INTERNATIONAL JOINT VENTURES AND TECHNOLOGY TRANSFER: SOME ECONOMIC ISSUES

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The paper outlines the benefits and drawbacks to domestic enterprises and to a country of international joint business ventures both at home and abroad. It takes account of such factors as transfer of (and failure to transfer) technology and knowhow, access to markets, cost considerations, provision of capital and foreign exchange and the possibility of continuing dependence on joint-ventures and foreign knowhow. Alternatives to joint ventures, such as purchase of knowhow, solely foreign-owned enterprises, franchising and symbiotic co-operation between legally independent firms, are also considered as means of transfer of knowhow. The impact of profit distribution between partners in a joint venture on knowledge transfer and collective returns is considered from a different viewpoint from that normally considered in the literature. Practical problems, such as the search for a suitable business partner and the problem of detecting and revealing anti-social behaviour by a partner, are raised.

Keywords: franchising, information revelation, international joint ventures, profit-sharing, technology transfer, collaboration, co-operation.

INTRODUCTION

Many countries, especially developing countries, look to joint business ventures with foreign firms in technologically advanced countries as a useful means of foreign technology introduction and as a means for industrial development. For example, with its policy of opening up to the outside world, the People's Republic of China, in an effort to modernise, encouraged foreign corporations to conduct business operations in China. In April 1989, 15,000 enterprises involving foreign investment were operating in China, and of these 7800 were joint venture enterprises. Equity joint ventures with foreign partners emerged in the 1980s in China and have played "an important role in easing fund shortages, introducing advanced technology and management methods, training personnel and increasing exports".[1] Most less developed countries aim to attract foreign partners to engage in joint ventures

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within their country, but some less developed countries also are involved in direct investment and joint equity ventures abroad.

For instance, China has a number of direct investments abroad, mainly in Australia, Canada, Hong Kong, the Federal Republic of Germany, Japan, Thailand and the United States. China has three main reasons for investing abroad: (1) to provide channels and contacts to facilitate the sale of its own products, (2) to ensure stable and adequate supplies of raw materials for China's industries, and (3) "to obtain advanced technology, especially management skills, through joint ventures with foreign partners, especially in industrialized countries".[2]

Despite the above optimism (irrespective of whether business operations are conducted at home or abroad) expressed about the benefits of joint ventures, there can be problems and costs. This article highlights some of the benefits of joint business ventures and considers alternatives, such as licensing of technology, franchising and symbiotic co-operative arrangements between enterprises which are separate legal entities. Furthermore, the dangers of treating the distribution between partners of total profits or payoff from a joint venture as a constant sum game are highlighted and important problems of gathering information about potential partners and revelation of information about joint venture behaviour, such as 'cheating' of various types by foreign partners, become apparent.

BENEFITS OF INTERNATIONAL JOINT VENTURES

The long-term success of an international joint venture depends upon benefits being received by all the parties to the venture. All must gain more by co-operation than by going it alone and each should not get less from the joint venture than could be obtained from the next best alternative, institutional arrangement or investment. The results of co-operation should ideally be synergetic; that is, the total gain should be greater than in the absence of co-operation. Let us consider some of the possible benefits of joint ventures before, in the next section, considering costs. It is most convenient to consider this in two parts: (1) benefit to the host country of being involved in joint ventures in the host country; and (2) benefit to a country of being involved in joint ventures abroad.

JOINT VENTURES IN HOST COUNTRY (BENEFITS TO HOST)

International Technology Transfer

This may be an important benefit to a host country of joint ventures at home with foreign partners. Such arrangements have the potential in any enterprise to bring the host country up-to-date with the latest technology or knowhow appropriate to its needs. Much technology and knowhow cannot be purchased in the market place.[3] Specifications of new technology are often incomplete and normally the best way to use new technology and maintain it are only known to those who have experience with it. Unless one can draw directly on this experience, one may make many costly mistakes before perfecting use of the technology.

Technology and knowhow can be 'experience' rather than the search goods as described in the literature.[4] Once the new technology or knowhow is thoroughly inspected, it is likely to become known to the potential buyer, who may then not purchase it but rely instead on the knowledge revealed by the inspection. This creates a problem for transactions in commercial knowledge, especially since the prospective seller's knowledge and that of the prospective buyer are likely to be different (that is, asymmetrical). The seller will have detailed knowledge of the technology whereas the prospective buyer may, however, have a better appreciation of its potential value in his/her context. In these circumstances, there is some uncertainty on the side of both parties about the potential value of technology exchange. One way to reduce this uncertainty is for both parties to share in the potential returns from its use. Joint ventures can provide a means for this sharing of risk. They provide a type of co-insurance.

The cost of transferring technology and the amount of time required to transfer it are often greater than is realised and direct continuing contact and commitment on the part of the originator of the technology are frequently required for its effective transfer.[5] Joint venture arrangements may be more conducive to such contact and commitment than alternative types of arrangements.

Access to Markets

It may very well be that the product of the joint venture is to be exported to the country of the foreign joint venturer or to other countries in which the foreign joint venturer has established connections, or it may be that the production will replace imports in the domestic market. This can be a benefit to the host country provided the negotiated terms are favourable to it. Reasonable access to some foreign markets may be possible only through a joint venture.

Capital and Foreign Exchange

In an equity joint venture the foreign partner may contribute capital in the form of foreign exchange. A host country may consider this of value because it could provide additional foreign exchange. However, much of the foreign exchange contributed to the project may leak away due to imports needed for the joint venture project. Furthermore, if foreign exchange receipts are considered to be the main advantage of the joint venture, consideration should be given to whether foreign exchange can be obtained more cheaply; for example, by direct loans from overseas.

Adaptation to Local Needs and Customs

In a joint venture, compared with a solely foreign owned and managed enterprise, the local joint venturer may be in a position to influence the joint venture to take greater account of local needs and customs. This may mean that the activities of the enterprise are better adjusted to the host society.

JOINT VENTURES IN HOST COUNTRY (BENEFITS TO FOREIGN PARTNER)

The main benefits to the foreign joint venturer in a host country may be one or more of the following:

(1) Transfer of technology with lessened risk.
(2) Access to a larger market for products in the host country.
(3) Assured supplies of commodities (for use outside the host country) in accordance with its own specifications and at lower cost of production than is possible elsewhere. The lower cost may, for example, arise partly from 'cheap' labour in the host country.
(4) Increased and continuing information about additional trading opportunities in the host country.
(5) Special political consideration denied a sole foreign venturer.

Regarding technology transfer, the argument advanced earlier applies. Through a joint venture, the risk of both parties to the technological transfer can be reduced. Also, by transferring under such arrangements, the joint venturer reduces the risk that the host might independently learn of the technology or knowhow or buy instead a substitute technology from a competitor.

Another advantage may be better access for the overseas joint venturer to the host country's market. The partner in the host country may, for example, have established distribution channels in the host country or know better how the product should be modified to suit the local market. It may also be agreed that the foreign joint venturer be allowed to import some products not in the range produced in the host country so as to fill market 'gaps'. Furthermore, depending upon arrangements, there may be a chance for the foreign joint venturer to promote the brand name of the foreign partner's products in the host country.

It may be that the main aim of the foreign joint venturer is not so much to gain access to the host's market, but to use the host country as a manufacturing base for exporting products either to its home country or to associated countries, where the joint overseas venturer has an established brand name, distribution and marketing networks and so on. The foreign joint venturer's main purpose is to have a cheap (perhaps because of low labour costs) and a reliable (perhaps because of absence of labour strikes) source of supply of the manufactured product available for sale outside the host country.

For example, exports from China may be required for markets in developed countries. In such a case, it is important that the product be manufactured so as to meet the specifications or requirements of foreign purchasers in, say, the USA, Japan or Australia. In these matters the overseas parent of the foreign joint venturer is likely to be much better informed than its Chinese partner. As fashions and needs change in overseas markets, the overseas parent of the foreign joint venturer can arrange for the product manufactured in China to be suitably modified and is likely to be in a much better position than a Chinese company located in China to predict changes in foreign tastes and fashions. The overseas partner may also bring the latest technology needed to meet overseas manufacturing standards.

By being involved as a joint partner within a host country, the overseas joint venturer can often gain information about additional business opportunities in the host country, and improved knowledge about the workings of the political and administrative system. Increased knowledge is obtained about possible future business partners and the reputation of the joint venture arrangements has the advantage in the early stages of limiting the overseas partner's exposure to risk. Information gathering can be a very valuable side-benefit for an overseas firm involved in business operations in another country.[6]

Many joint venturers believe (maybe correctly) that, because of local equity or sharing in the venture, the host country will treat them more favourably than foreign enterprises which are solely foreign-owned. Furthermore, they may believe that the local partner in the joint venture will be of assistance in dealing with difficulties which may arise in dealing with government administration.

JOINT VENTURES ABROAD

Basically the pattern of benefits to a country are reversed in the case where it is involved in joint ventures outside the country. However, some differences in emphasis may exist which can be illustrated by the case of China. New technology or products to be transferred to developed countries by China may be small, as is the case with traditional medicines and tonics. So this aspect is not likely to be strong at present, but China will be, or is, in a position to transfer some technologies to less developed countries through joint ventures. An important benefit in some cases to the host country is access to China's markets on an assured basis, as Australia has with exports of iron ore to China from the Chinnar mine. Furthermore, on both sides information about market opportunities increases.

As is well known, many developed countries have 'sent' or transferred some of their industries and associated technologies offshore to less developed countries because of increasing relative labour costs in developed countries. In these circumstances, it is often more economic to relocate the industry and associated technology in a lower labour cost, less developed, economy. To some extent such a pattern reflects the international product cycle described by Vernon,[7] but the transfer is not entirely attributable to that cycle. In addition, increased pollution control in developed countries has contributed to the process of relocation of 'dirty' industries and technologies offshore.

POSSIBLE DIFFICULTIES WITH (COSTS OF) JOINT BUSINESS VENTURES

Joint ventures, of course, are subject to the difficulties which normally arise from new partners working together. Joint venturers have to learn how best to interact with one another and this takes time. In some circumstances results may not live up to expectations. For example, the business may not be profitable or may be less profitable than anticipated, or the contribution of the partner may be less than expected. It is necessary to cope with such setbacks and to adjust. But apart from such difficulties, there can also be problems of general importance to a society.

In extreme cases, the foreign partner may fail to transfer knowhow effectively to personnel in the host country. Top managerial positions may be retained by foreigners and local personnel may be given little opportunity to participate in top management or to become fully aware of techniques. In cases such as this, the foreign partner may gain benefits without transferring very much.

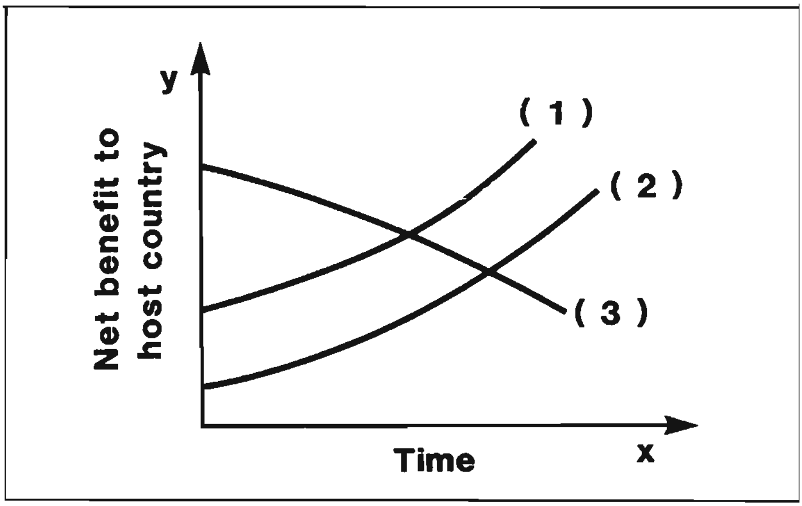
Furthermore, if there are arrangements which tend to tie the joint venture into buying inputs from the overseas parent or subsidiaries of the foreign joint venturer or require it to sell to these, transfer pricing may occur. In other words, the price of the imported inputs may be inflated or the price paid for the exported product of the joint venture may be depressed, thereby raising the profit of the parent company of the foreign joint venturer. The joint venture may be left with a low return on capital. This can become a problem when the joint venture is locked into exchange arrangements with the parent company or subsidiary companies of the overseas joint venturer. In such cases, the foreign joint venturer may skim off the profit of the joint venture. This can also occur where management personnel from the host country are weak and not well informed. Effective control will then pass to foreign management.[8]

In some instances, joint venture arrangements may limit exports or restrict these to a particular geographical region. This is usually intended to reduce competition with the overseas parent of the foreign joint venturer or its subsidiaries. This may be a necessary price to pay for co-operation, at least in the medium term, but may be a matter for concern in the longer term.

Furthermore, joint venture arrangements may foster continuing dependence on the foreign partner. This is not certain to happen, but may occur. For example, the partner's brand name may become so firmly established in the host country that an independent local brand of the same product may be unable to make headway and the joint venture may find it impossible to make any independent technological advance. Joint venture arrangements may result in the host country as a whole being unable to make independent technological advances (independent of overseas partners, because (1) all domestic experts in the appropriate host country may be in the joint venture(s) and thus information is directly available to foreign partners, or (2) any independent advance within the country can be observed early by foreign partners and quickly imitated or improved on by foreign partners. On the other hand, one should not be too doctrinaire about claiming that it is undesirable to have continuing dependence on foreign knowhow through a joint venture or other relationship. In some industries, it may be more economical to rely on continuing dependence than to try to develop independent technology.

Just a few of the many net benefit possibilities for the host country can be illustrated by Figure 1. Two possible streams of host-country benefit from joint venture arrangements are indicated by the paths marked (1) and (3). The path marked (2) indicates hypothetical net benefits from having an independent national enterprise. If path (1) applies, then to have a joint venture arrangement is clearly optimal. But if path (3) applies, while the joint venture gives higher returns in the short run than an independent national enterprise, this is not so in the long run. In this case, the decision about whether or not one should engage in the joint venture depends upon how much the future is discounted.

Figure 1



In some instances, a host country may enter into a joint venture for a limited period, phasing out foreign partners at the end of the period so that domestic operations are eventually fully owned and managed by the host country. This may be done because it is believed that during the co-operative period all appropriate knowledge skills and technology will have been transferred by the foreign partner and the host will have completed the learning-by-doing phase. However, if joint venture is limited in duration, foreign partners may be selective in their transfer of knowhow or may be unwilling to enter into an arrangement. Furthermore, an extended joint venture may be profitable because foreign partners may be continually developing new technology and knowhow which cannot be developed in the host country.

ALTERNATIVES TO JOINT VENTURES AS MEANS OF TECHNOLOGY TRANSFER AND INDUSTRY DEVELOPMENT

There are a number of alternatives to joint ventures as a means of transferring technology internationally but they are not always superior. For example, a wholly-owned Chinese company may try to buy in (or obtain a licence to use) technology and knowhow from abroad, or China or a Chinese company may send individuals abroad for training and to observe foreign technology and methods in the hope that the Chinese company can imitate these. However, these alternatives are not always satisfactory or possible. If just a few foreign firms possess the desired technology or knowhow, they may not reveal the full details and may be reluctant to sell. Furthermore, the Chinese company may not be given a chance to evaluate the technology fully prior to purchase. This is because, according to common definitions used in the economic literature, knowledge is like an 'experience good' rather than a 'search good'. The former cannot be inspected in advance and evaluated before its actual transfer, whereas the latter can be. Once knowhow is fully explained or inspected, it is transferred, or at least partially transferred. The potential purchaser may, therefore, refuse to pay after inspection, but may yet gain the knowledge required as a result of the inspection.

Nevertheless, even where the seller acts in good faith in selling technology specifications, blueprints and so on, it is often found that these contain only part of the information of value for the use of technology. The experience of the overseas user may have resulted in small but important modifications to the technology in practice and knowledge about these may come only with personal and continuing contact between a potential or actual Chinese user and an overseas user.[9] However, in some cases, technology (especially if it is simple) can be transferred successfully without a joint venture. This is also true for other types of knowhow, including management and marketing methods.

When foreign capital (especially foreign exchange) is required by a domestic company, this may be obtained by loans if a joint venture is not otherwise required, or by the issue of shares to foreigners. Loans have the disadvantage that they alter the gearing of the company and the company needs to be sure in using the loan that it earns more than the rate of interest payable on the loan.

Again, a country may contemplate a solely foreign-owned enterprise as an alternative to a joint venture. In this case, most of the business risk is taken by the foreigner. In the host country, employees of such a firm may learn techniques and methods which they may be able to apply elsewhere in the economy to indigenous firms. One cannot safely say in advance that there is never a place for a solely-owned foreign enterprise. In some instances, other means of international business contact and transfer of knowhow are worth considering, such as franchising and the establishment of symbiotic relationships between firms. Let us consider these possibilities.

Franchising is quite common in retailing and some franchisors operate internationally. The franchisor develops a marketing system, a particular product that appeals to consumers, has a trademark, a standard and so on. On payment of a fee, a prospective franchisee can become franchised. But the franchisee must agree to present the product in the standard way recommended by the franchisor, who will continue to promote the product and possibly improve on the system of its supply. Many petroleum companies use this method in retailing their petrol. In the fast food business, McDonalds (hamburgers) and Kentucky Fried Chicken are well known examples. Franchising has the advantage that economies in product development, management development, presentation and marketing can be obtained, and individual franchisees have an incentive to be efficient since their profit (at least, in the short run) depends to a significant extent on their own effort. However, the possible disadvantages in the long run for the franchisees are inability to become independent and the possibility that fees may be raised if the franchisee makes high profits. Most of the above average profit (or all of it) is appropriated by the franchisor, the owner of the business system.

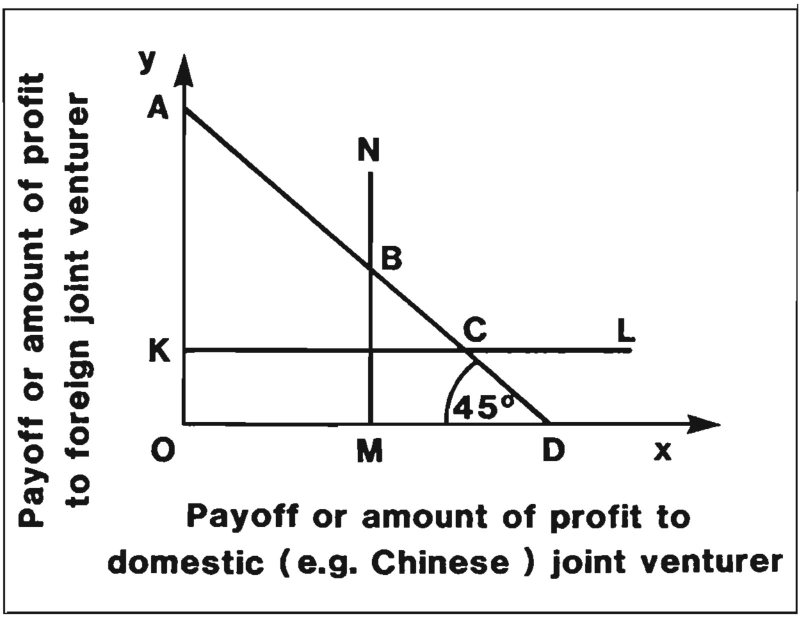
Another possibility is to develop a symbiotic co-operative relationship between firms which are in fact separate legal entities. The British retailer, Marks and Spencer, has done just this. It has undertaken research and product development for many of its independent manufacturing suppliers. In some cases, the symbiotic relationship between Marks and Spencer and its suppliers has been maintained for more than 100 years. Because Marks and Spencer is larger than most of its suppliers and better attuned to market needs, it is more economical for it to undertake the necessary product development, research on market needs and some production methods, than its suppliers.[10] Chinese firms may be able to develop similar symbiotic relationships with foreign companies and no doubt some have already done so.[11] But this method is not always an option.

PROFIT SHARING AND JOINT VENTURES

In joint equity ventures, some difficulties may arise in parties agreeing about what the shares of partners ought to be in returns or profits of the enterprise or the amount of capital that each should contribute to earn a particular share. There is room for bargaining as a rule. No rational party to a joint venture will co-operate for less than it can obtain in the absence of co-operation.[49] This sets limits to the bargaining.

This can be formally illustrated by Figure 2. There OA=OD is the amount which the joint venture can earn say of profit annually and this may be divided between the parties in any combination along AD. If the foreign venturer can ensure itself of OK without being in the joint venture and, say, the domestic venturer can ensure itself of OM, the only relevant area for bargaining is along the line segment BC. There is room for agreement in the case illustrated because the lines marked KL and MN intersect below line AD. Should OK and OM be so large (that is, the profits of the potential joint venturers in the absence of co-operation) that lines Kl and MN intersect above line AD, no co-operation is possible.

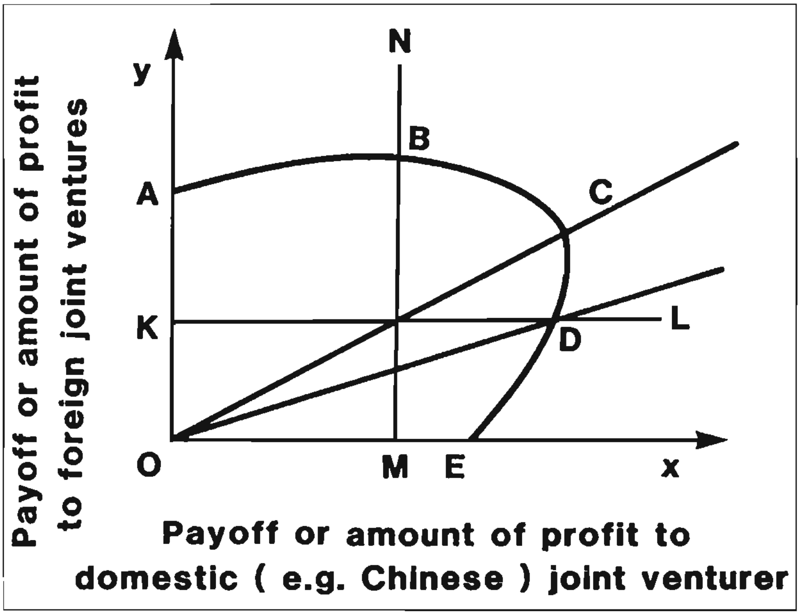
Figure 2



In Figure 2, the total profit available for distribution is assumed to be independent of the relative shares or parties to the joint venture. But this may not be so. The contribution of parties to the joint venture to profit may — up to a point — be influenced by their relative shares. If the contribution of the foreign joint venturer has a large influence on the total level of profit, it may be shortsighted to cut the joint venturer's share to the minimum level necessary to gain participation of the foreign partner.

This can be seen from Figure 3. There the curve ABCDE represents the total profit available for distribution and is not a straight line as in Figure 2 since it is influenced by relative shares. In Figure 3, the share to the foreign venturer indicated by the slope of OD is the minimum share necessary to gain co-operation. But to pay such a share is suboptimal from the point of view of the host partner and the host country. The share indicated by the slope of the line OC would result in a greater gain for the host; for instance, because the foreign joint venturer is more co-operative and has greater incentive to transfer knowhow.

Figure 3



It might be noted that when joint payoffs are not independent of the relative shares of partners or the distribution of joint payoffs then the solution of the co-operative game cannot be achieved in the dichotomous manner suggested by von Neumann and Morgenstern.[50] Their solution involves maximising the joint payoff independently of the exact distribution of total payoff. Another factor that may be subject to bargaining is the phasing out of the foreign joint venturer after some period of operation of the joint venture. Other things being equal, the faster the phase out, the less the incentive of the foreign prospective partner to join the joint venture. However, where knowledge is not rapidly developing or the host country is able once the joint venture has been established for some time to keep up with new knowledge on its own, there is a good case for phasing out of the foreign venturer. But this is not necessarily so when world knowledge in a field is advancing rapidly and the host country is unable to keep up with such advance by relying on its own resources. There needs to be some flexibility in relation to the possibility of phasing out foreign partners.

SOME PRACTICAL MATTERS TO CONSIDER

Some practical matters which may have to be considered in relation to joint ventures are the selection of partners, the nature of agreements, and monitoring and enforcement of agreements. One has to be sure that the partner is capable of delivering what is required by the joint venture on reasonable terms and that the partner is economically viable. As a rule, the financial viability of a potential partner can be checked through bankers and so on. As for reasonable terms, it is possible to request offers or bids from potential joint venturers. However, one should not necessarily accept the lowest bid since the party involved may not be able to fulfill joint venture requirements or may do so poorly. Also, one has to consider how many details must be supplied with expressions of interest. The more detail required, the greater the cost and the less likely it is that some potential joint venturers will pursue the matter.

In relation to agreements, opinions differ about how precisely and in how much detail they should be specified. Certainly the substance of the agreement should be specified, but it is usually impractical to specify all details. In this respect, the goodwill of the parties towards one another is important and one often learns about that only by working with a partner for some time.

In some countries where governments are joint venturers with foreign firms, they sometimes think it enough to set up the agreement and the joint venture, and do not adequately enforce or monitor the agreement.[14] This may be because appointments by the government to the Board of Directors are political. Such appointees may have little business knowledge or they may be afraid to cause political embarrassment for the foreign joint venturer and the host government by speaking out against malpractice in the company. Effective management and control then tends to reside with the foreign joint venturer, who may, for example, engage in transfer pricing. It is important that those appointed to the Board of Directors and managerial positions in joint ventures be competent in business evaluation, and that socially acceptable mechanisms be developed for the detection, reporting and correction of malpractices within joint ventures.

CONCLUDING COMMENTS

Joint venturers can have all the virtues commonly attributed to them, including the facilitation of technology transfer, but they are not bound to have such benefits, nor are they always superior to alternative institutional arrangements. It seems that each case has to be evaluated on its merits and that a pragmatic rather than a doctrinaire approach to joint ventures is required.

It is also clear from this paper that the core issues revolve around the economics of knowledge and information, transaction and search costs, problems of asymmetry of information, and the difficulties of detecting and revealing information about socially unacceptable behaviour by a partner to a joint venture. Scope exists for detailed analysis of these issues in the future.

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