

Cultural differences, insecure property rights and the mode of entry decision

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Abstract We develop a theory of a multinational corporation's optimal mode of entry in a new market. The foreign firm can choose between a licensing agreement, a wholly owned subsidiary or shared control (joint venture). In an environment in which property rights are insecure, opportunism is possible, and the identification of new business opportunities is costly, we show that the relationship between the quality of the institutional environment and the mode of entry decision is non-monotonic. Licensing is preferred if property rights are strictly enforced, while a joint venture is chosen when property rights are poorly enforced. For intermediate situations, the

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better use of local knowledge made possible by shared control under a joint venture works as a double edged sword. On the one hand, it makes the monitoring activity of the multinational more credible, on the other it offers insurance to both parties, potentially compromising the incentives faced by the local partner.

Keywords Multinational corporations · Mode of entry decision · Joint ventures

JEL Classification F23 · L24

1 Introduction

Multinational corporations (MNC) play a key role in the globalization process and in many sectors the activities of foreign subsidiaries far exceed the volume of trade between countries.¹ While the bulk of Foreign Direct Investment still takes place between developed countries,² the opening of new markets in emerging economies has increasingly induced global companies to explore the possibilities offered by alliances—and in particular joint ventures and licensing agreements—to adapt to new business environments. Anand and Khanna (2000) report for instance that in 1999–2000 over 20,000 new agreements of this type have been signed world-wide. In China, one of the largest recipients of FDI in the past two decades, of the 304,821 projects approved between 1979–1997, 183,015 were joint ventures with local partners, amounting to 51% of the total value of FDI projects in the country (Bai et al. 2004).

Notwithstanding the practical importance of joint ventures, the study of this organizational form has not yet received the attention it deserves. In particular, in analyzing the mode of entry choice, the (theoretical) literature in international trade has focused on the tradeoff between licensing a blue print and establishing a wholly owned subsidiary abroad.³ Whenever joint ventures have been explicitly considered, they have been modeled as partnerships in which the parties simply share the project's revenues.⁴ Empirically, the idea that the parties of a joint venture share not only the revenues of the project but more fundamentally *control* rights finds instead strong support.⁵ Thus, an important gap exists in our understanding of the mode of entry

¹ Barba Navaretti et al. (2004).

² See UNCTAD (2000).

³ For a pioneering analysis of this choice in a model of reputation, see Horstmann and Markusen (1987). The implications for growth of the host country's incentives for licensing vis a vis the establishment of a wholly owned subsidiary are instead studied by Glass and Saggi (2002). See also Antras (2005) and Antras and Helpman (2004). Even in their comprehensive study of multinational firms, Barba Navaretti et al. (2004) point out explicitly that 'We do not address intermediate forms of internalization, like joint ventures' (p. 15).

⁴ See for instance Nakamura and Xie (1998), Asiedu and Esfahani (2001), Mueller and Schnitzer (2006) and Smarzynska Javorcik and Saggi (2004).

⁵ For instance, in a survey of over 200 joint ventures established in China between 1986 and 1996 Bai et al. (2004) find that for the 15 most important business decisions: 'Overall, . . . , there is a high degree of joint control. . . . The degree of joint control is over 95% for decisions on change of corporate charter, termination or dissolution of the venture, increase or transfer of registered capital, and merge with other organizations.' Similarly, in a recent study of a large sample of two-parents US based joint ventures Hauswald and Hege (2003) find that over 71% of them are characterized by 50–50 ownership structures, implying that joint control is prevalent for all the most important business decisions.

decision in a new market, that can be addressed by explicitly modeling the role of the allocation of the authority over the implementation of the project. At the same time, knowledge-based assets have been identified as the key factors behind the decision of a firm to go multinational, and their protection as one of the main determinants in the mode of entry decision (Dunning 1981; Markusen 2002). This idea has also found strong empirical support in a growing literature that has shown how the institutional characteristics of the host country affect both the overall volumes of FDI (Lee and Mansfield 1996 and Smarzynska Javorcik 2004) and the mode of entry decision (Smith 2001; McCalman 2004; Smarzynska Javorcik and Wei 2002).⁶ While several theoretical models exist that study the effects of the institutional environment on flows of foreign direct investment and on the tradeoffs between a contractual arrangement and the establishment of a wholly owned subsidiary, little has been said as far as how joint ventures can fare in an environment where property rights are imperfectly enforced.

The purpose of this paper is to fill this gap by focusing on the difference between formal and real authority within an organization (Aghion and Tirole 1997). To this end, we develop a model where the MNC, having decided to serve a foreign market by means of a local facility,⁷ can choose one of three possible modes of entry. First, it can decide to license its product to a local partner and receive a payment in the form of a licensing fee. Alternatively, it can establish a wholly owned subsidiary, building a new production facility (greenfield investment) or acquiring an existing one. Finally, it can team up with a local partner and create a joint venture, i.e. an alliance in which two parties jointly own/control an investment project.⁸ The three modes of entry differ both in the allocation of *formal* property rights and in the *revenue sharing* arrangements. While under a licensing agreement the local partner retains the power to implement a business decision and is the residual claimant for all the revenues of the project, with the creation of a wholly owned subsidiary the MNC keeps control over the project, but shares its revenues with the local partner to align its incentives with the MNC. If a joint venture is chosen, the revenues between the parties continue to be shared, but more importantly control is also jointly exercised.

In our setting, we do not explicitly distinguish between horizontal and vertical relationships. More generally, we think of the multinational as supplying the relevant technology to develop a product or the brand image needed for a successful marketing campaign. The local partner, which we assume to be indispensable for the completion of the project no matter which ownership structure has been chosen, makes instead available to the venture its superior knowledge of the host country's market

⁶ In particular, using firm level data on the governance structure adopted by major Hollywood studios, McCalman (2004) uncovers an interesting non-linear relationship between the quality of the institutional environment and the prevalence of complete control by the MNC. Looking instead at companies investing in transition economies, Smarzynska Javorcik and Wei (2002) show that the ownership structure is shifted towards joint ventures in countries with weaker institutions, even though technologically more advanced sectors tend to see a prevalence of foreign owned subsidiaries.

⁷ For the sake of simplicity we do not explicitly consider in this paper the choice of entering by simply exporting to the foreign market.

⁸ Of course, real life joint ventures often involve more than two partners, but we focus on this case here to keep our analysis tractable.

and identifies the opportunities for a profitable investment. Our analysis considers two types of incentives: the *ex-ante* incentives faced by the local partner in identifying an innovative project, and the *ex-post* incentives it receives not to behave opportunistically. An opportunistic behavior in our framework is represented by a welfare reducing violation of property rights, and the likelihood that such behavior will emerge in equilibrium depends on both the host country institutional environment and on the MNC's knowledge of the host country's market.

By making the local partner the residual claimant of the project's profits, licensing enhances the *ex-ante* incentives to identify viable opportunities. At the same time, by granting the local partner control over the implementation of the project, this contractual form compromises the *ex-post* incentives, allowing him to behave opportunistically without being constrained in its actions. Retaining some control over the project, as occurs for both a wholly owned subsidiary and a joint venture, will instead allow the MNC to monitor *ex-post* the local partner. Since control by the MNC is accompanied by revenue sharing between the parties, the *ex-ante* incentives of the local partner will instead be compromised.

Ex-post three possible outcomes can emerge. If the host country institutions are effective in protecting property rights, and the MNC has a poor understanding of the local market, the foreign firm will choose not to actively exercise its authority (i.e. veto) and will consequently fail to *ex-post* discipline the local partner. Similarly, when the MNC's understanding of the host country's market is good and the property rights enforcement is very poor, the MNC will be overly active in exercising its control rights. As a result, once again the *ex-post* incentives of the local partner will be compromised. Both a wholly owned subsidiary and a joint venture can achieve the desired disciplining effect for intermediate levels of property rights enforcement and local knowledge available to the MNC. In this environment, the joint venture has the advantage of assuring that better use is made of the partner's local knowledge, thus rendering the monitoring activity of the MNC more credible. At the same time, the ability to fully exploit market information provides insurance to both parties, with a potentially adverse effect on the incentives faced by the local partner.

Incorporating the *ex-ante* behavior, i.e. the effort of the local partner to identify valuable opportunities, licensing emerges as the dominant organizational arrangement when property rights enforcement is very good and the information gap for the MNC is substantial. If the host country institutional environment is instead very unfavorable, the better use of local information made possible by a joint venture renders it the most desirable mode of entry. When the extent of property right enforcement and the local knowledge available to the MNC are at intermediate levels, the choice between retaining complete control over the project or sharing it with the local partner becomes less clear cut. More specifically, it will depend on whether the enhanced monitoring credibility or the insurance effect resulting from the more effective use of local information in a joint venture turn out to dominate.

The remainder of the paper is organized as follows: next, we lie out the model (Sect. 2) and analyze the *ex-post* organizational choice in Sect. 3. We study the *ex-ante* problem and the optimal effort level spent by the local partner in identifying a valuable project in Sect. 4, while we consider the effects of changes in the share of the revenues occurring to the two partners in Sect. 5. Section 6 concludes the paper.

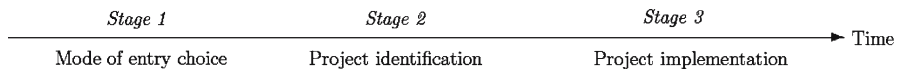


Fig. 1 Time line

2 The model

A multinational corporation has decided to establish an operation in a foreign country. To carry out the project, the company needs the services of a local partner and can choose between three different modes of entry. It can propose a licensing deal, establish a wholly owned subsidiary, or create a joint venture. The three approaches can be distinguished based on the party that controls/owns the venture. In the case of licensing, after paying a licensing fee, the local partner owns the entity, while in the case of a wholly owned subsidiary the MNC retains complete control. If a joint venture is instead chosen, the MNC shares control over the implementation of the project with the local investor. We model the choice between modes of entry as the result of a sequential game between the MNC and its local partner, and we assume that both agents are risk neutral profit maximizers.

The game has three stages, illustrated in Fig. 1. In the first stage, a mode of entry is chosen in order to maximize the joint social surplus, with a lump sum transfer being made between the two parties so as to insure that both are willing to participate in a given mode of entry.⁹ In the second stage, the local partner attempts to identify an innovative project. If it is not successful, the parties settle for a pre-defined plan, whose return for simplicity is normalized to $\Pi_d = 0$. If it is successful, the venture results in a higher social return. The project is carried out in the third stage of the game and might involve an attempt by the local partner to expropriate the multinational, a realistic possibility in many developing countries where property rights are not perfectly enforced. The implementation of the project depends upon the allocation of the ownership/control rights between the MNC and the local partner.¹⁰

In addition to conferring veto rights to the MNC and the local partner, the ownership structure also determines the share of the investment return to be assigned to the two parties.¹¹ In particular, if a licensing contract has been chosen, the return of the project accrues in its entirety to the local partner, whereas the MNC receives a share

⁹ We will assume throughout the paper that lump sum transfers between the parties are feasible, i.e. that there are no capital market imperfections. For simplicity, both parties outside options are set at zero. Furthermore, we will not explicitly model how the two parties bargain over the lump sum transfer, since this will not affect the socially optimal mode of entry.

¹⁰ We follow here Aghion and Tirole (1997) and define ownership as the formal entitlement to implement a business decision.

¹¹ The allocation of returns between the two parties can be endogenized using the Grossman–Hart–Moore framework (Grossman and Hart 1986; Hart and Moore 1990). For instance, assume that the return is not verifiable until a plan is finally selected and goes into implementation. At that time, the MNC and the local partner can bargain for their share in the project, with the outside option for each other being determined by the ownership rights as well as, in the case of a wholly owned subsidiary, the specificity of the local partner to the project.

β^w of the returns if it wholly owns the foreign subsidiary, and a share β^j if it enters a joint venture agreement.

We are now ready to examine more in detail the implementation stage, discussing first the structure of the interaction in the licensing case, then in a wholly owned subsidiary and finally in a joint venture.

2.1 Licensing

If an innovative project has been identified, the local partner can decide either to behave honestly or to act opportunistically. In the first case, the MNC is not expropriated. In the second case, the local partner is able to convert part of the investment return into a private benefit, not to be shared with the MNC. If the local partner behaves honestly and the innovative investment project is carried out, the return from the project is equal to Π . If the local partner acts opportunistically the expected return from the project is instead

$$\Pi - \lambda(l - k) \geq 0$$

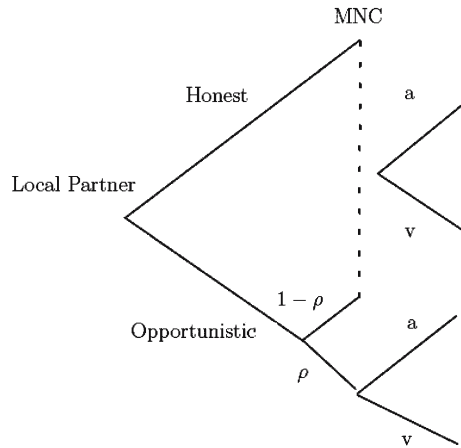
where $k > 0$ represents the private benefits accruing to the local partner as a result of its opportunistic behavior and $l > 0$ is the private cost imposed on the MNC. $\lambda \in [0, 1]$ is an environmental parameter, that can be thought of as representing the expropriation risk faced by the MNC in the host country.¹² We will assume also that $l - k > 0$, i.e. that an opportunistic behavior is welfare-reducing.¹³ When a licensing agreement has been signed, the MNC cannot exercise any control on the actual implementation of the project, and the game ends.

2.2 Wholly owned subsidiary

In the implementation stage the local partner continues to move first, deciding whether to behave honestly or opportunistically. The structure of the interaction in the implementation stage is described in Fig. 2. By retaining control, the MNC can now scrutinize or “monitor” the plan proposed by the local partner and decide whether to approve (a) or veto (v) it. With probability ρ , the MNC is able to identify the nature of the project, i.e. whether it is honest or opportunistic, while with probability $1 - \rho$, the MNC remains uninformed. If the MNC decides to veto the plan proposed by the local partner, it will come up with an alternative plan in order to protect itself from the possible expropriation. We assume that in formulating its alternative project, the MNC is not as well-informed about the available market opportunities as the local partner.

¹² For a different approach in modelling contractual enforcement, see [Markusen \(2001\)](#). In his framework, an outside agent is paid a defection penalty by the defecting party, and that is used to proxy for the degree of contract enforcement.

¹³ A possible interpretation of this assumption is that an optimal patent regime is in place. For a paper which considers also the case in which ‘expropriation’ might be welfare enhancing, see [Mueller and Schnitzer \(2006\)](#).

Fig. 2 The wholly owned subsidiary

As a result, the return generated by the revised plan is a random variable π with a probability distribution function $F(\pi, \theta)$ with support $(-\infty, \Pi]$. To characterize the extent to which the MNC is aware of the foreign market conditions, we assume that π satisfies first order stochastic dominance, i.e. that

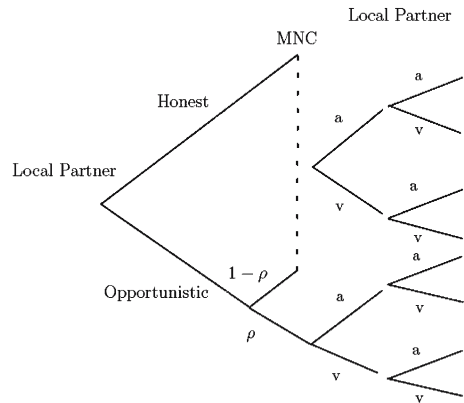
$$F(\pi, \theta) > F(\pi, \theta') \quad \text{if and only if} \quad \theta \geq \theta'.$$

The parameter θ captures the multinational's understanding of the foreign market. This might depend for instance on the company's ability to tailor its products to the need of the local consumers or on its competence in dealing with the foreign country's institutional arrangements and red tape. Broadly speaking, this parameter can be thought of as capturing the cultural proximity between the MNC and the host country. Formally, the better is the "local" knowledge available to the multinational (the higher is θ), the higher is the expected payoff associated to the project $\Pi^w(\theta) = \int_{-\infty}^{\Pi} \pi dF(\pi, \theta) \geq \Pi - (l - k) \geq 0$. Since the MNC retains control in this case, it will be able to carry out its revision without further intervention by the local producer.

2.3 Joint venture

If a joint venture has been chosen as the mode of entry, the interaction takes the same form as in the wholly owned subsidiary case, but any alternative project proposed by the MNC is not automatically carried out, and needs instead to receive the local partner's approval. The game form is described in Fig. 3.

We model the superior information available to the local partner by assuming that it is perfectly informed about the realization of the random variable π . If the return on the project proposed by the multinational is not satisfactory, the local partner will exercise its veto rights and prevent the implementation of the revision. In that case the two partners will settle for the predefined 'default' plan which is characterized by a return $\Pi^d = 0$. At the same time, if the revised project proposed by the

Fig. 3 The joint venture**Table 1** Payoff structure

Mode of entry	u_{MNC}	Local partner u_{LP}
Licensing		
Honest	0	Π
Opportunistic	$-\lambda\ell$	$\Pi + \lambda k$
Wholly owned subsidiary		
MNC approves		
Honest	$\beta^w \Pi$	$(1 - \beta^w) \Pi$
Opportunistic	$\beta^w \Pi - \lambda\ell$	$(1 - \beta^w) \Pi + \lambda k$
MNC vetoes	$\beta^w \Pi^w$	$(1 - \beta^w) \Pi^w$
Joint venture		
MNC approves		
Honest	$\beta^j \Pi$	$(1 - \beta^j) \Pi$
Opportunistic	$\beta^j \Pi - \lambda\ell$	$(1 - \beta^j) \Pi + \lambda k$
MNC vetoes		
LP approves	$\beta^j \Pi^j$	$(1 - \beta^j) \Pi^j$
LP vetoes	0	0

MNC is instead approved by the local partner, the corresponding expected payoff is $\Pi^j(\theta) = \int_0^\Pi (\pi) dF(\pi, \theta) \geq \Pi^w(\theta) = \int_{-\infty}^\Pi (\pi) dF(\pi, \theta)$. The payoffs of the MNC (u_{MNC}) and of the local partner (u_{LP}) under the various modes of entry are summarized in Table 1.

3 Ex-post analysis

We are now ready to solve the game, and we proceed starting from the third stage and moving backward. Throughout this and the next section, we will assume for simplicity that the revenue share of the MNC is the same under both a wholly owned subsidiary

and a joint venture, i.e. that $\beta^j = \beta^w$. We will generalize the analysis by relaxing this assumption in Sect. 6 of the paper.

Consider first the case of licensing. If the local partner is able to identify an innovative project, since it can exercise exclusive control over its implementation, it will always choose to behave opportunistically. The corresponding *ex-post* social surplus is given by

$$\Pi_b = \Pi + \lambda(k - l).$$

If the MNC has chosen instead to retain some control (exclusive or joint) over the foreign operations, it will face a cost of intervening and vetoing the project proposed by the local partner if an opportunistic behavior is observed. Let

$$\Delta^i = \Pi - \Pi^i$$

for $i \in \{j, w\}$ represent the marginal cost of the intervention by the multinational, i.e. the loss in social surplus that is associated to the multinational vetoing the project proposed by the local partner and implementing instead its own choice. Obviously, $\Delta^w \geq \Delta^j$, as the expected value of the project proposed by the multinational is higher under a joint venture than in the wholly owned subsidiary case.

The foreign multinational will credibly veto the local partner's proposal if and only if its share of the marginal cost of intervention $\beta^i \Delta^i$ is smaller than the benefit from intervention λl , i.e. the loss that is avoided by retaining control. Alternatively, this condition can be expressed as

$$\lambda \geq \lambda_1^i(\theta) = \frac{\beta^i \Delta^i(\theta)}{l}. \quad (1)$$

In other words, the local partner's proposal will be blocked if and only if the expropriation risk λ is high and/or its knowledge of the local market is sufficiently good (i.e. θ is high).

Suppose condition (1) holds. Anticipating the possibility that its proposal will be vetoed and replaced with the MNC's project choice, the local partner must decide whether to behave opportunistically or honestly. It will act honestly if and only if

$$(1 - \beta^i)\Pi \geq (1 - \rho)[(1 - \beta^i)\Pi + \lambda k] + \rho(1 - \beta^i)\Pi^i(\theta)$$

for $i \in \{j, w\}$ i.e. if and only if the expected return from acting honestly is higher than the sum of the expected payoff from acting dishonestly and not being caught, and the expected payoff if the opportunistic behavior is uncovered and the foreign multinational implements its own project. Alternatively, this condition can be rewritten as

$$\rho(1 - \beta^i)(\Delta^i(\theta)) \geq \lambda k(1 - \rho)$$

suggesting that the local partner will act honestly if and only if the share of the expected marginal cost of the multinational's intervention it will have to bear is larger than its

expected marginal benefit from cheating. This implies that

$$\lambda \leq \lambda_2^i = \frac{\rho(1 - \beta^i)\Delta^i(\theta)}{k(1 - \rho)}. \quad (2)$$

Combining conditions (1) and (2) we have:

$$\lambda_1^i(\theta) \leq \lambda \leq \lambda_2^i(\theta). \quad (3)$$

Let $I = \{(\lambda, \theta) | \lambda_1^i(\theta) \leq \lambda \leq \lambda_2^i(\theta)\}$, $I \in \{J, W\}$ be the combination of values of the expropriation risk and the local knowledge of the MNC such that the local partner in equilibrium is induced to behave honestly and the foreign company accepts the proposed project. Notice that both the left hand side and the right hand side of Eq. (3) are decreasing functions of θ . To guarantee that I is non empty, we need to make an additional assumption:

Assumption 1 $l > \frac{k\beta^i(1-\rho)}{\rho(1-\beta^i)}$, $i \in \{j, w\}$.

We are now ready to state the following:

Proposition 1 *Suppose Assumption 1 holds. In equilibrium, if the MNC decides to retain some control over its foreign operations through a wholly owned subsidiary ($i = w$) or through a joint venture ($i = j$), the following holds:*

- If $\lambda \leq \lambda_1^i$, the local partner acts opportunistically, the MNC rubber stamps (RS) the proposed project, and the social surplus equals $S(RS) = \Pi - \lambda(l - k)$ (outcome RS).*
- If $\lambda_1^i \leq \lambda \leq \lambda_2^i$ the local partner behaves honestly (H), the MNC vetoes an opportunistic project whenever observed; and the social surplus equals $S(H) = \Pi$ (outcome H).*
- If $\lambda \geq \lambda_2^i$ then the local partner chooses the opportunistic project, the MNC always vetoes (V^i) it; and the social surplus equals $S(V^i) = \Pi^i$ (outcome V^i).*

Notice that the equilibrium described in Proposition 1 is unique. The intuition is as follows. If the local partner behaves honestly in equilibrium, then when the project type is not observed the MNC must approve. This implies that the local partner has an incentive to behave honestly if and only if the foreign MNC refuses to approve the proposed project whenever it observes an opportunistic behavior. Therefore a honest project will be chosen in equilibrium if and only if condition (3) holds. The remainder is routine.

Proposition 1 and Assumption 1 tell us that for an equilibrium to exist in which the multinational is able to discipline the local partner and induce him to behave honestly, the multinational's loss in case of opportunistic behavior has to be sufficiently high. The MNC is more likely to be able to discipline its partner the better is its monitoring technology [i.e. the higher is $\rho/(1 - \rho)$], the greater is the local partner's stake in the project's profits and the smaller are the partner's private gains from behaving opportunistically.

Next, we compare the *ex-post* outcomes under the various modes of entry if the intersection $W \cap J \neq \emptyset$, i.e. under the assumption that

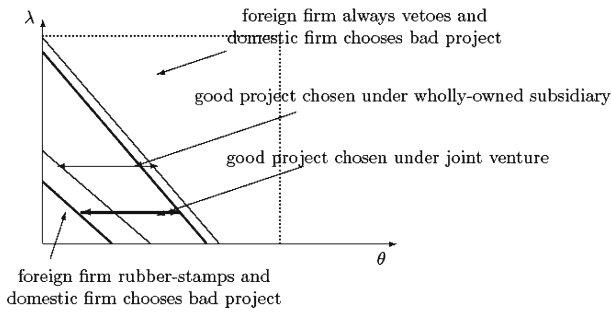


Fig. 4 Wholly owned versus joint venture

Assumption 2 $\frac{\beta^w \Delta^w}{l} < \frac{\rho(1-\beta^j) \Delta^j}{k(1-\rho)}$.

This assumption, guaranteeing that $\lambda_1^w < \lambda_2^j$, is satisfied in Fig. 4, where we have illustrated the equilibria characterized in Proposition 1, when the MNC retains some control over the project either by establishing a wholly owned subsidiary or by creating a joint venture. The set J , describing the combinations of θ and λ such that in a joint venture the MNC is effectively able to discipline the local partner, lies between the bold lines. The analogous region for the wholly owned subsidiary case, i.e. the set W , lies instead between the light lines. To understand the shape of the two regions, notice for instance that condition (1) defines, for both a joint venture and a wholly owned subsidiary, the combinations of (λ, θ) such that the MNC is indifferent between rubber stamping an opportunistic project proposed by the local partner or vetoing and replacing it with one of its own choice. The locus is negatively sloped in the (λ, θ) space because as θ increases, the MNC has better local knowledge at its disposal, and will become more aggressive in punishing the opportunistic behavior of the local partner when it detects it. Only if the expropriation risk declines, it will remain indifferent between rubber-stamping and vetoing the proposed project. A similar argument can be made for the remaining loci, described by condition (2).

Figure 4 shows that if the expropriation risk is sufficiently low, and the knowledge available to the foreign MNC is sufficiently bad, in equilibrium the foreign MNC will always passively endorse the project proposed by the local partner, which in turn always behaves opportunistically. If the expropriation risk and the MNC familiarity with the local environment are instead sufficiently high, the foreign multinational always vetoes the proposed project, replacing it with its own choice. At the same time, the local partner responds by acting opportunistically. Figure 4 also shows that a joint venture creates better incentives for the local partner than a wholly owned subsidiary when the expropriation risk and the market knowledge of the MNC are low. In a joint venture the local partner's knowledge of the market increases the expected value of the MNC's own project, and in this sense it provides an insurance against a potentially bad outcome from the MNC own project. The very presence of this insurance effect helps making the monitoring activity of the MNC more credible, thus improving the incentives faced by the local partner as compared to a wholly owned subsidiary. On the other hand, when local knowledge and expropriation risk are high, maintaining the

exclusive control over the local partner's proposed project provides the local partner better incentives. In fact, the insurance provided by the local partner's knowledge of the market at the same time increases the local partner's incentives to behave opportunistically in the joint venture as compared to the wholly owned subsidiary.

Comparing the *ex-post* social surplus resulting from the different modes of entry, we can establish

Proposition 2 *Suppose Assumption 1 is satisfied. The following holds:*

- All three modes of entry result in the same social surplus $S(RS) = \Pi - \lambda(l - k)$ for $\lambda \in [0, \lambda_1^j)$.*
- The joint venture dominates over the other modes of entry, and leads to a surplus $S(H) = \Pi$ for $\lambda \in [\lambda_1^j, \lambda_1^w)$.*
- The wholly owned subsidiary and the joint venture give rise to the same surplus $S(H) = \Pi$ and dominate over a licensing agreement for $\lambda \in [\lambda_1^w, \lambda_2^j)$.*
- The wholly owned subsidiary dominates, leading to a surplus $S(H) = \Pi$ for $\lambda \in [\lambda_2^j, \lambda_2^w)$.*
- If $\lambda \in [\lambda_2^w, 1]$ there exists a $\bar{\lambda} \geq \lambda_2^w$ such that the joint venture dominates and the social surplus is $S(V^j) = \Pi^j$.*

Proof The argument for parts (a) through (d) is straightforward and follows from Proposition 1. To establish part (e), notice that if $\lambda \in [\lambda_2^w, 1]$ a joint venture dominates a wholly owned subsidiary since $S(V^j) = \Pi^j > \Pi^w = S(V^w)$. Under licensing, the social surplus is instead $S(L) = \Pi + \lambda(k - l)$. Let λ^* be such that $S(L, \bar{\lambda}) = S(V^j)$. Then it can be easily verified that if $\lambda > \bar{\lambda}$, $S(V^j) > S(L)$. \square

The intuition for the results outlined in Proposition 2 is as follows. For values of λ belonging to the region indicated sub (a), under both a joint venture and a wholly owned subsidiary, the MNC rubber stamps the proposal of the local partner, who suggests an opportunistic project as in the case of a licensing agreement. In the region indicated sub (b), the joint venture implements the socially optimal contract, while under both licensing and a wholly owned subsidiary the opportunistic project is carried out. In (c) both the joint venture and the wholly owned subsidiary implement the socially optimal contract. In region (d) a wholly owned subsidiary dominates because it implements the socially optimal contract, while in the joint venture the MNC vetoes the opportunistic project proposed by the local partner and implements its revision. Finally, in region (e), provided that the private loss occurring to the MNC as the result of opportunistic behavior is large enough, the joint venture dominates by making better usage of the information available to the local partner.

We represent the total surplus from the different ownership structures in Fig. 5, where the picture is drawn for a given level of local knowledge θ . Similarly, Fig. 6 illustrates the welfare level associated to the different modes of entry as a function of the knowledge of the local market conditions available to the MNC, for a given level of institutional performance. As it turns out, when the MNC's understanding of the local market conditions is limited, all modes of entry are associated to the same welfare level. In this situation, even if the MNC has the possibility to discipline the local partner, it fails to do so and accepts whatever project the local partner proposes.

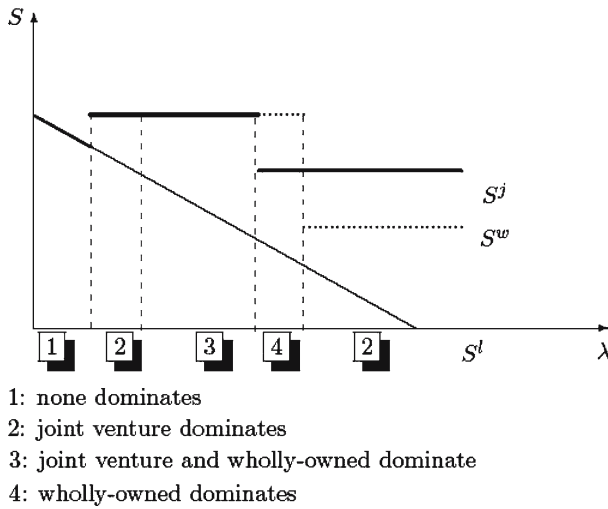


Fig. 5 *Ex-post* social surplus and expropriation risk

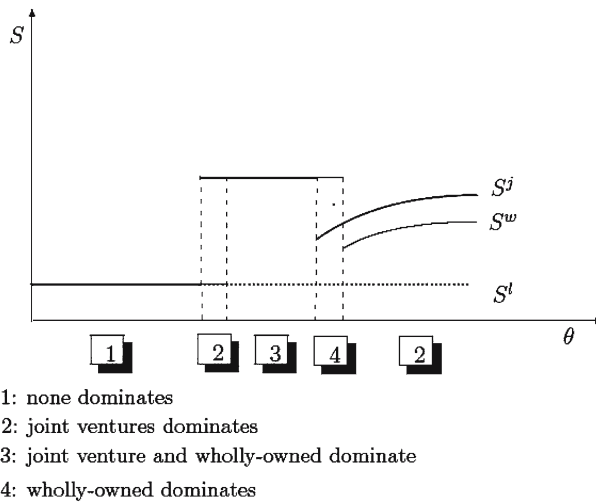


Fig. 6 *Ex-post* social surplus and local knowledge

Whenever the local knowledge available to the MNC increases, the MNC will discipline the local partner, inducing him to behave honestly. The joint venture mode of entry, allowing the MNC to take better advantage of the local partner's information, is more effective than a wholly owned subsidiary for low levels of understanding of the local market conditions. When, on the other hand, the MNC has very good knowledge of the local market, the MNC becomes excessively pro-active in monitoring the local partner, always vetoing its proposed project. As a result, the local partner will once again behave opportunistically in equilibrium, and the social payoff is represented by $\Pi_f^i(\theta)$ where $i = j$ for joint venture, and $i = w$ for the wholly-owned subsidiary.

When both in a joint venture and a wholly owned subsidiary we are in the ‘always veto’ equilibrium, the joint venture turns out to dominate the wholly owned subsidiary by making better use of the local knowledge. For intermediate values of θ the establishment of a wholly owned subsidiary is instead socially optimal, because it does not lead to excessive monitoring.

We are now ready to consider the second stage of the game, in which the local partner determines the effort level to be supplied in the identification of a new project.

4 Organization choice: *ex-ante*

In the second stage of the game, the local partner needs to exert an effort $e \in \{\underline{e}, \bar{e}\}$ to identify a good project, with $\underline{e} < \bar{e} < 1$. An effort level e induces a cost γe , where e can be interpreted as the probability of success in the identification of an innovative project. Ex-ante, the effort level e^* chosen by the local partner solves

$$e^* = \arg \max_e e(u_{LP}) - \gamma e \quad (4)$$

where u_{LP} is the payoff obtained by the local partner in the implementation stage. It is easy to show that if effort is sufficiently costly, the local partner will choose \bar{e} only under licensing. Let $e(L)$, $e(RS)$, $e(H)$, $e(V^j)$, $e(V^w)$ be, respectively, the effort level chosen under licensing, under rubber-stamping, when an honest behavior is implemented *ex-post*, and when the always veto behavior is carried out under a joint venture and under a wholly owned subsidiary. To simplify our analysis we will make the following additional

Assumption 3 $\beta^i \Pi > l$ and $(1 - \beta^i)\Pi + k < \gamma < \Pi$ for $i \in \{j, w\}$.

We can then establish the following:

Lemma 1 *If Assumptions 1, 2 and 3 are satisfied, the following holds*

- a. $e(L) = \bar{e}$
- b. $e(RS) = e(H) = e(V^j) = e(V^w) = \underline{e}$.

Proof To show that (a) holds, just notice that if $\gamma < \Pi$

$$\bar{e}[\Pi + \lambda k] - \gamma \bar{e} > \underline{e}[\Pi + \lambda k] - \gamma \underline{e}.$$

To show that (b) holds, remember that if $\gamma > (1 - \beta^i)\Pi + k$ for $i \in \{j, w\}$,

$$\underline{e}[(1 - \beta)\Pi + \lambda k] - \gamma \underline{e} > \bar{e}[(1 - \beta)\Pi + \lambda k] - \gamma \bar{e}$$

so that $e(RS) = \underline{e}$. As the local partner’s ex-post payoff is higher in the rubber stamping equilibrium than in the honest and always veto equilibria, it follows that $e(H) = e(V^j) = e(V^w) = \underline{e}$. \square

The intuition for the result is that, by making the local partner the residual claimant to all the profits generated by the project, a licensing agreement provides the best *ex-ante* incentives, inducing the highest possible effort level.

Before providing a characterization of the *ex-ante* social surplus \hat{S} associated to the different modes of entry, notice that the level of social surplus under licensing, $\hat{S}(L) = e[\Pi + \lambda(k - l)] - \gamma e$, is a decreasing function of λ . Finally, the following assumption will allow us to keep our analysis tractable:

Assumption 4 $\beta^i > \frac{l}{\Delta j} \frac{(\bar{e}-e)}{e} \frac{(\Pi-\gamma)l}{(l-k)}$ for $i \in \{j, w\}$.

We are now ready to state:

Proposition 3 Suppose Assumptions 1, 2, 3 and 4 are satisfied. The following then holds:

- If $\lambda < \lambda_1^j$ and $\gamma < \Pi + (k - l)$ then licensing is the preferred mode of entry.
- If $\lambda_1^j < \lambda < \lambda_1^w$ then the joint venture dominates over the other modes of entry.
- If $\lambda_1^w < \lambda < \lambda_2^j$ a wholly owned subsidiary and a joint venture give rise to the same surplus and dominate over a licensing agreement.
- If $\lambda_2^j < \lambda < \lambda_2^w$, the wholly owned subsidiary dominates.
- If $\lambda > \lambda_2^w$ there exists a $\bar{\lambda}^* \geq \lambda_2^w$ such that a joint venture dominates.

Proof To establish (a), from Lemma 1 we know that if $(1 - \beta)\Pi + k < \gamma < \Pi$, the local partner will implement a high effort level only under a licensing deal. Thus, $\hat{S}(L) = \bar{e}[\Pi + \lambda(k - l)] - \gamma \bar{e}$, while $\hat{S}(RS) = e[\Pi + \lambda(k - l)] - \gamma e$ and as long as $\gamma < \Pi + (k - l)$, $\hat{S} > \hat{S}_{RS}$. To establish (b) notice first of all that from Lemma 1, if the multinational retains some control, the local partner exercises a low effort level. This implies that the social surplus associated to a joint venture $\hat{S}(H) = e\Pi - \gamma e$ is larger than the one associated to a wholly owned subsidiary $\hat{S}(RS) = e[\Pi + \lambda(k - l)] - \gamma e$ since $(k - l) < 0$. Furthermore, as long as Assumption 4 is satisfied, and $\lambda_1^j < \lambda < \lambda_1^w$, we have that $\lambda > \lambda_1^j > \left(\frac{\bar{e}-e}{e}\right) \frac{(\Pi-\gamma)}{(l-k)}$. Thus, we need to compare $\hat{S}(L) = \bar{e}[\Pi + \lambda(k - l)] - \gamma \bar{e}$ with $\hat{S}(H) = e\Pi - \gamma e$ and the result follows immediately. (c) Follows from Proposition 2 and the discussion in part (b). To establish (d), notice that if $\lambda_2^j < \lambda < \lambda_2^w$ licensing is welfare-dominated by the other two modes of entry [see part (b)], and an honest contract is implemented only if the multinational establishes a wholly owned subsidiary. Consider now part (e). If $\lambda > \lambda_2^w$, then if the MNC retains some control over its foreign operations, an always veto equilibrium occurs and from Lemma 1 the local partner will supply in both cases a low level of effort. Thus $\hat{S}(V^j) > \hat{S}(V^w)$. To establish whether a joint venture leads to higher social surplus than a licensing agreement, we need to compare $\hat{S}(L) = \bar{e}[\Pi + \lambda(k - l)] - \gamma \bar{e}$ with $\hat{S}(V^j) = e\Pi^j - \gamma e$. As it can be easily shown, if $\lambda > \frac{\bar{e}(\Pi-\gamma)-e(\Pi^j-\gamma)}{(l-k)}$ then $\hat{S}(V^j) > \hat{S}(L)$. \square

The characterization provided in Proposition 3 is illustrated in Figs. 7 and 8. In the former, we show how social surplus is affected by changes in the expropriation risk for a given level of local knowledge available to the MNC. In the latter, we consider

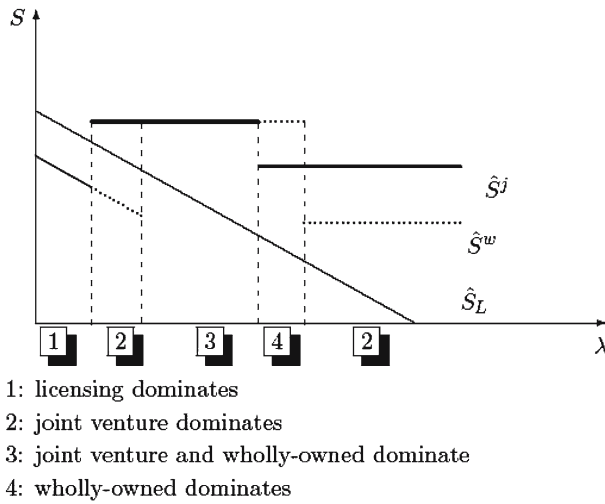


Fig. 7 *Ex-ante* social surplus

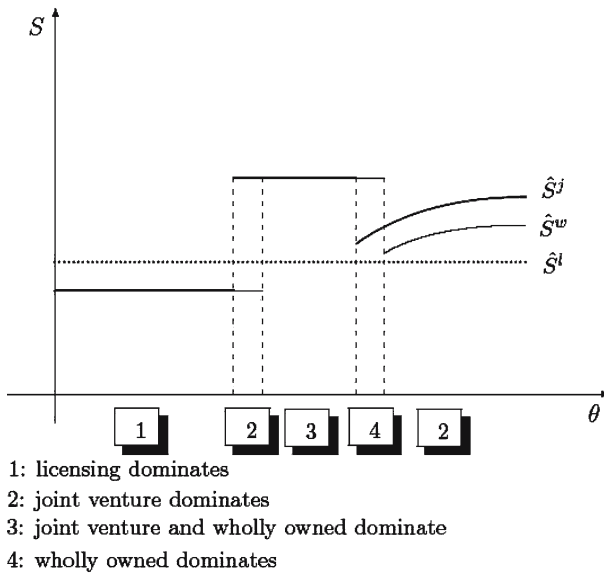


Fig. 8 Social surplus

instead the behavior of social surplus as a function of the information gap suffered by the multinational, for a given level of the expropriation risk. As we can see, the main difference between the discussion in this section and in the previous is represented by the fact that, once the *ex-ante* incentives are taken into account, licensing turns out to be the strictly preferred mode of entry when the expropriation risk is low and the information available to the multinational is limited. The main reason behind this result is that making the licensee the residual claimant to the revenues of the project

maximizes its incentives. This effect more than offsets the social loss generated by the opportunistic behavior it follows in the final stage of the game when the MNC cannot exercise any control over its actions.

5 Changing the revenue share

Up to this point we have assumed that the revenue shares of the two partners are the same both if the MNC retains exclusive control over the project, as well as if control is shared with the local partner. This has allowed us to focus our analysis on the role of the institutional environment and of the availability of local knowledge in shaping the optimal mode of entry decision.

In reality, corporations are often characterized by complex equity structures, and the relationship between nominal control over the project and the share of profits accruing to the controlling party is far from obvious.¹⁴ On the one hand, it is often the case that if one party retains nominal control, it also enjoys a larger fraction of the profits than if it shares control with a partner, as in the case of a joint venture. At the same time, the reverse can also be true. In other words, we can think of settings in which sharing control over the project might actually allow the multinational corporation to effectively retain a higher share of the profits than in a wholly owned subsidiary.¹⁵ In this section, without analyzing in detail the source of the bargaining power of the two partners, we will carry out several comparative statics exercises to assess the effect of a change in the MNC ownership share on the optimal mode of entry decision. Our discussion will focus on the ex-post analysis, as the ex-ante results follow from there.

First of all, notice that an increase in β^i , for $i \in \{j, w\}$ will increase λ_1^i and reduce λ_2^i , for $i \in \{j, w\}$. This means that, with a larger claim in the firm, the MNC also has a bigger share in the negative consequence of intervening (as its actions tends to reduce profits by Δ^i , $i \in \{j, w\}$), and hence becomes more reluctant in exercising its veto power (i.e. λ_1^i becomes larger). At the same time, with a smaller claim in the firm, the local partner becomes less concerned about the negative consequences of a possible MNC intervention and therefore becomes more keen to behave opportunistically (i.e. λ_2^i becomes smaller). In other words, if the MNC revenue share becomes larger, the MNC will be more likely to rubber stamp the local partner's proposal when property rights are well enforced, i.e. when λ is low, as the interval $[0, \lambda_1^i]$ expands. At the same time, the MNC will become more likely to intervene when the property rights are poorly protected, i.e. when λ is high, as the interval $[\lambda_2^i, 1]$ expands.

¹⁴ Bai et al. (2004) provide a very illuminating description of how joint control is often a feature of joint venture in which the equity shares are highly asymmetric. For instance, they show that voting rules that require super-majorities are often specified in joint venture contracts. In particular, in their sample of 200 joint venture projects, unanimity was required in over 95% of the firms for decisions concerning changes in the corporate charter, the termination or dissolution of the venture, merger with other organizations, etc. Two thirds majority were required in 35% of the cases for the approval of important management reports, budget and profits allocation, etc. In their sample in less than 25% of the cases the equity shares were 50–50.

¹⁵ This could well be the case if a low profit share were to encourage an opportunistic by the local partner.

Our earlier analysis suggests that for intermediate levels of property rights enforcement, retaining some control over the project dominates licensing because this allows the multinational to discipline the local partner and induce him to behave honestly. The key effect of a variation in the revenue share of the MNC in the project is to change its willingness to discipline the local partner. In particular, if λ is small, an increase in the revenue share of the MNC when it retains some control over the project will make its monitoring activities less aggressive and as a result, it reduces the appeal of retaining control over transferring it to the local partner through licensing. Comparing a wholly owned subsidiary arrangement with a joint venture, if the ownership share of the MNC is higher (lower) in the former than in the latter, a wholly owned subsidiary becomes less (more) attractive than a joint venture. Similarly, if the expropriation risk is sufficiently high (λ is large) and the MNC retains control, an increase in the revenue share of the MNC reduces the appeal of a wholly owned subsidiary or a joint venture compared to licensing. Furthermore, if the ownership share is higher (lower) under a wholly owned subsidiary than under a joint venture, retaining complete control will become less (more) desirable than sharing it with the local partner.

What have we learned from these exercises? Our discussion suggests that while retaining control over the project is crucial for the MNC to be able to discipline the local partner, from the point of view of social surplus, the best possible outcome is the one in which the MNC retains the minimum possible ownership share sufficient to retain control. An ownership share that is too high is bad for incentives, as it will make it more likely for the local partner to behave opportunistically and reduce the overall return to the project.

6 Conclusions

In this paper we have developed a simple model to study the mode of entry decision by a foreign multinational in a new market. In our analysis, entry can take either the form of a contractual arrangement or involve the multinational retaining ownership of the project either through a wholly owned subsidiary or a joint venture. A licensing arrangement gives the best ex-ante incentives to the local partner but, by relinquishing control over the project, the multinational encourages opportunistic behavior. Retaining control either exclusively or jointly with the local partner worsens instead the local partner's ex-ante incentives, but attributes the multinational a veto right to retain final say in the implementation of any given project proposed by the local partner, and thus helps disciplining opportunistic behavior.

We have shown that in an environment where property rights are insecure, opportunism is possible and the multinational enterprise has imperfect knowledge of the local market, the relationship between the quality of the institutional environment and the mode of entry decision is non-monotonic. In particular, we have shown that licensing is preferred when property rights are strictly enforced, while a joint venture is the most desirable mode of entry when property rights are poorly protected. In intermediate situations, the better use of local knowledge made possible by shared control under a joint venture arrangement works as a double edged sword. On the one hand, it makes the monitoring activity by the multinational more credible.

On the other, by offering insurance to both parties, it has the potential to compromise the incentives faced by the local partner, allowing more scope for opportunistic behavior.

The analysis we have carried out in the paper could be extended in several directions. From a theoretical perspective, we have considered a framework in which the local partner has perfect information on the technology available to the multinational. In reality, this is often not the case as projects can vary substantially in their complexity. For this reason, it might be interesting to generalize the model and allow for this additional source of uncertainty. This extension might enable us to provide a better understanding of the cross industry variation in the mode of entry decision.

From an empirical perspective, the model could be brought to the data using information on the mode of entry choice, the quality of the host country institutional environment and the proximity between the multinational's home market and foreign destination. While these are all important questions, we leave them for further research.

References

- Aghion, P., Tirole, J.: Formal and real authority in organizations. *J Polit Econ* **105**, 1–29 (1997)
- Anand, B.N., Khanna, T.: Do firms learn to create value? The case of alliances. *Strat Manag J* **21**, 295–315 (2000)
- Antras, P.: Incomplete contracts and the product cycle. *Am Econ Rev* **95**, 1054–1073 (2005)
- Antras, P., Helpman, E.: Global sourcing. *J Polit Econ* **112**, 552–580 (2004)
- Asiedu, E., Esfahani, H.S.: Ownership structure in foreign direct investment projects. *Rev Econ Stat* **83**, 647–662 (2001)
- Bai, C.-E., Tao, Z., Wu, C.: Revenue sharing and control rights in team production: Theories and evidence from joint ventures. *Rand J Econ* **35**, 277–305 (2004)
- Barba Navaretti, G., Venables, A.J., Barry, F., Ekholm, K., Falzoni, A., Haaland, J., Midelfart, K.-H., Turrini, A.: *Multinational Firms in the World Economy*. Princeton: Princeton University Press (2004)
- Dunning, J.: *International Production and the Multinational Enterprise*. London: Allen and Unwin (1981)
- Glass, A.J., Saggi, K.: Licensing versus direct investment: implications for economic growth. *J Int Econ* **56**, 131–153 (2002)
- Grossman, S., Hart, O.: The costs and benefits of ownership: A theory of vertical and lateral integration. *J Polit Econ* **94**, 691–719 (1986)
- Hart, O., Moore, J.: Property rights and the nature of the firm. *J Polit Econ* **98**, 1119–1158 (1990)
- Hauswald, R., Hege, U.: Ownership and control in joint ventures; Theory and evidence. Discussion Paper 4056, CEPR (2003)
- Horstmann, I.J., Markusen, J.R.: Licensing versus direct investment: A model of internalization by the multinational enterprise. *Can J Econ* **20**, 464–481 (1987)
- Lee, J.-Y., Mansfield, E.: Intellectual property protection and U.S. foreign direct investment. *Rev Econ Stat* **78**, 181–186 (1996)
- Markusen, J.R.: Contracts, intellectual property rights and multinational investment in developing countries. *J Int Econ* **53**, 189–204 (2001)
- Markusen, J.R.: *Multinational Firms and the Theory of International Trade*. Cambridge: MIT Press (2002)
- McCalman, P.: Foreign direct investment and intellectual property rights: Evidence from Hollywood's global distribution of movies and videos. *J Int Econ* **62**, 107–123 (2004)
- Mueller, T., Schnitzer, M.: Technology transfer and spillovers in multinational joint ventures. *J Int Econ* **68**, 456–468 (2006)
- Nakamura, M., Xie, J.: Nonverifiability, noncontractability and ownership determination models in foreign direct investment, with an application to foreign operations in Japan. *Int J Ind Organ* **16**, 571–599 (1998)
- Smarzynska Javorcik, B., Saggi, K.: The composition of foreign direct investment and protection of intellectual property rights: Evidence from transition economies. *Eur Econ Rev* **48**, 39–62 (2004)

- Smarzynska Javorcik, B., Saggi, K.: Technological asymmetry among foreign investors and mode of entry. World Bank Working Paper 3196 (2004)
- Smarzynska Javorcik, B.K., Wei, S.-J.: Corruption and cross-border investment: Firm-level evidence. Mimeo, The World Bank (2002)
- Smith, P.J.: How do foreign patent rights affect US exports, affiliate sales and licenses? *J Int Econ* **55**, 411–439 (2001)
- UNCTAD: World Investment Report. New York/Geneva: United Nations (2000)