WORKING PAPER

Internalization Revisited

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Abstract

This paper analyses why a rm chooses foreign direct investment rather than arms-length contracts in supplying overseas markets. When contracts are incomplete we show that this choice must balance the moral hazard associated with external markets against that associated with internal markets. We show that arms-length contracts are preferred when the overseas agent has limited opportunities for changing product technology or if there are few spillover effects from foreign to home market. Internalization is preferred when the advantages of the rm are knowledge-based and when reputational effects are strong.

Keywords: foreign direct investment; internalization; moral hazard.
JEL listing: F2, L1

1 Introduction

This paper revisits and extends analysis of rms choices of the means by which they serve their overseas markets when contracts between the rms and their overseas agents are incomplete. In particular, we consider the forces that lead a rm to maintain control of its overseas operations through foreign direct investment rather than confer that control on an independent agent through a licensing or franchising arrangement. The policy relevance of this topic cannot be overstated. World production is increasingly dominated by international oligopolies, with a growing degree of market interpenetration. These rms are making strategic decisions on how to serve their target markets that have important implications for trade ows, home and host country employment, knowledge transfer and technological improvement. Their choices with respect to modes of market serving and consequent value-creating activities are affected by domestic and international trade policies in ways that are not at all well accounted for in traditional trade models that focus on competitive markets and the role of comparative advantage and factor endowments as determinants of trade ows.

If a rm chooses foreign direct investment as a means by which to serve its overseas markets it is then considered to become a multinational enterprise,

de ned as a rm that acquires a substantial controlling interest in a foreign rm or sets up a subsidiary in a foreign country. (Markusen, 1995) The important question considered in this paper is why a rm chooses multinationality rather than some other form of direct operation in foreign markets such as a joint venture operation, a strategic alliance or licensing.

The approach we adopt is in the tradition initiated by Hymer (his 1960 dissertation published as Hymer, 1976) and formalized, in particular, by Dunning (see, for example, 1977, 1981), Buckley and Casson (1976, 1985) and Rugman (1981, 1985, 1996). A common feature of their work is that foreign direct investment is the response by a rm to a particular type of market failure. The basic idea, to which we return in more detail below, is that incomplete contracts and missing markets give rise to the possibility of opportunistic behavior in arms-length exchange (Williamson, 1975) and so to the preference by the rm to replace external contracts by direct ownership and internal hierarchies. What is missing from the analysis, and provides the main motivation for this paper, is that similar problems of contractual incompleteness and opportunistic behavior occur *inside* rms. In other words, we treat the choice of a hierarchical structure, characterized by foreign direct investment, as compared to a market structure, characterized by contracts between independent entities, as being driven by the desire of the rm to select the organizational structure that minimizes its exposure to opportunistic behavior.[1]

The seminal work of Hymer starts from the principle that multinational enterprises operate at an inherent disadvantage with respect to national rms because of the additional costs of doing business abroad. These costs derive from communications and management problems that arise in running an operation at a distance, consumer attitudes to foreign rms, language, culture and other operational barriers, and the costs of being outside the normal business and government networks. For the overseas affiliate to be pro table in the face of these disadvantages, it must possess compensating advantages such as superior technology or products, or rm-level economies of scale.

This general approach has been codi ed in the eclectic paradigm developed by Dunning and the internalization theory (or paradigm) developed by Rugman. The eclectic paradigm suggests that foreign direct investment arises when three conditions are satis ed. First, the rm must possess speci c, ownership advantages not available to other rms. These advantages can be tangible, such as a superior technology, patents on particular products or processes, or domestic rm size that generates transferable economies of scale and scope. Or the advantages can be intangible, perhaps embodied in a brand name, trademark or other indication of product quality, or deriving from the rm s having favored

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[1] The market failure approach to foreign direct investment stands in contrast to the game theoretic approach developed by, for example, Horstman and Markusen (1992), Motta (1992), Motta and Norman (1996). This analysis treats the choice between exporting and foreign direct investment as a purely strategic issue with the choice of mode of market serving emerging as the Nash equilibrium to a stage game. With the possible exception of Ethier and Markusen (1996), this literature pays no attention to the issues of contractual incompleteness that motivate our analysis .

access to particular customers.

Secondly, the foreign market should offer some location advantages that make it more pro table to serve the overseas market by local production rather than by exporting. Obvious candidates are high tariff and non-tariff barriers to exports or stringent anti-dumping regulations that inhibit the rm s ability to price its exports to re ect local market conditions. Market size is another important location advantage since large markets make it easier to offset the set-up costs associated with establishing an overseas affiliate.

Thirdly, there should be an internalization advantage in that the rm believes that its ownership advantages are best exploited internally rather than sold directly through spot markets or offered to other rms through some contractual arrangement such as licensing, the establishment of a joint venture or management contracting. This advantage derives from the difficulties that arise in writing enforceable and controllable contracts with potential overseas partners that generate an income that approximates the true worth of the advantage being marketed. It is in this third element that the eclectic paradigm shares much in common with Rugman s internalization theory. The main difference between the two paradigms has been described by Dunning (1995):

> The eclectic paradigm ... is different from internalization theory
> in that it treats the competitive (so-called O-speci c) advantages
> of MNEs ... as *endogenous* rather than as *exogenous* variables.
> (Dunning, 1995, p. 465)

The decision to internalize an ownership-speci c advantage is also a decision not to market that advantage to other rms. Important reasons causing the rm to choose internalization that have concerned many investigators are the public good nature of knowledge-based ownership advantages and the informational asymmetry inherent in them. If the rm has superior knowledge, for example about the performance characteristics of its product or the technology embodied in the product, it will be reluctant to reveal the information truthfully to a potential licensee since no effective contract can be written to protect the rm from post-contractual opportunism on the part of the licensee. A point not often made in this type of analysis is that this type of asymmetry can run both ways. By an exactly analogous argument, if a potential licensee has superior information about local market conditions he will be reluctant to reveal this truthfully to the rm, in this case because incomplete contracts will not protect the licensee from post-contractual opportunism of the rm.

In addition, just as knowledge can easily be transferred internationally by licensing agreements, particularly between countries at similar levels of development, so it is likely that this knowledge can be quickly learned and potentially extended by those to whom it is licensed. The fear of defection by the licensee - for example, by starting up a new enterprise in competition with the licensing rm - may well make the potential licensor favor internalization over licensing, particularly since it is difficult to write enforceable contracts to prevent such defection. Analogous problems arise when the rm s ownership advantage derives

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primarily from intangible assets such as reputation. The ability of the rm to extract rents from potential licensees is limited by the incentive that licensees have to skimp on quality, damaging the rm in all of its markets.

It should not be thought, however, that the risks of moral hazard that underlie these problems are con ned to a rm s external relations with potential licensees. We know from the work of, for example, Hart and Moore (1990), Hart (1995) and Milgrom and Roberts (1992) that similar moral hazard problems arise within the various divisions of a rm. This is even more likely to be the case when the divisions operate in different countries with different cultures and at considerable social and economic distances from the headquarters operation (see Akerlof, 1997 for recent discussions of the importance of social distance). With internalization, the overseas agent is appointed by the principal but the principal retains residual rights of control. Nevertheless, it remains the case that the agent s actions are imperfectly observable and contractible by the principal giving rise to the possibility of opportunistic behavior by the agent. One the other hand, the agent runs the risk that the rewards from efforts expended to improve the joint pay-offs of agent and principal can be expropriated by the principal, giving rise to the incentive for opportunistic behavior by the principal.

What this implies, in other words, is that the choice between foreign direct investment and arms-length contractual arrangements such as licencing or alliance formation should balance the efficiency costs of opportunistic behavior when using internal markets against the same costs when using external markets.

The remainder of the paper proceeds as follows. In the next section we present some information on the importance of foreign direct investment and the empirical regularities it exhibits that are directly relevant to our analysis. In the next section we develop a stylized model that allows us to analyze the effects of opportunistic behavior in both external and internal contracts. Section 4 highlights the factors that determine ownership structure and our main conclusions are presented in section 5.

2 Some Empirical Regularities

There has been a particularly rapid expansion of foreign direct investment over the past two decades. UNCTAD and OECD data indicate that fdi has grown some four times as fast as exports over this period. Moreover, as the data in Table 1 indicate, the stock of fdi has also grown steadily as a proportion of GDP. Nor does there seem to be any indication that this growth is slowing down. For example, Mataloni (1997) indicates that the operations of nonbank US multinationals grew more rapidly in 1995 than they had grown, on average, since 1982.

Table 1 and Table 2 further indicate that the great majority of fdi ows have been between developed countries, especially within the OECD. The extremely rapid growth of fdi in the European Union is particularly noteworthy.

The completion of the Single Market in the European Union had the effect of significantly reducing the intra-EU barriers to trade but also held the threat of increasing the extra-EU tariff and non-tariff barriers: what has come to be referred to as the threat of Fortress Europe. In addition, the period from the mid-1980 s in Europe saw a more concerted anti-dumping stance with respect to the exports to Europe of firms, particularly but not exclusively based in the Far East (Tharakan, 1991). These changes significantly altered the relative attractiveness of exporting to the EU countries and fdi in the EU: in the language of the eclectic paradigm, these changes significantly changed the L-based attractions of direct operations in the EU.

(Tables 1 and 2 near here)

Table 3 hints at further features of foreign direct investment. It seems clear that there is a remarkable similarity in the industrial mix of fdi outflows and fdi inflows.[2] In other words, not only have the past two decades seen a remarkable growth in intra-industry trade, they have also seen a remarkable growth in intra-industry foreign direct investment. Apparently, the economic forces that lead a firm based in country X to set up direct operations in country Y will also encourage a firm based in country Y to set up direct operations in country X.

(Table 3 near here)

There are some further empirical regularities that should be noted and that have guided theoretical developments. First, the great majority of foreign direct investment, at least in the United States and in Europe, has been horizontal.[3] The foreign affiliates supply a substantial proportion of their output to local markets rather than exporting intermediate products back to the home-country assembly operations of the parent companies. Even given this, however, a growing proportion of international trade is intra-firm trade (UNCTAD, 1997).

Secondly, there appears to be little indication that differences in factor endowments between countries are associated with flows of foreign direct investment (Brainard, 1993).

Thirdly, there is strong evidence that tariff and non-tariff barriers to trade directly affect multinationality: see, for example, Brainard (1997). In addition, there is growing evidence that the decision to adopt fdi is significantly affected by the emergence of regional free-trade blocs in Europe, the Asia-Pacific Rim and North America: see the evidence cited in Motta and Norman (1996).

Fourthly, there are important differences across industries in the extent to which multinational companies dominate production. The industry and firm characteristics that appear to be most closely related to multinationality are:

- high levels of R&D relative to sales;

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[2] See also Norman and Dunning (1984) for earlier and much more detailed analysis.

[3] A possible exception to this is Japanese foreign direct investment in the Far East, where a rather greater proportion of output is exported to parent companies in Japan.

- a high proportion of professional and technical workers;

- new products or products that incorporate complex technologies;

- high levels of advertising.

Finally, multinationals also tend to be firms with a high proportion of intangible assets (Morck and Yeung, 1991) but with relatively weak plant-level economies of scale.

It is clear that these characteristics have much in common. There is, in particular, the obvious implication that knowledge-intensive firms or firms that manufacture complex products for which quality is important are more likely to be multinational. The natural reason for this, which we investigate in more detail below, is that this type of firm finds it more difficult and costly to exploit whatever competitive advantages it might have either through exporting or by commissioning an independent firm to operate on its behalf.

3   Internalization Revisited

The central question we investigate is why a firm, in supplying overseas markets, chooses to invest directly in production operations in those countries rather than, for example, entering into licensing or franchising agreements with local companies in the target countries. In the language of the eclectic or internalization paradigms, the decision to internalize an ownership-specific advantage is also a decision not to market that advantage to other firms. We noted in the introduction that there are important reasons causing the firm to choose internalization: for example, the public good nature of knowledge-based ownership advantages and the informational asymmetry inherent in them.

We also noted, however, that the risks of moral hazard that underlie these problems are not confined to a firm's external relations with potential licensees. Precisely the same moral hazard problems arise within the various geographically separated divisions of a multinational enterprise. What this implies, in other words, is that foreign direct investment should be preferred when the moral hazard associated with using external markets is greater than that associated with using internal markets.

We develop a stylized model to illustrate this point. Assume that a firm E is considering whether to supply an overseas market through a licensing agreement[4] with a domestic firm L or by establishing a subsidiary with a local manager M. If the licensing agreement is signed it confers residual control rights to L in return for an agreed license fee of P_0. With a local subsidiary, M can expect to receive a profit share and has a base salary P_0. E must enter into a long-term contract with either L or M in order to encourage the necessary relationship-specific investment by L or M. This contract provides for a good to be produced at an agreed quality. E knows that the good can be sold for a

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[4]We can think of this agreement as giving the licensee the right either to produce the good or to market the good on E's behalf.

price B_0 and that it can be produced at cost C_0. If L provides the good the licensing agreement defines L's profit, while if M provides the good his contract is an incentive-based, profit-sharing contract.

Either L or M can use their local knowledge to modify the good but the actions they take to do so are sufficiently complex as to be uncontractible *ex ante*. Rather, E indicates that he will be willing to renegotiate the contract once these actions are observable. There are two types of modification:

- cost reducing innovation:

L or M can apply effort r to secure a cost reduction $c(r)$. This cost reduction is, however, also associated with a quality reduction that reduces the value of the good to consumers by $d(r)$ in the local market and, through its reputational effect, by $d^*(r)$ in E's home market.

- quality enhancing innovation:

L or M can apply effort e to enhance the quality of the basic good. The improvement is valued by consumers at $q(e)$ in the local market and the reputational spillover to E's home market is $q^*(e)$.

Standard assumptions are made regarding the concavity/convexity of c, d, d^*, q and q^*:

$c(0) = 0, c' > 0, c'' < 0, c'(0) = \infty, c'(\infty) = 0$;

$d', d^{*\prime} > 0, d'', d^{*\prime\prime} > 0, d(0) = d^*(0) = 0$;

$q', q^{*\prime} > 0, q'', q^{*\prime\prime} < 0, q(0) = q^*(0) = 0, q'(0) = q^{*\prime}(0) = \infty, q'(\infty) = q^{*\prime}(\infty) = 0$.

The quality effects of the two types of innovation are important in that they reflect the moral hazard implicit in both licensing and foreign direct investment.

Contractual incompleteness between E and L or M leads to a situation in which modification of the basic good does not lead to a breach of contract. Moreover, while r and e and their effects are observable by E, L and M they cannot be confirmed by any of the parties to outside agencies and so cannot be made the subjects of enforceable contracts. Any cost or quality innovation can be made solely with the agreement of the individual with residual control rights. Thus M must have E's permission for any innovation whereas L does not need such permission. L retains any additional net revenues created by his efforts in L's home market (E's foreign market), while not having to recompense E for any negative externalities that arise in E's home market. However, L receives no payment from E for any positive externalities that L's efforts generate in E's home market. By contrast, with foreign direct investment residual control rights remain with E. Moreover, it is possible for E to expropriate the benefits of M's innovations by replacing M. We assume that M has some power, however, in that E cannot fully implement M's ideas should M be replaced. Specifically, we assume that E is able to implement only a fraction $0 < 1-h < 1$ of the net gains $-(d(r) + d^*(r)) + c(r) + q(e) + q^*(e)$ from M's innovative ideas by replacing M with another manager hired at cost. The remainder is embodied in M's human capital. The parameter h captures the incentive that M has to identify

and introduce cost reducing and quality enhancing innovations.[5] In particular, if $h = 0$ so that M s ideas are fully appropriable by E then no innovations will be suggested by M, while if $h = 1$ then M is essential to the effective operation of the overseas affiliate.

The resulting sequence of events is summarized in Figure 1. As this gure indicates, the individuals involved will want to renegotiate the contract at date 1 once the potential cost and quality innovations have been identi ed and articulated. We assume that the gains from renegotiation are distributed 50:50 between the relevant parties: the Nash bargaining solution. Any such renegotiation must, of course, re ect the residual control rights of the activity and so will be affected by the default pay-offs of E, L and M. The default pay-offs are determined as follows.

(Figure 1 near here)

(A) With a licensing agreement and without renegotiation, L has the incentive to make both cost and quality innovations since L has the residual control rights, E s default pay-off is

$$U_E^d = P_0 - d^* (r) + q^* (e) \qquad (1)$$

and L s default pay-off is

$$U_L^d = B_0 - P_0 - C_0 + c(r) - d(r) + q(e) - r - e \qquad (2)$$

(B) With the establishment of a local subsidiary and without renegotiation, E will replace M. Both innovations are implemented but E achieves only the share $1 - h$ of these. E s default pay-off is

$$U_E^d = B_0 - P_0 - C_0 + (1 - h)(-(d(r) + d^*(r)) + c(r) + q(e) + q^*(e)) \qquad (3)$$

and M s default pay-off is

$$U_M^d = P_0 - r - e \qquad (4)$$

We begin by identifying the value-maximizing equilibrium if e and r were to be contractible. In such a case the parties involved would choose e and r to maximize the joint pay-off to their coalition. Thus, r and e are chosen to solve:

$$\max_{r,e} [-d(r) - d^*(r) + c(r) + q(e) + q^*(e) - r - e] \qquad (5)$$

Given our concavity assumptions this has a unique solution (r^*, e^*) de ned by the rst-order conditions equating marginal social cost of an innovation with its marginal social bene t:

$$-d'(r) - d^{*\prime}(r) + c'(r) = 1 \qquad (6)$$

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[5] See Milgrom and Roberts (1992) for an excellent discussion of incentive-based compensation schemes in such principal-agent situations.

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$$q'(e) + q^{*\prime}(e) = 1 \tag{7}$$

Now consider the actual equilibrium that will be achieved after renegotiation with the alternative ownership structures.

3.1 Licensing:

With a licensing agreement, renegotiation will relate to additional payments from E to L to internalize the spillover $q^*(e)$. The resulting gains will be split 50:50 between E and L. The pay-offs are now:

$$U_E^l = P_0 - d^*(r) + \frac{q^*(e)}{2} \tag{8}$$

$$U_L^l = B_0 - P_0 - C_0 + c(r) - d(r) + q(e) + \frac{q^*(e)}{2} - r - e \tag{9}$$

Since L can correctly anticipate that renegotiation will take place, he will choose r and e to maximize U_L^l. This gives the rst-order conditions:

$$-d'(r_L) + c'(r_L) = 1 \tag{10}$$

$$q'(e_L) + \frac{q^{*\prime}(e_L)}{2} = 1 \tag{11}$$

There are two distortions from rst-best re ecting the fact that L receives only partial payment for internalizing the spillover effects of his innovations. First, L underestimates the detrimental impact of cost reducing innovations on product quality since he does not have to pay E for any negative externality from quality reduction. Secondly, he underestimates the bene cial impact of quality enhancing innovations since he receives payment for only part of the positive externalities his efforts generate.

3.2 Direct Ownership

If E sets up a local affiliate then renegotiation takes place with M over the pro t generated by the fraction h of M s innovative ideas that E cannot expropriate if he replaces M. These have value $h(-(d(e) + d^*(e)) + c(e) + q(i) + q^*(i) - C_0)$ and will be shared equally so that the pay-offs to E and L will be:

$$U_E^f = B_0 - P_0 + \left(1 - \frac{h}{2}\right)\left(\begin{array}{c} -d(r) - d^*(r) + \\ c(r) + q(e) + q^*(e) - C_0 \end{array}\right) \tag{12}$$

$$U_M^f = P_0 + \frac{h}{2}(-d(r) - d^*(r) + c(r) + q(e) + q^*(e) - C_0) - r - e \tag{13}$$

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In this case M chooses r and e to maximize U_M^f. This gives the first-order conditions:

$$\frac{h}{2}\left(-d'\left(r_M\right) - d^{*\prime}\left(r_M\right) + c'\left(r_M\right)\right) = 1 \tag{14}$$

$$\frac{h}{2}\left(q'\left(e_M\right) + q^{*\prime}\left(e_M\right)\right) = 1 \tag{15}$$

The manager M does take account of the impact that his innovations have on the profits of E as a result of the profit-based incentive scheme that he has been offered. However, this incentive is weaker than it should be because the threat of replacement means that the manager is unable to reap the full benefits of his quality innovation ideas and is not fully compensated for scaling down his cost but quality reducing innovations.

3.3 Ownership Structure

The first-order conditions 7, 11, and 15 are illustrated in Figure 2 and the conditions 6, 10 and 14 are illustrated in Figure 3. These conditions confirm that there are moral hazard problems that give rise to distortions with both ownership structures, the element that we have indicated is missing from much of the discussion of internalization. Specifically, licensing leads to an equilibrium in which $r_L > r^*$ and $e_L < e^*$. In other words, the licensee is induced to make excessive cost reducing and insufficient quality enhancing innovative effort. If E chooses to establish an overseas affiliate instead, the spillover effects of M's ideas are taken partially into account. However, the weakness of the incentives offered to the local manager M as a result of the threat of replacement leads to an inefficiently low level of both cost reducing and quality enhancing innovations: $r_M < r^*$ and $e_M < e^*$. Moreover, because E offers M weaker incentives for quality improving innovations than he offers to L, we also find that $e_M < e_L$.

(Figures 2 and 3 near here)

There is an immediate implication from these results that accords well with the theoretical discussion of the advantages of internalization versus the use of external markets to exploit an ownership advantage.

Theorem 1 *Costs $C_0 - c(r)$ will always be lower with licensing than with direct ownership but local quality $B_0 - d(r) + q(r)$ and total quality $B_0 - d(r) - d^*(r) + q(e) + q^*(e)$ may be higher or lower.*

It is reasonable to expect E to choose the ownership structure that maximizes total surplus $U_E^l + U_L^l$ or $U_E^f + U_M^f$ since this gives the greatest scope for mutually beneficial exchange between E and either L or M. In doing so, E must balance the two sets of distortions we have identified. Licensing gives the licensee an excessive incentive to pursue cost and quality reducing innovations while placing

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too little weight upon quality improving innovations. Internalization and direct ownership, by contrast, gives the local manager too weak an incentive to pursue cost and quality reducing innovations while giving even less weight than licensing to quality improving innovations. The following propositions shed light on the forces that determine the relative ranking of licensing and direct ownership.

Theorem 2 *(1) Let the negative spillover $d^*(r)$ be represented by $\alpha^* d^*(r)$. Then licensing will be preferred to direct ownership for α^* sufficiently small.*

(2) Let the negative spillovers $d(r)$ and $d^*(r)$ be represented by $\alpha d(r)$ and $\alpha^* d^*(r)$, and the cost reduction $c(r)$ be represented by $\beta c(r)$. Then licensing will be preferred to direct ownership for α, a^* and β sufficiently small.

The intuition behind Theorem 2 is simple enough and accords well with the literature on internalization. Part (1) is a direct consequence of the fact that a very low value of the parameter α^* is equivalent to the negative spillover effect on product quality from cost reducing innovations being negligible. If this condition is satis ed then licensing generates cost reducing innovations that are nearly socially efficient while also having a level of quality improving innovation that is nearer to rst-best than does direct ownership. In other words, licensing is preferred when the cost-reducing innovations of either the licensee or the local manager have very weak negative spillover effects on perceived product quality in E s home market since then the stronger incentives to reduce costs and improve product quality that characterize licensing are socially bene cial.

Part (2) follows since very low values of the parameters α, a^* and β imply that the opportunities for cost and quality reducing innovation are limited so that the equilibrium values of cost reducing innovative effort r_L, r_M and r^* are all near zero. As a result, the choice of quality improving innovation e determines the value-maximizing ownership structure, with the effect that licensing is preferred. In this case the opportunities open to either the licensee or the local manager for cost and quality reducing innovation are limited. It follows that the cost reducing efforts of the licensee will not be particularly damaging whereas his stronger incentive to undertake quality improving innovations is desirable.

Theorem 2 can be restated in a more intuitive way.

> *Licensing is likely to be preferred when the activities of the licensee in his home market are unlikely to damage the licensor s home market and/or there are limited opportunities for changing the licensor s production technology.*

Under what circumstances will internalization and direct ownership be preferable?

Theorem 3 *(1) Suppose that the cost reducing innovation is given by $c(r) = d(r) + d^*(r) + \gamma b(r)$ and let the local impact on quality $q(e)$ be given by $\delta q(e)$. Then for γ, δ sufficiently small and h sufficiently close to 1, direct ownership will be preferred to licensing.*

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(2) Suppose that the cost reducing innovation is given by $c(r) = d(r) + d^*(r) + \gamma b(r)$ and let the impact on quality $q(e), q^*(e)$ be given by $\delta q(e)$ and $\delta^* q^*(e)$. Then for γ, δ, δ^* sufficiently small and h sufficiently close to 1, direct ownership will be preferred to licensing.

When the parameter γ is close to zero the conditions of part (1) are such that the gains from cost saving innovation are fully offset by the quality reducing effects these innovations have in home and host country markets. As a result, the weak incentives for cost reduction with direct ownership are efficient. By contrast, the licensee continues to have an inefficiently strong incentive to implement cost reductions since the licensee ignores the negative quality spillover of this type of innovation. With δ near to zero and h near to 1, the incentives that the licensee and the manager have to make quality improving innovations are roughly identical. Combining these conditions leads to the conclusion that direct ownership is preferred to licensing.

The conditions of part (2) imply that the equilibrium values of quality improving innovative effort e_L, e_M and e^* are all approximately zero, meaning that it is the choice of cost reducing innovative effort r that determines social efficiency. By the same argument as for part (1), when γ is small direct ownership is preferable since the licensee ignores the negative spillover of his cost reducing efforts.

This proposition also has an appealing intuition. Direct ownership through internalization is likely to be preferred when cost reduction has a strong quality reducing effect in E s home and foreign markets since the incentive of the local manager to make such damaging cost reductions is weaker than for the licensee. However, this is not sufficient of itself. First, it must also be the case that the quality improving efforts by the licensee (and the local manager) are relatively weak. This is more likely to be the case when there are few opportunities for quality improving innovations by either the licensee or the manager. Secondly, it must be the case that the manager has strong incentives to suggest those innovations that he can since they are embodied in his human capital (h near 1). In other words, Theorem 3 can also be restated in a more intuitive way.

> *Internalization is likely to be preferred when cost reduction reduces quality and when there are limited opportunities for quality improvement. These conditions apply when ownership advantages are knowledge-based and when reputational effects are strong.*

When seen in this light, they are precisely the situations that have been identi ed in the literature as favoring internalization over external marketing of ownership advantages.

3.4 Conclusions

Our aim in this paper has been to show how recent advances in organization theory can add considerably to our understanding of why rms choose to in-

ternalize particular competitive advantages rather than exploit them through external markets.

It has long been recognized that a major motivation for a firm to choose foreign direct investment as the mode for supplying overseas markets is to avoid the risks inherent in incomplete contracts between the firm and its overseas agents who operate outside its direct control. We have extended this analysis by introducing the possibility of there being incomplete contracts *within* firms as well as *between* firms. In these circumstances, we have shown that the choice of ownership structure must balance the firm s exposure to moral hazard when using external markets against its exposure to moral hazard when using internal markets.

When the actions of the firm s external agent or its appointed manager are imperfectly observable, the actions chosen by the agent or manager are unlikely to be value maximizing. Specifically, suppose that the agent or manager can, through their own efforts, introduce cost/quality reducing and quality enhancing innovations that affect consumers valuation of the firm s good both in its overseas markets and, through spillover or reputational effects, in the firm s domestic markets. Then we have seen that with direct ownership (fdi) the manager has an inefficiently low incentive to make either type of innovation. By contrast, the external agent has too strong an incentive to introduce cost-reducing innovations and too weak an incentive to introduce quality-enhancing innovations.

The result is that the employment of an external agent is likely to be preferred when the spillover effects from the firm s overseas market to its domestic market are weak or where the ability of the external agent to implement cost and quality reduing innovations is limited. By contrast, fdi is likely to be preferred when cost reducing innovations have sharp quality reducing effects in both overseas and domestic markets and, as a result perhaps of the nature of the technology, the overseas agent or manager has limited ability to introduce quality enhancing innovations.

While the stylized model that we have presented is best seen as a model of horizontal fdi, it is clear from the work of Hart, Milgrom, Roberts and others that precisely the same techniques can be used to analyze vertical relations and so can be applied to vertical fdi, which is growing apace. Such an extension should allow us investigate whether the ability to operate across national boundaries strengthens a firm s desire to own and operate separate stages of production or whether modern advances in, for example, information technology will lead to more extensive use of independent external suppliers.

Much remains to be done in this important area of economic analysis. In particular, direct empirical testing of the implications of our analysis has made some advances but still relies, perhaps excessively, on proxy variables. There is a need to build more on, for example, the early case study and survey work of Dunning to understand more fully the motivations behind foreign direct investment, the relationship between parent and affiliate, and the reasons companies have for rejecting, or accepting alternative approaches such as licensing.

Finally, there are important policy issues that remain to be investigated. An

indirect implication of our analysis is that a rm s decision to serve an overseas market at all is likely to be affected in important ways by the regulatory and contractual regime in place. But this in uence should be expected to work both ways. The growing importance of major global companies that are internationally footloose should be expected to in uence the regulatory regimes in their target markets. For example, it is easy to cite cases in which international companies have captured the framers of trade and regulatory policy by inducing them to get involved in bidding wars to attract particular investments. This has important implications for strategic trade policy that are currently largely undeveloped.

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Table 1: Global Foreign Direct Investment Stocks

	1980	1985	1990	1995
Outward FDI				
World				
$billion	513.7	685.5	1684.1	2730.1
GDP (%)	4.9	5.9	8.1	9.7
OECD				
$billion	501.5	657.4	1606.2	2503.2
GDP (%)	6.8	6.1	10.6	13.2
EU-15				
$billion	213.2	286.5	777.2	1208.8
GDP (%)	7.4	7.1	13.8	17.4
Inward FDI				
World				
$billion	481.9	734.9	1716.9	2657.9
GDP (%)	4.6	6.3	8.3	9.4
OECD				
$billion	356.4	526.3	1361.4	1922.0
GDP (%)	4.8	4.9	9.0	10.1
EU-15				
$billion	185.0	226.5	712.2	1028.1
GDP (%)	6.4	5.6	12.7	14.8

Source: Barrell and Pain (1997)

Table 2: FDI and Export Flows 1987-1991

	Investment	Exports
Developed to Other Developed	80%	61%
Developed to Less Developed	17%	15%
Less Developed to Developed	2%	15%
Less Developed to Less Developed	1%	8%

Source: Markusen and Venables (1995)

Table 3: Total Assets and Gross Product of US Affiliates Overseas and Overseas Affiliates in the US, 1995

(millions of dollars)

Industry	Total Assets		Gross Product	
	US Affiliates Overseas	Overseas Affiliates in the US	US Affiliates Overseas	Overseas Affiliates in the US
Petroleum	203,386	104,358	100.363	30,525
Manufacturing	633,696	587,049	232,764	156,991
Food	72,228	57,195	25,159	12,229
Chemicals	151,407	191,614	48,104	39,768
Metals	27,369	55,979	9,187	17,804
Machinery	102,583	43,391	34,444	13,693
Electronic	64,353	52,739	24,969	18,470
Transport Equip t	91,909	34,125	36,905	9,478
Other	123,847	152,007	53,997	45,550
Wholesale trade	200,163	222,616	55,785	39,135
Finance	1,177,183	1,179,669	14,826	17,041
Services	95,341	110,674	33,695	23,753
Other	103,464	131,264	25,527	35,561

Source: *Survey of Current Business*, June and October, 1997

date 0: *E* writes
contract with *L* or
M and chooses
ownership
structure

date 1/2: L
or
M chooses
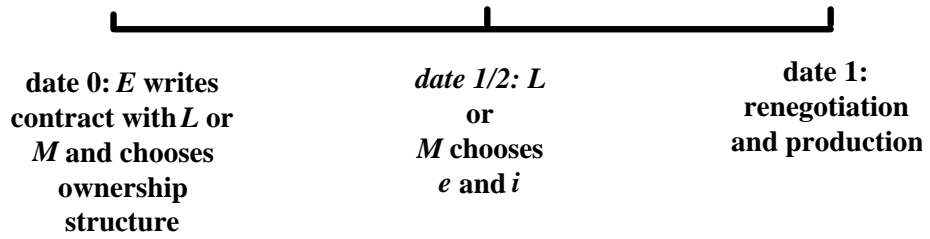*e* and *i*

date 1:
renegotiation
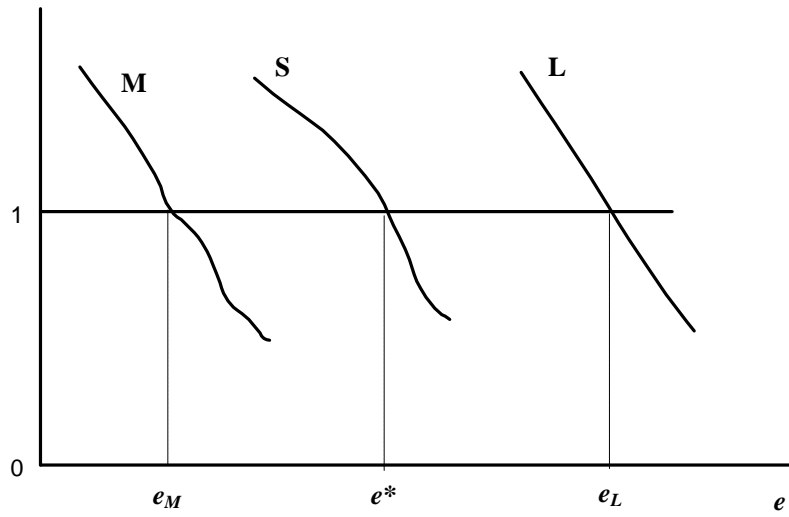and production

Figure 1: The Timeline
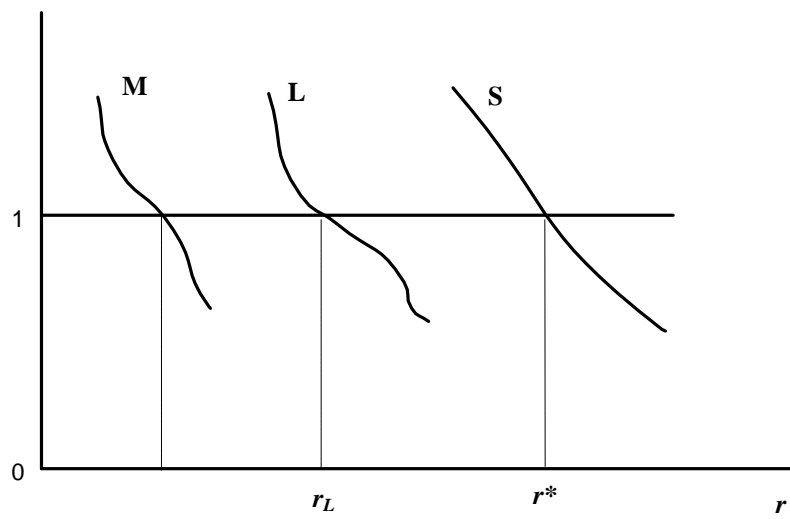

Figure 2: Quality Enhancing Effort

Figure 3: Cost Reducing Effort

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