-tech/low-knowledge-transfer of the cooperative ventures in the area. It seems also from the table that high-tech/high-knowledge-transfer contracts are more frequently managed through joint ventures instead of strategic alliances.

[Insert table 2 here]

Table 3 shows a detailed list of those industries were venture formation took place in the period under analysis. I show results only for the sub-sample where a foreign company partners a Latin American company. Industry names were gathered from Compustat Industrial, Canadian, and Global data. To test whether the companies partnering belong to the same industry, I construct a dummy variable that takes the value of one if the partners share the same two-digit SIC code, and zero otherwise. The last column of table 3 shows that in most of the ventures, the two companies belong to different industries.

[Insert table 3 here]

I define environment uncertainty to be composed by two types of factors: economic and business factors. I compile aggregated macroeconomic data from all Latin American countries in order to proxy for economic environment uncertainty. Specifically, I obtain annual information about inflation rates, percentage of local currency depreciation, and real GDP growth for the period 1992-2004 from the Euromonitor Global Market Information Database. I divide the economic environment proxies into two types: levels and volatility. Level proxies are associated with the annual accumulated inflation rate, currency depreciation, and real GDP growth. Volatility proxies are associated with the standard deviation for the three macroeconomic variables just mentioned. Each standard deviation is calculated using information from the year of venture formation and the two previous years.[6]

I also construct several variables to measure the level of business environment associated to the country were the venture takes place and the countries of incorporation of each of the partners. Differences in the legal systems of the two partners involved in a cooperative venture add more uncertainty about how to manage potential conflicts. Consistent with the hypotheses being tested, I expect those cooperative ventures formed by two partners incorporated in countries with different legal systems more likely to be non-equity strategic alliances and less likely to be technology-type agreements given weak investor protection. Using the World Legal Systems database from the University

[6] I include macroeconomic information from the same year of venture formation in the standard deviation calculation in order to consider short-term expectations about the environment from the partners involved. Therefore, I do not consider the volatility proxies to have a look-ahead bias.

of Ottawa[7], I create a legal system dummy that takes the value of one if the country of incorporation of the two partners do not share the same legal code and zero otherwise.

Additionally, I construct a set of variables using the Heritage Foundation's indexes that measure the levels of government intervention, regulation, and property rights protection for the period under analysis. Three variables measure the absolute difference in the level of regulation, government intervention and property rights protection of the countries where the partners are incorporated. Three additional variables measure the level of regulation, government intervention, and property rights protection of the country where the venture takes place. For the construction of each of these variables, I use indexes from the year previous to the venture formation.

Results

Table 4 Panel A shows univariate analysis related to the impact of the economic and legal environment uncertainty over the choice between strategic alliances and joint ventures. Consistent with the first hypothesis, joint ventures are adopted over strategic alliances when the economic environment is more uncertain. More specifically, the higher the GDP volatility and currency depreciation volatility in the country where the venture takes place, the higher the likelihood of adopting a joint venture instead of a strategic alliance. These results seem to be driven mainly by the sub-sample of observations that involved two foreign partners venturing in Latin America (Panel B). These results are statistically significant at least at a 10 percent level.

[7] Information can be obtained in the following web address: http://www.droitcivil.uottawa.ca/world-legal-systems/eng-monde.html

[Insert table 4 here]

Consistent with the second hypothesis, differences in the business environment also affect negatively the likelihood of joint ventures and equity link usage. When partners do not share the same legal system I find less likelihood of joint venture formation. On average, in 60 percent of the strategic alliance observations, both partners are incorporated in countries whose legal code are different while this proportion is 43 percent in the joint venture subsample. This difference is significant at a 1 percent level. Two other business-related variables affect the choice of the cooperative organizational form. The higher the absolute differences in the level of (1) property rights protection and (2) regulation, the less likely is the adoption of joint ventures over strategic alliances. These results are statistically significant at a 5 percent level.

Panel B and C of table 4 show same results classified according to one partner being being from the Latin America region. When no partner is from Latin America (Panel B), the legal system dummy and other business-related variables are not significant anymore while results related to economic uncertainty environment seems to more significant. Most of the proxies of economic uncertainty are significant at a 5 percent level. When one of the partners is incorporated in Latin America (Panel C), most of the economic uncertainty proxies lose statistical significance but the legal environment dummy and the variables associated with the absolute differences in the level of property rights protection and regulation regain their significance.

Overall results seem to suggest that when both partners are from abroad, business environment uncertainty seems to be less important than economic environment uncertainty in determining the venture form. Given the presence of a Latin American

partner, business-related variables determine primarily the cooperative organizational form adopted. Overall results however, support the hypotheses being tested.

Finally, consistent with the literature, technology ventures seem to be better managed through joint ventures. Results are significant at a 1 percent level only in the sample where no Latin American partner is involved in the venture. This result seems to corroborate the low level of technology transfer to a local partner in the Latin American region.

To further analyze the possibility of technology transfer, Table 5 Panel A shows univariate analysis related to differences between the sample of ventures with high knowledge transfer (technology contract) and the sample with low knowledge transfer ventures (non-technology contract). Technology ventures differ significantly from non-technology ventures in the proportion of partners sharing the same legal code. The majority of partners that form technology ventures (71%) are from countries that share the same legal system while only a minority of non-technology partners (44%) shares the same legal code. These results are statistically significant at a one percent confidence level. I obtain similar results when proxying business uncertainty using the absolute differences in the levels of property rights protection and regulation between the countries where the partners are incorporated. The higher the absolute difference, the lower the probability of forming a technology-based venture. This evidence strongly supports the hypothesis that the greater the business environment uncertainty, the lower the number of high knowledge transfer ventures in the region.

[Insert table 5 here]

Evidence about the effect of economic environment uncertainty over the possibility of reaching a technology or non-technology venture is somewhat mixed and weaker. Table 5 Panel A shows that lower level of GDP growth – a proxy of uncertainty – is associated with greater probability of technology contracts. Although this result supports the hypothesis about the inverse relation between uncertainty and likelihood of technology ventures, it is only significant at a 10% level. I also find that a higher local exchange depreciation and higher historical exchange rate volatility is associated with a higher probability of technology ventures. This evidence goes against the hypotheses being tested. The evidence that there is a high proportion of technology ventures the greater the exchange rate depreciation could be explained by the fact that I define technology ventures to include manufacturing agreements. Foreign partners may be interested in forming ventures in countries with competitive local exchange rates to minimize production costs. In fact, Panel D of the same table shows that this result is totally driven by the sub-sample of ventures formed by two foreign partners. But results are in fact opposite to the hypothesis. When both partners are from above, technology-based ventures are located in countries with higher uncertainty about the levels of inflation, exchange rate depreciation, an GDP growth.

Table 5 Panel B and C show similar results when one partner is from a Latin American country (Panel B), and both partners are from Latin America (Panel C). Overall results seem to confirm the previous finding about economic-related variables determining ventures when no partners are from Latin America and business-related variables being important in determining ventures when one Latin partner is involved.

Table 6 presents company-specific information as well as the average level of government intervention, property rights infringement, and regulation. Panel A shows results for the whole sample of cooperative ventures. The Latin American partner is on average somewhat smaller. Its level of sales is lower than that of its foreign counterpart. This result is statistically significant at least at a 5 percent level. In addition, there is weak statistical evidence that the Latin American partner has less intangible assets and invests less in R&D and Advertising expenses. Latin companies are more profitable and less productive than their foreign partners if we use operating profit margin and asset turnover as proxies. These results are statistically significant at a 5 percent level. The evidence about the business environment is compelling. Latin American companies are incorporated in countries with greater level of government intervention, property rights infringement, and regulation than their foreign counterparts.

[Insert table 6 here]

Panel B and C of Table 6 gives more insight about the type of companies involved in strategic alliances or joint ventures. Latin American partners involved in strategic alliances have similar size than their foreign partners. The benefits of strategic alliances seem to be coming from the fact that Latin partners have better operating profit margins but less intangible assets and R&D investments. By contrast, Latin companies partnering through a joint ventures are smaller. Although they still have greater operating profits, their asset usage is less productive. Given the lack of data, I am not able to test if there is a difference between the levels of intangibles and investment in R&D/Advertising.

For the sub-sample of observations where a Latin company is involved, Table 7 presents logistic regressions that explain the incidence of joint venture selection as a way to organize the economic activity. Using each of the economic environment uncertainty variables, I find supporting evidence about the effect of economic uncertainty over the likelihood of joint venture selection relative to strategic alliances. When level proxies of economic uncertainty are used, the higher the uncertainty, the higher is the likelihood of joint venture formation. This result is statistically significant at a 1 percent for the inflation and GDP growth proxies. If volatility proxies are used, results remain significant only for inflation. For most of the models considered, differences in the legal systems are significantly associated with a lower likelihood of joint ventures. Most of the results are statistically significant at least at a ten percent level (13 out of 18). Given that joint ventures usually requires a higher resource commitment, this result is consistent with the second hypothesis that the higher the legal environment uncertainty the lower the resource commitment and more flexible structures are preferred. Consistent with the univariate analysis, the higher the differences about levels of regulation, government intervention and property rights protection between the countries where the partners are incorporated, the lower the probability of equity linked organizational forms.

[Insert table 7 here]

Table 8 presents logistic regressions explaining the likelihood of technology-based ventures. A high legal environment uncertainty is associated with a low likelihood of technology ventures. The negative coefficient is statistically significant at a 1 percent level. This result supports the idea that the higher the environment (legal) uncertainty the lower the probability of technology-based ventures. In contrast to the evidence found

during the univariate analysis, regulation, government intervention and treatment of property rights do not seems to determine technology-based ventures after controlling for contract-specific variables. Results associated with the effect of economic uncertainty are weak. We find same evidence of a direct relationship between exchange rate depreciation and technology venture formation. This result is statistically significant at a ten percent level and only for the level proxy.

[Insert table 8 here]

Conclusions

I analyze the organizational form adopted by two companies when deciding to enter a highly volatile environment. Specifically I focus my attention on alternative organizational forms – different from acquisitions – adopted by MNC's entering Latin American countries. I consider two types of cooperative ventures: strategic alliances and joint ventures. Overall results strongly support the idea that differences in the business uncertainty in the countries where the partners are incorporated – proxied by differences in their legal systems and levels of regulation, government intervention, and property rights protection – negatively affects (1) the likelihood of forming joint ventures which usually are associated with higher commitment of corporate resources, and (2) the likelihood of forming ventures that potentially allow a high knowledge transfer.

I also find strong evidence regarding the effect of economic environment uncertainty over the likelihood of the organizational form selection. Consistent with one of the hypothesis formulated, high economic uncertainty seems to be associated with a

greater likelihood of joint venture or equity alliance formation to control for opportunistic behavior by one (or both) partner(s).

I also find evidence about the effect of economic uncertainty over the likelihood of technology-base ventures but only at the univariate level. When two foreign partners establish a cooperative venture with a technology component in Latin America, they choose countries with higher uncertainty about the inflation, local exchange rate depreciation, and GDP growth. This result is not consistent with the hypothesis initially formulated.

The opposite evidence about the effect of economic and legal uncertainty over the choice of the optimal organizational form presents an interesting puzzle for future research: Joint ventures better serve as a controlling mechanism against opportunistic behavior relative to strategic alliances. However, on average, strategic alliances are preferred in countries with weak legal systems since they require less tangible investments.

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Table 1
Characteristics of Cooperative Ventures

Table 1 presents cooperative ventures basic statistics. Panel A shows information about venture location classified according to the type of cooperative venture. Panel B associates each type of venture per year under analysis.

Panel A

Venture Location	*Strategic Alliances*	*Joint Ventures*	*Total Cooperative Ventures per year*
Mexico	54	42	96
Chile	16	17	33
Argentina	13	19	32
Venezuela	5	8	13
Colombia	5	5	10
Puerto Rico	9	1	10
Ecuador	6	4	10
Bolivia	5	4	9
Dominican Republic	5	2	7
Peru	2	4	6
Guatemala	4	0	4
Panama	3	1	4
Paraguay	3	1	4
Uruguay	1	3	4
Bahamas	2	0	2
Belize	1	0	1
Costa Rica	0	1	1
Cuba	0	1	1
El Salvador	1	0	1
French Guiana	0	1	1
Honduras	1	0	1
Nicaragua	1	0	1
U.S. Virgin Islands	0	1	1
Regional	6	7	13
Latin America	23	13	36
Total	***166***	***135***	***301***

Table 1 (continued)
Characteristics of Cooperative Ventures

Table 1 presents cooperative ventures basic statistics. Panel A shows information about venture location classified according to the type of cooperative venture. Panel B associates each type of venture per year under analysis.

Panel B

Year of Formation	*Strategic Alliances*	*Joint Ventures*	*Total Cooperative Ventures per year*
1998	19	43	62
1999	32	37	69
2000	52	13	65
2001	31	15	46
2002	4	9	13
2003	10	9	19
2004	20	11	31
Total	***168***	***137***	***305***

Table 2
Ventures' Contract Type and Legal System Differences

Table 2 shows the number of cooperative ventures classified according to the contract type. I use a similar classification to the one used by Chan et alt (1997). Ventures were classified into six categories being three of them related to high knowledge transfer (development, technology, and manufacturing agreements) and the other three with low knowledge transfer (licensing, marketing, and supply agreements). Table 2 also shows the number of cooperative ventures classified according to (1) a complexity and (2) a legal system dummy. The contract-complexity dummy takes the value of one if the venture has more than one of the contract types from the previous classification and zero otherwise. If the partners share the same legal code in their country of incorporation, the legal system dummy takes the value of one and zero otherwise.

Low Transfer of Knowledge Contract Type	***Strategic Alliances***	***Joint Ventures***	***Total***
Licensing agreements	14	3	17
Marketing agreements	124	94	218
Supply agreements	31	8	39
			274
High Transfer of Knowledge Contract Type			
Development agreements	27	29	56
Technology agreements	7	2	9
Manufacturing agreements	17	46	63
			128
Technology dummy			
Non-technology	125	67	192
Technology	43	70	113
Proportion of technology-type venture	*0.26*	*0.51*	*0.37*
Contract-Complexity dummy			
Simple	116	90	206
Complex	52	47	99
Proportion of complex-type venture	*0.31*	*0.34*	*0.32*
Legal system dummy			
Same	69	76	145
Different	89	58	147
Proportion of different legal system	*0.56*	*0.43*	*0.5*

Table 3
Industry Name and Number of Diversifying Ventures per Industry

Table 3 shows the industry names for the companies involved in cooperative ventures where a Latin American company partners a foreign company. Industry classification is from Compustat database. The last column shows – when possible – the number of diversifying / focusing ventures. A diversifying venture exists if the two companies have the same two-digit SIC code.

Industry Name	*Latin American partner*	*Foreign partner*	*Diversifying / Focusing venture*
Agriculture Chemicals	1	0	- / -
Arrange Trans-Freight, Cargo	0	1	- / -
Beverages	0	1	- / -
Brdwoven Fabric Mill, Cotton	0	1	- / -
Btld & Can Soft Drinks,Water	2	0	- / -
Business Services, Nec	0	2	- / -
Cable and Other Pay TV Svcs	0	2	- / -
Cement, Hydraulic	1	0	- / -
Chemicals & Allied Prods	0	2	2 / -
CMP Integrated Sys Design	0	3	- / -
CMP Processing, Data Prep Svc	0	1	- / -
CMP Programming, Data Process	1	7	- / -
Cogeneratn – SM Power Producer	0	1	- / -
Commercial Banks	2	5	- / 1
Commercial Printing	0	1	- / -
Communications Services, NEC	0	2	- / -
Computer & Office Equipment	0	1	- / -
Conglomarates	0	4	4 / -
Convrt Papr, Paprbrd, Ex Boxes	0	1	- / -
Credit Reporting Agencies	0	1	- / -
Crude Petroleum & Natural GS	4	0	- / -
Dep Sea Frn Trans-Freight	0	2	1 / -
Detect, Guard, Armor Car Svcs	0	1	- / -
Drawng, Insulatng Nonfer Wire	1	0	- / -
Drilling Oil and Gas Wells	0	1	- / -
Eating Places	0	1	1 / -
Elec Meas & Test Instruments	0	1	- / -
Electric and Other Serv Comb	0	1	- / -
Electric Services	3	0	- / -
Electronic Components, NEC	0	1	1 / -
Electronic Computers	0	1	1 / -
Electronic Parts, EQ-WHSL, NEC	0	1	1 / -
Engines and Turbines	0	1	- / -
Finance Services	0	1	- / -
Food and Kindred Products	0	4	- / -
Food Stores	0	1	- / -
Functions Rel to Dep Bke, NEC	0	1	1 / -
Groceries & Related PDS-WHSL	1	0	- / -
Groceries Stores	0	2	- / -
Hazardous Waste Management	0	1	- / -
Heating Eq, Plumbing Fixture	0	1	- / -
Heavi Constr-Not BLDG Constr	1	0	- / -
Hotels, Motels, Turist Courts	0	1	- / -
Investment Advice	0	1	- / -
Jewelry, Precious Metals	0	1	- / -
Life Insurance	0	4	- / -
Lumber and Wood PDS, Ex Furn	1	1	- / -
Management Consulting SVCS	0	1	1 / -
Meat Packing Plants	0	1	- / -
Med, Dental, Hosp Eq-WHSL	0	1	- / -
Metal Mining	0	3	- / -
Misc Ammusement & REC Service	0	1	- / -
Motion Pic, Videotape Prodtn	0	4	2 / -
Motor Vehicles & Car Bodies	1	2	- / -
Office Furniture, EX Wood	0	1	- / -
Operative Builders	0	1	- / -
Paper and Allied Products	0	1	1 / -

Industry Name	*Latin American partner*	*Foreign partner*	*Diversifying / Focusing venture*
Petroleum Refining	4	8	4 /1
Petroleum, EX Bulk Statn-WHSL	0	1	1 / -
Phone Comm EX Radiotelephone	10	9	3 / -
Plastic Products, NEC	0	1	- / -
Prepackage Software	0	7	4 / -
Radio Broadcasting Stations	1	1	- / 1
Radio, TV Broadcast, Comm Eq	0	1	- / -
Radiotelephone communication	4	1	- / -
Railroads, Line-haul Operatng	1	0	- / -
Scrap & Waste Materials - WHSL	0	1	- / -
Security Brokers & Dealers	0	2	- / -
Semiconductor, Related Device	0	1	- / -
Special Industry Machy, NEC	0	1	- / -
Steel Works & Blast Furnaces	3	2	- / 1
Tele & Telegraph Apparatus	0	4	2 / -
Television Broadcast Station	7	2	- / 1
Transportation Services	0	1	- / -
Trucking, Except Local	0	1	- / -
Variety Stores	2	2	- / -
Total	***51***	***128***	***27 / 8***

Table 4
Impact of Contract Design, Economic and Business Environment Over the Cooperative Venture Form Selection

Table 4 presents differences between strategic alliances and joint ventures classified according to (1) the economic environment uncertainty, (2) the business environment uncertainty. The mean and median (below in parentheses) are presented for selected variables. The last column reports the p-values for the T-test, Wilcoxon test of difference in means, and the test of difference in medians. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

Panel A (Whole Sample)	***Strategic Alliances***	***Joint Ventures***	***t-statistic***
Contract-related data			
Technology venture dummy	0.1223 (0.0000)	0.2891 (0.0000)	0.0004*** 0.0004*** 0.0004***
Cross-Industry Dummy	0.8421 (1.0000)	0.6052 (1.0000)	0.0719* 0.0739* 0.0723*
Economic environment data (Levels)			
Inflation rate	0.1018 (0.0827)	0.1285 (0.0944)	0.0616* 0.1162 0.5266
Exchange rate depreciation	0.0843 (0.0631)	0.1206 (0.0733)	0.0695* 0.0040*** 0.0098***
Real GDP Growth	0.0325 (0.0340)	0.0305 (0.0303)	0.5081 0.7650 0.3189
Economic environment data (Volatility)			
Inflation rate	0.0370 (0.0239)	0.0490 (0.0254)	0.0968* 0.1437 0.6036
Exchange rate depreciation	0.0755 (0.0332)	0.1122 (0.0526)	0.1353 0.0983* 0.0943*
Real GDP Growth	0.0259 (0.0160)	0.0277 (0.0216)	0.5572 0.0412** 0.0168**
Business environment data			
Legal system dummy	0.5954 (1.0000)	0.4312 (0.0000)	0.0052*** 0.0054*** 0.0054***
Private company dummy	0.4532 (0.0000)	0.4156 (0.0000)	0.5111 0.5107 0.5102
Differences in the level Government Intervention	0.7065 (0.5000)	0.6234 (0.5000)	0.3207 0.3709 0.3965
Difference in the level of Property Rights Infringement	1.3043 (1.0000)	1.0120 (1.0000)	0.0095*** 0.0108** 0.0274**
Differences in the Level of Regulation	1.1449 (1.0000)	0.8614 (1.0000)	0.0085*** 0.0108** 0.0176**

Table 4 (Continued)
Impact of Contract Design, Economic and Business Environment Over the Cooperative Venture Form Selection

Panel B (Both partners from abroad)	*Strategic Alliances*	*Joint Ventures*	*t-statistic*
Contract-related data			
Technology venture dummy	0.1052	0.5200	0.0014***
	(0.0000)	(1.0000)	0.0019***
			0.0019***
Cross-industry dummy	0.7500	0.5000	0.3879
	(1.0000)	(0.5000)	0.4020
			0.3749
Economic environment data (Levels)			
Inflation rate	0.0947	0.1448	0.2059
	(0.0908)	(0.0928)	0.6438
			0.8250
Exchange rate depreciation			0.0240**
	0.0419	0.1758	0.0385**
	(0.0324)	(0.1028)	0.0095***
Real GDP Growth	0.0398	0.0222	0.0379**
	(0.0413)	(0.0225)	0.0656*
			0.0008***
Economic environment data (Volatility)			
Inflation rate	0.0319	0.0605	0.1012
	(0.0376)	(0.0270)	0.3505
			0.7100
Exchange rate depreciation	0.0355	0.1784	0.1056
	(0.0300)	(0.0656)	0.0782*
			0.5264
Real GDP Growth			0.0254**
	0.0144	0.0272	0.0355**
	(0.0136)	(0.0206)	0.0033***
Business environment data			
Legal system dummy			0.2839
	0.2941	0.1702	0.2852
	(0.0000)	(0.0000)	0.2803
Private company dummy			0.0632*
	0.4210	0.2000	0.0650*
	(0.0000)	(0.0000)	0.0637*
Difference in Government Intervention			0.5397
	0.2894	0.4000	0.1567
	(0.0000)	(0.0000)	0.0792*
Difference in Property Rights Protection			0.5006
	0.2631	0.3800	0.8202
	(0.0000)	(0.0000)	0.9789
Differences in the Level of Regulation			0.9084
	0.4210	0.4000	0.9542
	(0.0000)	(0.0000)	0.9735

Table 4 (Continued)
Impact of Contract Design, Economic and Business Environment Over the Cooperative Venture Form Selection

Panel C (One Latin American partner involved)	*Strategic Alliances*	*Joint Ventures*	*t-statistic*
Contract-related data			
Technology venture dummy	0.1250	0.1595	0.4976
	(0.0000)	(0.0000)	0.4975
			0.4961
Cross-industry dummy	0.8461	0.7368	0.4787
	(1.0000)	(1.0000)	0.4863
			0.4696
Economic environment data (Levels)			
Inflation rate	0.0977	0.1214	0.1473
	(0.0908)	(0.1081)	0.1242
			0.7087
Exchange rate depreciation			0.8329
	0.0844	0.0890	0.1026
	(0.0625)	(0.0631)	0.3148
Real GDP Growth	0.0313	0.0366	0.1570
	(0.0340)	(0.0480)	0.0218**
			0.1893
Economic environment data (Volatility)			
Inflation rate	0.0360	0.0422	0.4229
	(0.0229)	(0.0254)	0.2218
			0.4428
Exchange rate depreciation	0.0826	0.0751	0.7922
	(0.0332)	(0.0489)	0.4052
			0.1646
Real GDP Growth			0.8594
	0.0281	0.0273	0.5254
	(0.0185)	(0.0216)	0.1516
Business environment data			
Legal system dummy			0.0485**
	0.8000	0.6703	0.0490**
	(1.0000)	(1.0000)	0.0488**
Private company dummy			0.5660
	0.4687	0.5106	0.5657
	(0.0000)	(1.0000)	0.5646
Difference in Government Intervention			0.2549
	0.8489	0.7340	0.1758
	(0.7500)	(0.5000)	0.1466
Difference in Property Rights Protection			0.0599*
	1.6979	1.4680	0.0838*
	(2.0000)	(2.0000)	0.1919
Differences in the Level of Regulation			0.0264**
	1.4687	1.1808	0.0166**
	(2.0000)	(1.0000)	0.0060***

Table 5
Impact of Contract Design, Economic and Business Environment Over the Selection Between Technology and Non/Technology Ventures

Table 4 presents differences between low knowledge transfer ventures (Non-technology contracts) and high knowledge transfer ventures classified according to (1) contract-specific variables, (2) the economic environment uncertainty, and (3) the business environment uncertainty. The mean and median (below) are presented for selected variables. The last column reports the p-values for the T-test, Wilcoxon test of difference in means, and the test of difference in medians. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

Panel A (Whole Sample)	***Non-technology contract***	***Technology Contract***	***t-statistic***
Contract-related data			
Equity link dummy	0.4916	0.7384	0.0004***
	(0.0000)	(1.0000)	0.0004***
			0.0004***
Cross-industry dummy	0.7692	0.5000	0.0428**
	(1.0000)	(0.5000)	0.0451**
			0.0439**
Economic environment data (Levels)			
Inflation rate	0.1129	0.1291	0.3618
	(0.0935)	(0.0702)	0.4527
			0.6384
Exchange rate depreciation	0.0925	0.1485	0.0233**
	(0.0631)	(0.0708)	0.0501*
			0.0464**
Real GDP Growth	0.0322	0.0284	0.3168
	(0.0340)	(0.0300)	0.2345
			0.0674*
Economic environment data (Volatility)			
Inflation rate	0.0414	0.0515	0.2582
	(0.0254)	(0.0276)	0.1666
			0.4700
Exchange rate depreciation	0.0840	0.1393	0.0689*
	(0.0446)	(0.0526)	0.0272**
			0.2651
Real GDP Growth	0.0259	0.0308	0.2146
	(0.0185)	(0.0223)	0.4192
			0.3433
Business environment data			
Legal system dummy	0.5633	0.2903	0.0001***
	(1.0000)	(0.0000)	0.0001***
			0.0001***
Difference in Government Intervention	0.6589	0.6692	0.9198
	(0.5000)	(0.0000)	0.7545
			0.6009
Difference in Property Rights Protection	1.2384	0.8000	0.0013***
	(1.0000)	(0.0000)	0.0012***
			0.0012***
Differences in the Level of Regulation	1.0460	0.7846	0.0463**
	(1.0000)	(0.0000)	0.0346**
			0.0207**

Table 5 (Continued)
Impact of Contract Design, Economic and Business Environment Over the Selection Between Technology and Non/Technology Ventures

Panel B (One Latin American partner involved)	*Non-technology contract*	*Technology Contract*	*t-statistic*
Contract-related data			
Equity link dummy	0.4846	0.5555	0.4976
	(0.0000)	(1.0000)	0.4975
			0.4961
Cross-industry dummy	0.7916	0.7500	0.8125
	(1.0000)	(1.0000)	0.8316
			0.8080
Economic environment data (Levels)			
Inflation rate	0.1121	0.0891	0.3340
	(0.1081)	(0.0634)	0.6730
			0.2252
Exchange rate depreciation	0.0887	0.0727	0.6161
	(0.0631)	(0.0631)	0.8718
			0.4646
Real GDP Growth	0.0327	0.0405	0.1552
	(0.0340)	(0.0440)	0.2061
			0.3424
Economic environment data (Volatility)			
Inflation rate	0.0410	0.0261	0.1812
	(0.0254)	(0.0180)	0.6692
			0.4251
Exchange rate depreciation	0.08225	0.0588	0.5736
	(0.0417)	(0.0489)	0.3265
			0.4131
Real GDP Growth	0.0279	0.0266	0.8303
	(0.0192)	(0.0195)	0.6612
			0.9115
Business environment data			
Legal system dummy	0.7564	0.6000	0.1011
	(1.0000)	(1.0000)	0.1015
			0.1010
Difference in Government Intervention	0.7852	0.8333	0.7399
	(0.5000)	(1.0000)	0.3464
			0.2149
Difference in Property Rights Protection	1.6625	1.1111	0.0015***
	(1.0000)	(1.0000)	0.0024***
			0.0031***
Differences in the Level of Regulation	1.3435	1.2222	0.5160
	(1.0000)	(1.0000)	0.5364
			0.4998

Table 5 (Continued)
Impact of Contract Design, Economic and Business Environment Over the Selection Between Technology and Non/Technology Ventures

Panel C (Both partners from Latin America)	*Non-technology contract*	*Technology Contract*	*t-statistic*
Contract-related data			
Equity link dummy	0.4166 (0.0000)	0.7000 (1.0000)	0.1176 0.1202 0.1166
Cross-industry dummy	N / A	N / A	N / A
Economic environment data (Levels)			
Inflation rate	0.1112 (0.0771)	0.1579 (0.0969)	0.3675 0.6572 0.9321
Exchange rate depreciation	0.1011 (0.0631)	0.1687 (0.1204)	0.3037 0.1113 0.0966*
Real GDP Growth	0.0301 (0.0300)	0.0256 (0.0271)	0.6076 0.6572 0.7508
Economic environment data (Volatility)			
Inflation rate	0.0370 (0.0180)	0.0820 (0.0323)	0.1808 0.7673 0.9321
Exchange rate depreciation	0.0716 (0.0635)	0.1495 (0.0666)	0.1281 0.3944 0.9302
Real GDP Growth	0.0254 (0.0160)	0.0375 (0.0225)	0.2900 0.2900 0.9321
Business environment data			
Legal system dummy	0.0000 (0.0000)	0.1000 (0.0000)	0.0568* 0.0651* 0.0578*
Difference in Government Intervention	0.4000 (0.0000)	1.1000 (1.0000)	0.0137** 0.0371** 0.0682*
Difference in Property Rights Protection	0.3714 (0.0000)	1.0000 (0.5000)	0.0359** 0.1199 0.2100
Differences in the Level of Regulation	0.2857 (0.0000)	1.1000 (1.0000)	0.0028*** 0.0116** 0.0269**

Table 5 (Continued)
Impact of Contract Design, Economic and Business Environment Over the Selection Between Technology and Non/Technology Ventures

Panel D (Both partners from abroad)	*Non-technology contract*	*Technology Contract*	*t-statistic*
Contract-related data			
Equity link dummy	0.5853	0.9285	0.0014***
	(1.0000)	(1.0000)	0.0019***
			0.0019***
Cross-industry dummy	0.6923	0.3333	0.1055
	(1.0000)	(0.0000)	0.1128
			0.1043
Economic environment data (Levels)			
Inflation rate	0.1173	0.1568	0.2677
	(0.0908)	(0.1329)	0.3108
			0.5264
Exchange rate depreciation	0.0991	0.2135	0.0327**
	(0.0631)	(0.1201)	0.0837*
			0.0889*
Real GDP Growth	0.0320	0.0178	0.0657*
	(0.0343)	(0.0225)	0.0332**
			0.0417 **
Economic environment data (Volatility)			
Inflation rate	0.0464	0.0647	0.2483
	(0.0229)	(0.0686)	0.0451**
			0.2430
Exchange rate depreciation	0.1002	0.2124	0.1056
	(0.0446)	(0.0701)	0.0782*
			0.5264
Real GDP Growth	0.0189	0.0323	0.0087***
	(0.0150)	(0.0332)	0.0825*
			0.0835*
Business environment data			
Legal system dummy	0.2972	0.0740	0.0285**
	(0.0000)	(0.0000)	0.0304**
			0.0296**
Difference in Government Intervention	0.3780	0.3571	0.8987
	(0.0000)	(0.0000)	0.2796
			0.1086
Difference in Property Rights Protection	0.2926	0.4285	0.3887
	(0.0000)	(0.0000)	0.5724
			0.6998
Differences in the Level of Regulation	0.5121	0.2500	0.1117
	(0.0000)	(0.0000)	0.1167
			0.1263

Table 6
Differences in Firm-Specific Characteristics between Latin American Companies and their Foreign Partners When Forming Cooperative Ventures

Table 6 presents firm-specific characteristics for Latin American companies that partner with a foreign company. Panel A shows results for all cooperative ventures while in Panel B and C results are related to strategic alliances and joint ventures respectively. The mean and median (below) are presented for selected variables. The last column reports the p-values for the T-test, Wilcoxon test of difference in means, and the test of difference in medians. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

Panel A (All cooperative ventures)	***Foreign partner***	***Latin American partner***	***t-statistic***
Financial Data			
Log of Assets	8.3680	7.7345	0.1913
	(8.79991)	(8.1124)	0.0873*
			0.2822
Log of Sales	7.8095	6.8532	0.0446**
	(8.4717)	(7.3159)	0.0062***
			0.0038***
Proportion of Intangibles	0.1164	0.0653	0.0709*
	(0.0621)	(0.0611)	0.2908
			0.8473
Proportion of R&D and Advertising expenses	0.0954	0.0016	0.1863
	(0.0708)	(0.0016)	0.0336**
			0.1698
Asset Turnover	0.8382	0.5182	0.0040***
	(0.6594)	(0.4785)	0.0322**
			0.0121**
Operating Profit Margin	-0.0923	0.2499	0.0756*
	(0.1516)	(0.3296)	<.0001***
			<.0001***
Operating Return on Assets	0.0623	0.1450	0.0396**
	(0.1025)	(0.1421)	0.0044***
			0.0038***
Business environment data			
Level of Government Intervention	2.1052	2.3657	0.0005***
	(2.0000)	(2.5000)	<.0001***
			<.0001***
Level of Property Rights Infringement	1.1526	2.5894	<.0001***
	(1.0000)	(3.0000)	<.0001***
			<.0001***
Level of Regulation	2.1157	3.2000	<.0001***
	(2.0000)	(4.0000)	<.0001***
			<.0001***

Table 6 (Continued)
Differences in Firm-Specific Characteristics between Latin American Companies and their Foreign Partners When Forming Cooperative Ventures

Panel B (Strategic Alliances)	*Foreign partner*	*Latin American partner*	*t-statistic*
Financial Data			
Log of Assets	7.6387	7.2795	0.6342
	(7.2263)	(7.8491)	0.9143
			0.4418
Log of Sales	6.8955	6.3048	0.4166
	(7.1176)	(7.0910)	0.3965
			0.7977
Proportion of Intangibles	0.1498	0.0628	0.0733*
	(0.0641)	(0.0701)	0.5627
			0.5045
Proportion of R&D and Advertising expenses	0.1167	0.0016	0.2000
	(0.0796)	(0.0016)	0.0502*
			0.1336
Asset Turnover	0.7633	0.5060	0.1213
	(0.5957)	(0.4623)	0.3193
			0.1860
Operating Profit Margin	-0.1438	0.1888	0.1559
	(0.1500)	(0.3404)	0.0057***
			0.0160**
Operating Return on Assets	0.01733	0.1395	0.0931*
	(0.0747)	(0.1503)	0.0200**
			0.0030***
Business environment data			
Level of Government Intervention	1.9895	2.2552	0.0144**
	(2.0000)	(2.5000)	0.0002***
			<.0001***
Level of Property Rights Infringement	1.0625	2.5937	<.0001***
	(1.0000)	(3.0000)	<.0001***
			<.0001***
Level of Regulation	2.0208	3.1562	<.0001***
	(2.0000)	(4.0000)	<.0001***
			<.0001***

Table 6 (Continued)
Differences in Firm-Specific Characteristics between Latin American Companies and their Foreign Partners When Forming Cooperative Ventures

Panel C (Joint Ventures)	*Foreign partner*	*Latin American partner*	*t-statistic*
Financial Data			
Log of Assets	8.8821	8.2328	0.2882
	(9.6904)	(8.4506)	0.0891*
			0.0236*
Log of Sales	8.4538	7.4538	0.0920*
	(9.0159)	(7.5067)	0.0168**
			0.0057***
Proportion of Intangibles	0.0953	0.06789	0.4152
	(0.0619)	(0.0381)	0.2772
			0.4670
Proportion of R&D and Advertising expenses	0.0614	n/a	
	(0.0708)		n/a
Asset Turnover	0.8910	0.5315	0.0183**
	(0.8016)	(0.4947)	0.0458**
			0.0236**
Operating Profit Margin	-0.0562	0.3168	0.2186
	(0.1516)	(0.2876)	0.0003***
			0.0008***
Operating Return on Assets	0.0939	0.1511	0.1665
	(0.1051)	(0.1330)	0.1095
			0.1851
Business environment data			
Level of Government Intervention	2.2234	2.4787	0.0126**
	(2.0000)	(2.5000)	0.0001***
			<.0001***
Level of Property Rights Infringement	1.2446	2.5851	<.0001***
	(1.0000)	(3.0000)	<.0001***
			<.0001***
Level of Regulation	2.2127	3.2446	<.0001***
	(2.0000)	(3.5000)	<.0001***
			<.0001***

Table 7
Logistic Regressions to Explain the Likelihood of Cooperative Venture form selection

Table 7 shows a series of logistic regressions using different economic and business environment uncertainty proxies in the models. The response variable is 1 for joint venture and zero otherwise (non-equity strategic alliances). In Panel A economic uncertainty variables represent levels while in Panel B they represent volatilities. In each cell, coefficients are presented with their p-values in parentheses. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

Panel A (Economic proxies are levels)	***(1)***	***(2)***	***(3)***	***(4)***	***(5)***	***(6)***	***(7)***	***(8)***	***(9)***
Intercept	0.7229* (0.0640)	0.2477 (0.4081)	0.5451* (0.0869)	0.8331** (0.0275)	0.4279 (0.1560)	0.6210** (0.0449)	0.5085 (0.2177)	0.1370 (0.6717)	0.3402 (0.3360)
Equity link dummy	-0.6983* (0.0868)	-0.6511 (0.1036)	-0.6924* (0.0840)	-0.6497 (0.1021)	-0.5807 (0.1333)	-0.5970 (0.1206)	-0.5873 (0.1424)	-0.5537 (0.1578)	-0.5371 (0.1666)
Legal system dummy	-1.3475*** (<.0001)	-0.6149** (0.0313)	-0.4423 (0.1342)	-1.0134*** (0.0014)	-0.4804* (0.0802)	-0.3164 (0.2703)	-1.1617*** (0.0004)	-0.6231** (0.0288)	-0.5530* (0.0575)
Technology dummy	0.0518 (0.8906)	-0.0474 (0.8987)	-0.3179 (0.4097)	-0.0309 (0.9333)	-0.1000 (0.7831)	-0.2672 (0.4761)	-0.1895 (0.6090)	-0.3135 (0.3981)	-0.4063 (0.2812)
Differences in Government Intervention	-0.8757*** (0.0010)			-0.6798*** (0.0058)			-0.6532** (0.0107)		
Differences in the Level of Regulation		-0.6126*** (0.0005)			-0.3271** (0.0316)			-0.4681*** (0.0046)	
Differences in the Level of Property Rights Protection			-0.9294*** (<.0001)			-0.5393*** (0.0017)			-0.4737*** (0.0037)
Inflation rate	5.3708*** (0.0005)	6.5352*** (0.0002)	8.4079*** (<.0001)						
Exchange rate depreciation				1.2289 (0.2359)	0.7998 (0.4287)	1.9794* (0.0728)			
Real GDP Growth							15.6230*** (0.0085)	19.4669*** (0.0015)	15.7184*** (0.0074)

Panel A (Economic proxies are volatilities)	***(1)***	***(2)***	***(3)***	***(4)***	***(5)***	***(6)***	***(7)***	***(8)***	***(9)***
Intercept	0.7172* (0.0625)	0.3184 (0.2824)	0.5777* (0.0654)	0.8942** (0.0178)	0.5185* (0.0815)	0.6663* (0.0304)	0.9190** (0.0240)	0.6400* (0.0666)	0.7243* (0.0334)
Equity link dummy	-0.6675* (0.0968)	-0.6166 (0.1169)	-0.6450 (0.1009)	-0.6422 (0.1065)	-0.5876 (0.1301)	-0.5683 (0.1391)	-0.6462 (0.1040)	-0.5931 (0.1261)	-0.5925 (0.1235)
Legal system dummy	-1.1149*** (0.0006)	-0.5431* (0.0514)	-0.4021 (0.1626)	-1.0046*** (0.0015)	-0.4985* (0.0697)	-0.3685 (0.1967)	-1.0307*** (0.0012)	-0.5679** (0.0418)	-0.4483 (0.1198)
Technology dummy	0.0546 (0.8831)	-0.0113 (0.9754)	-0.1939 (0.6096)	-0.0410 (0.9112)	-0.1097 (0.7627)	-0.2387 (0.5209)	-0.0637 (0.8625)	-0.1319 (0.7170)	-0.2658 (0.4764)
Differences in Government Intervention	-0.6916*** (0.0052)			-0.6362*** (0.0088)			-0.5931** (0.0150)		
Differences in the Level of Regulation		-0.4296*** (0.0072)			-0.3274** (0.0314)			-0.3219*** (0.0391)	
Differences in the Level of Property Rights Protection			-0.6831*** (0.0002)			-0.4628*** (0.0052)			-0.4446 (0.0057)
Inflation rate volatility	7.4718** (0.0193)	8.9138** (0.0106)	12.3529*** (0.0018)						
Exchange rate volatility				0.0713 (0.9175)	-0.1084 (0.8728)	0.4850 (0.4986)			
GDP Growth volatility							-0.4918 (0.9145)	-2.4453 (0.6002)	1.1765 (0.8008)

Table 8
Logistic Regressions to Explain the Incidence of High Knowledge Transfer Ventures

Table 8 shows a series of logistic regressions using different economic and business environment uncertainty proxies in the models. The dependent variable is 1 for technology ventures and 0 otherwise. In each cell, coefficients are presented with their p-values in parentheses. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

Response = technology dummy	***(1)***	***(2)***	***(3)***	***(4)***	***(5)***	***(6)***
Intercept	-1.8741 (<.0001)	-1.8952 (<.0001)	-1.5626 (<.0001)	-1.8206 (<.0001)	-1.7425 (<.0001)	-1.8745 (<.0001)
Legal system dummy	-1.3003*** (0.0032)	-1.1918*** (0.0081)	-1.3241*** (0.0026)	-1.2739*** (0.0040)	-1.2617*** (0.0049)	-1.2660*** (0.0044)
Contract complexity dummy	2.0870*** (<.0001)	2.0767*** (<.0001)	2.0644*** (<.0001)	2.0840*** (<.0001)	2.0557*** (<.0001)	2.0922*** (<.0001)
Differences in Property Rights Protection	0.0150 (0.9439)	-0.0116 (0.9569)	0.0485 (0.8175)	0.00634 (0.9764)	0.0142 (0.9471)	-0.00429 (0.9843)
Economic environment data (Levels)						
Inflation rate	1.7044 (0.2505)					
Exchange rate depreciation		1.8032* (0.0806)				
Real GDP Growth			-3.7022 (0.6042)			
Economic environment data (Volatility)						
Inflation rate				3.2361 (0.2434)		
Exchange rate depreciation					0.6739 (0.4094)	
Real GDP Growth						7.3667 (0.2411)