

Determinants of IJV Performance using alternate indicators of performance¹

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Abstract

In this paper, we look at the factors determining IJV performance in a developing country. In doing so, the paper lays emphasis on two other aspects of performance: firstly the measure of performance and secondly the perspective from which it is evaluated. Our analysis draws on the results of a primary survey of 56 Indo-British IJVs in India. By extending our survey to include both partners involved in an IJV, the paper presents a framework which incorporates the perspectives of both the host and the foreign partner involved in the IJV.

Several explanatory factors proved to be significant in understanding the performance of IJVs. Good partner relations, high degree of control and previous history of cooperation between the partners emerged as important determinants of the subjective indicator of performance. In the predictors of objective performance, dominance of the foreign partner in the initial years, an expectation of long-term as opposed to short-term financial gains, and the fulfilment of the motivation for minimising costs, all contributed positively to performance.

Keywords: International Joint ventures, Performance ,Developing countries

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Introduction

Alliances in the form of joint ventures predominate international cooperation between firms in developing countries (Connolly, 1984; Oman, 1984; Beamish, 1988; D'Souza, & McDoughall, 1989). In spite of the increasing popularity of this mode of entry into developing markets, various studies have produced evidence regarding the unsatisfactory performances of these ventures, though the reasons for this is unclear.

There have been several research efforts that have sought to identify the determinants of performance in joint ventures. However these efforts are mostly oriented towards the IJVs (International Joint Ventures) in developed countries and also failed to adequately address the way in which performance was measured. In this paper, we discuss the determinants of IJV performance in a developing country like India. In doing so, the paper lays emphasis on two other aspects of performance: firstly the measure of performance and secondly the perspective from which it is evaluated. This is important because the existing evidence on IJVs in developing countries is debatable, either for the use of inconsistent measures or for the perspective from which they evaluated IJVs. While some researchers argue in favour of the use of subjective measures of performance like overall satisfaction, others argue in favour of the use of objective measures like financial performance, survival or stability. Though there is no strong rationale behind the use of either of these measures, sole reliance on any one of them may fail to capture the dynamics associated with this multidimensional phenomenon. Therefore in this paper, we model the determinants of performance using two alternate indicators of IJV performance.

Regarding the perspective from which the performance of the JV should be measured, some researchers are of the view that JV should be evaluated as an independent entity. There are others who suggest that it is important to incorporate the constituent partners of the JV. The fact that the phenomenon of JVs lacks an overarching theoretical structure compounds this problem. The dataset used in the paper has been derived from a primary survey of 54 Indo-British IJVs situated in India. By extending the survey to include both partners involved in an IJV, the data helps to work within a framework which incorporates the perspectives of both the host and the foreign partner involved in the IJV.

Subjective Vs Objective Measures of performance

Researchers have used a large array of evaluation criteria to assess joint venture performance². Some have studied it in terms of fulfilment of objectives of the JV/ parents/both, while others have studied it in terms of the life span of the JV or changes in equity stakes. Yet others have studied it with regard to the financial feasibility of the JV. From these different perspectives arise the different measures of performance in JVs.

In addressing the issue of performance measurement, researchers have mainly relied on two types of measures - objective and subjective. There is a large amount of literature on the comparability of these two sets of measures, some of which states the positive correlation between the two (Beamish and Banks, 1997; Dymsha, 1988; Geringer and Hebert, 1989). However, there has been considerable disagreement regarding the comparability of these alternate measures (Parkhe, 1993). The various classifications within JVs and their context specific nature also make it difficult to generalise an ideal performance measure across all JVs.

²Some of the performance measures used are: Failure (Reynolds, 1984); Instability (Franko, 1971); Fulfilment of expectation (Schaan, 1983; Artisien and Buckley, 1983; Beamish, 1984); Managers assessment of success (Killing, 1982; Lecraw, 1984; Beamish, 1988); Returns from IJV (Rafii, 1977); Profitability (Tomlinson, 1970; Artisien and Buckley, 1983; Lecraw, 1984); Retention of parental control (Geringer and Hebert, 1991); Growth (Artisien and Buckley, 1983)

The most popular proxies for measurement of IJV performance in the literature has been stability and survival of the IJV. Recent studies argue against the use of these proxies to assess the outcome of a venture (Reuer, 1997; Doz, 1996; Gomes-Cassers, 1987). They argue that the transitory character of IJVs often stems from the nature of parent firm's strategic intent when forming IJVs. This suggests that IJV instability is not always tantamount to collaborative failure as is widely assumed. They also argue that to interpret dissolution of JVs as a failure overlooks the possibility that the dissolution is a result of success, that is, both the partners obtained their expected benefits and decided to discontinue. Thus duration and survival appear to be unacceptable measures of performance because termination of a JV may be a result of success, failure or simply an adaptation to changes in the environment.

Objective measures using financial variables are the conventional measures of performance for most forms of organisation. In spite of their criticisms they are the most popular measures of performance. However, their use in the context of joint ventures is rather insignificant. This stems from the fact that the financial variables fail to account for the non-financial goals pursued by the JV partners which have been shown previously to be important (Anderson, 1990; Gomes-Casseres 1989; Habib and Burnett 1989). Also, the JV partners rarely report JV financial information separate from their own consolidated financial statement (Hatfield, Pearce, Sleeth and Pitts, 1998).

However, some researchers like Tomlinson (1970) have used financial variables such as the return on investment, growth, market share or shareholder value. Recently, performance has also been studied as a categorical variable on a three point scale on the basis of gains and losses. This measure has been frequently used in previous studies (Woodcock, Beamish &

Makino, 1994); Makino & Delios, 1996; Beamish, Delios & Lecraw, 1997; Makino & Beamish, 1998). Thus, a reflective understanding of the problem of measurement of performance in IJVs makes it obvious that a measure of the success of a joint venture in terms of any conventional financial measures of performance like profitability/productivity or market share/return on investment is incomplete. In studying performance of JVs, it should be kept in mind that during the start up period performance is depressed because a new entrant is trying to establish market penetration and achieve economies of scale and scope. This lag effect would probably be most pronounced in a new JV because of its newness and initial vulnerability (Woodcock, Patrick, Beamish Paul, Makino Shige 1994). Also, JVs that operate in developing countries face especially high levels of uncertainty with regards to technologies, products or markets (Buchel and Thuy, 2001). This further reduces the meaning and validity of short-term quantitative indices of performance. These considerations make objective performance indicators appropriate for other forms of organisations but less suited to IJV effectiveness (Reuer, 1997).

Evidence on the use of various performance measures over the last few decades, makes it clear that there is more to defining the outcome of these ventures than the criteria of stability, survival or financial performance. The failure of financial or objective variables to adequately reflect the extent of fulfilment of strategic objectives of the parents has been highlighted by researchers who have argued for the use of subjective measures. Parent firms often establish IJV with non-financial and less measurable objectives. Geringer and Hebert (1991) illustrate this by arguing that despite poor financial results, instability or liquidation of an alliance may have successfully met or exceeded the parent's objectives. Regardless of the financial or commercial success of the venture, the subjective appreciation of satisfaction or

dissatisfaction of the partners involved reflects an important dimension of JV performance (Lassere, 1999).

Data and Methodology

India, was among the many developing countries which witnessed an increase in international joint venture activity over the last decade. This seems to have followed the liberalisation of the Indian economy³ which removed the policy barriers that were neutralising the internalisation advantages of foreign investors. This has shifted the balance between FDI and licensing in favour of FDI. (Kumar, 1998). Among the different modes of collaborative arrangements with MNCs, IJVs are the most preferred form of corporate entities in India.

An initial sample size of 510 Indo-British Equity IJVs located in India was drawn from various secondary sources⁴. This initial sample was narrowed down to 300 after a rigorous exercise of cross checking with press reports, annuals reports and web sites of the concerned organisations to make sure how many of these ventures actually existed and if they involved equity participation.

The main survey instrument in the study was a pre-tested questionnaire. Realising the importance of the role of parents in determining the outcome of the joint venture, the questionnaire has been designed to answer questions relating to motivation, control, asymmetry (power, size, industry and culture) partner aspects, behavioural aspects and

³ In 1991 India embarked on a set of structural adjustment programme which was along the lines of liberalisation of industrial and trade policies. Foreign investment was open to almost all sectors of the economy, though the permissible level of majority ownership is still monitored in some sectors. This was accompanied by an increase in JV participation with a significant equity stake by foreign firms (Gupta and Chandra, 1995)

⁴ Sources of Secondary Information:

Thomson Financial Database for International Joint Ventures, CII list of British Enterprises in India, Indo-British Partnership List, British Council list of British Businesses in India, Company House Information of UK, Fame Database, Wright Investor Database, Media Reports/Press Releases/Company Annual Reports/Company Websites

performance of the joint venture from both the partners points of view. In using both the IJV partners, the survey has tried to overcome the biases (that many studies before have been subject to) of using the perceptions of one partner alone.

Four sample selection criteria were employed: 1. Host country 2. Time period 3. Parent nationality 4. Number of participants 5. Equity participation. The first criterion was to restrict the sample to one host developing country (India). This also implied that country risk and cultural aspects be kept constant, both of which have been found to have a significant impact on firm performance. The second criterion was an attempt to capture the change in the motivations for both the host and the investing firms to choose JVs as their preferred form of operation after India embarked on a set of structural reforms in 1991. The third criterion was to look at alliances, which had investing partners from developed countries and the fact, that UK is the single largest trading partner of India made it the obvious choice. Also, it was primarily important to restrict the sample to two countries (one host country and one investing country) keeping in view important constraints on resources like time and money; and also to control for cultural nuances. The fourth criterion meant the deletion of alliances with more than two partners because of the lack of homogeneity within the sample. The last criterion was included keeping in mind the difference in dynamics between equity and non-equity joint ventures and to ensure comparability within the sample. Only those IJVs in which both the partners had equity participation were included. Taken together these five criteria generated a domain of enquiry that was relevant and significant and that met the needs of this research particularly well. These criteria constrained our sample but we chose this option over having more responses but having to deal with a heterogeneous sample that may weaken the empirical results.

Thus the final survey was sent out to 300 firms which comprised of 150 UK partners and their corresponding 150 Indian partners. The initial response rate was below 10% but with another round of reminder, the overall response rate increased to 19.3%. This was considered to be fairly good for surveys of this nature. Between the UK partners and the Indian partners, the response rate (24.7%) was higher for the Indian partners. Thus the final responses was 56 which consisted of 37 responses from Indian partners and 21 responses from British partners. Out of the total number of replies, 2 questionnaires from the Indian firms were unusable because they were incomplete by more than 90%.

From the exploratory analysis of our survey, it was clear that joint ventures were not an end in itself for majority of partner firms in the IJVs. This implied that superior financial performance of the IJV was not the only objective for firms entering into a JV. Therefore, in our analysis here, we consider two indicators of performance, one is a perceptive measure of an objective indicator (financial performance) and the other is a perceptive measure of the subjective indicator (overall satisfaction). Here the distinction of subjective and objective is not on the type of measure used but on the indicators they measure. To account both for the expectations, and the fulfilment of these expectations, the measures of performance used are all 'perceptive' measures, in that they reflect the perceptions of the IJV partners. This was considered to be the optimal way of looking at performance within the strategy of the constituent partners of the IJV.

The Model

The alternate measures of performance employed in this paper are categorical variables representing the 'perceptions' of the partners on alternate indicators of performance. Thus, our performance measures assume a finite set of outcomes (likert scale from 0=Highly

satisfactory performance, to 4=Highly unsatisfactory performance for Model 1; and 0=Supernormal profits to 5=Major losses for Model 2). Therefore, conventional regression techniques used for continuous dependent variables are not appropriate. Also, the measures represent a set of discrete outcomes of an ordered nature and the models estimated must take this into account. Based on the above considerations, it was decided that the variable 'Performance' would be most appropriately modelled using an ordered probit/logit⁵ specification.

Description of Variables and Basic Structure of Model 1 & Model 2

The performance measures employed in this paper are 'perceptive measures' which reflect the perceptions of the partners on different indicators of performance. Thus the dependent variable in Model 1, '**PERSAT**' is the partners perception on a subjective indicator of performance defined in terms of partner's *overall satisfaction* with the IJV. This measure of a subjective indicator of performance has been frequently employed in earlier studies (Lee & Beamish, 1995; Killing, 1983; Schaan, 1983; and Beamish, 1985).

In Model 2, performance '**PERFIN**' is the perception of the *overall financial performance* of the IJV. This measure of an objective indicator has been adopted from previous studies by Woodcock, Beamish and Makino (1994); Makino and Delios (1996); Beamish, Delios and Lecraw (1997); Makino and Beamish (1998). The use of absolute financial measures like profitability employed in earlier studies on joint ventures (Tomlinson, 1970; Ramaswamy et al., 1998) have been subject to a lot of criticism. Recently, performance has also been studied as a categorical variable on a three point scale on the basis of gains and losses. Objective

⁵ The basic distinction between these models relies on their distributional assumptions (where the probit assumes as a probability function a standard normal distribution, while the logit model assumes a logistic distribution (Amemiya, 1981).

indicators that are interpreted by managers, as in our case, are considered perceptive measures. This helped overcome some of the limitations of using objective data while dealing with financial performance in IJVs.

More formally, the dependent variable y_i denotes the probability of a satisfactory performance (in Model 1) and the probability of a good financial performance (in Model 2) in the i th firm, as a measure of the perceptions of the partner firms constituting it. The unobservable (latent) variable y_i^* , (which is the probability of a good performance, either in terms of overall satisfaction or in terms of good financial performance), is related to the observable qualitative variable y_i , (which is the perception of the partners on the subjective and objective indicators of performance), as follows in both the models:

$$\begin{array}{rcl}
 & 0 & \text{if } y_i^* \leq 0 \\
 & 1 & \text{if } 0 < y_i^* \leq \mu_1 \\
 y_i \Rightarrow & 2 & \text{if } \mu_1 < y_i^* \leq \mu_2 \\
 & 3 & \text{if } \mu_2 < y_i^* \leq \mu_3 \\
 & 4 & \text{if } \mu_3 \leq y_i^*
 \end{array}$$

.....where $\mu_1, \mu_2,$ and μ_3 are the three thresholds

Before we go on to operationalise these variables as dependent variables, it may be appropriate to consider the basis on which these measures were chosen from the survey and to confirm their reliability.

Qualitative surveys have been subject to a lot of criticism with regard to the ambiguity of responses and their subjective nature. Since this study draws on a primary survey which is

largely qualitative in nature, every effort has been made to ensure that much ambiguity is kept at a minimum, although it cannot be completely avoided. In the survey, respondents were asked multiple questions on similar issues. A cross validation of the single-item indicators with the multi-item aggregate indicators on similar variables helped confirm the responses. For example, we consider whether the single item indicator of the overall financial performance (PERFIN) of the IJV is correlated with a multi-item financial indicator FINPER. The former measures the partner's perceptions on the overall financial performance of the IJV in terms of gains/losses, coded on a five-point likert scale, while the latter is a weighted average of the partner's perceptions on a set of financial variables like return on assets, return on investment and market share, also coded on a five-point likert. The correlation coefficient .665 between the variables (FINPER) and (PERFIN), significant at the 99% level, justified the use of either of them.

The subjective measure of the level of satisfaction of the partners, has also been adopted by a number of researchers (Beamish & Banks 1987; Schaan 1983). Just as in the case of financial performance, this overall single-item measure PERSAT was compared with a multi-item measure OVERALLSAT. While the former measures the overall satisfaction of the partners on a five-point likert scale, the latter collates the mean responses on the level of satisfaction of the partners on remuneration, overall strategy of the JV and future plans of the JV. A significant correlation (0.79) between these two measures (PERSAT and OVERALLSAT) also justified the use of either of them.

Explanatory Variables and Hypotheses

As in the case of the dependent variables, the explanatory variables are also categorical. The nature and description of the explanatory variables included in the final models are outlined in

Table 1. Based on theoretical observations and prior empirical evidences along with trends from the survey, we formally test some of these explanatory variables⁶ as determinants of IJV performance.

Table 1: Brief description of explanatory variables in the final models

Variable Name/Code	Type*	Description	Expected sign of coefficient**
CONST		Constant	
NATPAR	B/D/S	Nationality of parent (UK=0/IND=1)	?
PARTREL	L/D/S	Partner Relation	+
PARTCNTL	L/D/M	Degree of control exercised	?
MANCNTRL	B/D/S	Management Control by the UK partner =1; else=0	?
PARTCNTB	L/D/M	Partner Contribution	+
COOPHIST	B/D/S	Cooperative History=1; else=0	+
EXITDET	L/D/M	Exit Deterrents	+
LTFININT	B/D/	Long-term Financial Intent	+
MINCOSTF	L/D/S	Fulfilment of most imp motivation of minimising costs	+

* Binary(B) / Likert(L) / Continuous (C) / Discrete(D) / Multi-item(M) / Single-item (S)

** + = positive/ - = negative/ ? = not obvious

The latent dependent variable y_i^* is thus viewed as a function of a vector of explanatory variables Z_i , , such that

$$y_i^* = z_i' \gamma + \varepsilon_i \quad \varepsilon_i \sim N(0,1)$$

⁶ For a detailed description of the meaning of the categories and scale used in each explanatory variable refer to the questionnaire in appendix of chapter 4.

The vector of determinants of performance (Z_i) contains a number of explanatory factors, and control variables, which might influence the performance of the IJV.

The dummy variable 'NATPAR' represents the nationality of the parent in the sample; 0=UK and 1=INDIA. The survey initiated responses from both partners (British partner and/or the Indian partner) constituting the IJV. These partners are characterised by considerable differences in culture, size and nationality (developing/developed), all of which have been seen to impact on performance by earlier studies. This variable was included in the model in order to control for these partner differences. Regarding this variable, many outcomes are possible hence preventing a clear expectation concerning the coefficient's sign. For example, while some studies (Sim and Ali, 2000) lend support to the negative relationship between cultural distance and IJV performance, others (Park and Ungson, 1997; Luo et al., 2001) found a positive relationship. Still others like Beamish (1984) and Glaister and Buckley (1999) found no relation between the two variables.

Earlier studies have found that behavioural perceptions like partner cooperation are important conditions for success (Buckley and Casson, 1988; Mohr and Spekman, 1994). This has been corroborated by evidence from both developed (Awadzi, 1987; Awadzi *et al.* 1988) and developing countries (Phatak and Chowdhury, 1991) which shows significant correlation between cooperation (or lack of conflict) and performance. Also, from our survey, we gathered that good partner relation was one of the important success parameters for both the partners. Thus, it can be expected that the good partner relations (**PARTREL**) will contribute positively to better performance of the IJV in terms of higher levels of satisfaction.

Prior cooperative ties between partners can create the basis for inter-partner trust and can also help reduce uncertainty in JVs (Gulati, 1995). Since the partners are free to choose whom they collaborate with, it can be deduced that a history of cooperation between the parents in a venture would mean that the partners enjoy good relations. Also, when firms have worked together before, they have a basic understanding of the skills and capabilities of their partners and this will make their expectations more realistic. A history of cooperation further limits the partners views of expected opportunistic behaviour in the new alliance. It thus reduces the necessity for contractual safeguards (Parkhe, 1993). As observed by Parkhe (1993), “the older the relationships, the greater the likelihood it has passed through the critical shake out period of conflict”. Thus, it can be hypothesised that a previous history of cooperation between collaborating partners (**COOPHIST**) will contribute to more satisfactory perceptions regarding the performance of the IJV.

Deficiencies in ones own resources are one of the most compelling reasons for collaborative ventures. Collaboration through joint ventures helps firms to fill in their own resource deficiencies and fulfil needs of partners through mutual contributions. Resource dependency in this sense also acts as a major determinant of the bargaining power of partners. Single-sided resource dependency will lead to control advantages for the ‘giving’ partner which may be perceived as unfavourable by the ‘taking’ partner. However a balanced sharing of resources, which is complementary in nature can be satisfactory to both partners. Joint ventures from developed countries in LDCs have been found to experience higher levels of satisfaction with increased partner contribution (Lee and Beamish, 1995). The importance of this explanatory variable in the present study thus cannot be overemphasised. Therefore in terms of an anticipated sign for this variable (**PARTCONTRIB**) a positive result is more likely. This means that IJVs in which partners perceived greater contributions from their

partners are likely to be deemed more satisfactory by them. The study also looks at the nature (technological, financial, etc.) of resource dependency in terms of the host partner. This points to new dimensions of continuance of resource dependency, which may throw some light on the longevity of these ventures.

The issue of control is one of the most tested determinants of performance in the research on JVs. However, the literature on this is quite inconclusive. While some (Lee and Beamish, 1995; Killing, 1983) have found a positive relation between dominant control and performance others like Janger (1980) found no such evidence. Beamish (1985) and Tomlinson (1970) found a strong correlation between unsatisfactory performance and dominant foreign control in LDC JVs, while shared control ventures seemed to result in higher performance levels. Thus, many hypothetical scenarios are possible, which are supported by a host of both theoretical and empirical studies. Therefore in terms of the expected sign of this variable (**PARTCNTRL**), there was an ambiguous expectation, as it cannot be asserted exactly in what way and to what extent the degree of control exercised by the partners will influence performance.

The existing literature regarding the effect of management control on performance is also a bit inconclusive (Geringer and Hebert, 1989). While the domination of one parent was found effective in a few studies (Al-Aali, 1987; Phatak & Chowdhury, 1991; Killing, 1983), shared management control was found to be effective in others (Blodgett, 1992; Beamish, 1984). It can however be hypothesised that in the case of IJVs in developing countries formed by asymmetric partners, the MNC managers are skilled with superior management practices and therefore management control in their hands in the initial years of operation of the IJV may contribute to a superior financial performance. The preliminary findings from our survey also

suggest that the UK partners were less prone to opportunistic behaviour which leads us to expect a positive relation between management control (**MANCTRL**) and superior performance.

High levels of exit deterrents correspond to high levels of investment. This can be theoretically assumed to correspond to increased partner commitment, and improved performance (Parkhe, 1993). Exploratory analysis of the survey revealed that high exit deterrents are associated with high levels of partner commitment. Therefore, one can assume that high levels of exit deterrents '**EXITDET**' will lead to increased partner commitment which will contribute positively to performance.

Though preliminary results from our survey showed that minimising cost was not the major motivation for formation of a joint venture, it revealed that one of the main FDI motivations for foreign firms entering India was to leverage on the low cost of production in India. A fulfilment of this motivation can thus be hypothesised to translate into positive financial performance of the IJV. Fulfilment of the cost minimising motivation '**MINCOSTF**' is a qualitative discrete variable.

A tendency of opportunism or value appropriative behaviour by the partners could have a negative impact on the performance of the IJV. Expectations of future financial gains (as against short-term gains) by the partners may result to less appropriative behaviour in the short-term, which can have a positive impact on performance of the IJV. Preliminary analysis of the survey suggests that the Indian partners have more value appropriative tendencies as compared to the UK counterparts. This was explained by the fact that the proportion of Indian partners who expected short-term financial gains were found to be far greater than their UK

counterparts who had long-term expectations of financial gains. Researchers have pointed out that performance of JVs is a question of value creation versus value appropriation. Thus, we can hypothesise that expectation of future financial gains ‘**EXPFUFIN**’ for the partners will have a positive impact on the performance of the IJV.

Most of the independent variables explained above are single item likert-scale type variables, coded 1-5 or are dichotomous variables coded 0/1. However, there are some variables which are multi-item (see appendix) and have been obtained by collating the answers to a number of supplementary questions. The general approach has been to take the average of these responses as the summary measure in these cases. To test the internal consistency of the multi-item variables we employ an iterative procedure to refine those variables which had many items.⁷ In the variables chosen for the model all the multi-item variables had a reliability measure that exceeded the .70 cut off point established by Nunnally (1978)⁸.

Empirical Results and Analysis

The two final models obtained through a sequential procedure are reported in Table 2 and 3. In our case, the size of our sample (56) limits the number of variables that could meaningfully be included in the general models at the beginning of our estimations. The present empirical evaluation is based on the results of the ‘best fit’ models. The final models draw on a reduced number of variables, obtained after dropping several blocks of variables at distinct successive stages.

⁷ For example, partner control is a multi-item variable since it collates the mean responses of the degree of control on three categories: decision making, financial matters and recruitment. To make sure that these three items could be collated into one variable, the reliability test was performed.

⁸ An item-to-total correlation was done which summarises the correlation between the score of each measure and the total score of those measures used within the construct. Nunnally (1978) suggested a diagnostic test for this measure. According to this test, those items with a low item-total correlation ($r < .25$) were first eliminated. Then the reliability of the final variable was ensured with the help of Cronbach’s alpha which indicates how well a set of items (or variables) measures a single uni-dimensional construct. When data have a multidimensional structure this measure will usually be low. Any value above .7 is considered to explain a fairly uni-dimensional construct. It is not a statistical test, but a coefficient of reliability. In the estimation of the final models, the multi-item variables were modelled with and without those items that ensured the reliability of the uni-dimensional construct. The deleted items did not present any loss of information. The resultant models presented represent the results after all these procedures.

Significance of the estimated thresholds

The ordering of the dependent variable, in both Model 1 and Model 2, and the division in five categories (with three thresholds) was fully supported, as can be inferred from the significance levels for the three distinct threshold parameters (μ_1 , μ_2 , and μ_3). All μ s are significant at 5 per cent, which indicates that the dependent variable is indeed ordered and the chosen specification is appropriate.

Discussion of results and interpretation of parameter estimates

The interpretation of LDV models especially that of ordered logit/probit models has not been dealt with extensively in the literature. Most social scientists confirm themselves to an interpretation of the sign of the coefficients. However, these may in itself be inadequate. Therefore, after commenting on the signs of the relevant coefficients, we will discuss the marginal effects, which will provide a more intuitive interpretation of the coefficients.

We will focus on the results of the final models obtained from the ‘general-to-specific’ approach in the following discussion. In Model 1, three (PARTREL, COOPHIST, PARTCNTRL) out of the initial group of explanatory variables proved to be statistically significant and in Model 2 four (NATPAR, MINCOSTF, MANCNTRL, FULFINF) out of the initial group of explanatory variables proved to be statistically significant. We will concentrate on these variables in what follows.

MODEL 1

This model estimates the determinants of the subjective measure of performance. From the model (Table 2), it can be seen that coefficients of three variables: partner relation (PARTREL), cooperative history (COOPHIST) and partner control (PARTCNTRL) are significantly different from zero at least at the 5% threshold level.

Therefore, the determinants of perceptions of the partners on the overall satisfaction of the IJVs can be formulated as:

$$\text{PERSAT} = f(\text{PARTREL}, \text{COOPHIST}, \text{PARTCNTRL}, \varepsilon)$$

Table 2 Ordered Probit Estimates for Model 1

Description	Model 1	
	PERSAT	
	Coefficient	P value
CONSTANT	-2.5661	0.0073
NATPAR	-0.8480	0.0735
PARTREL	0.7581	0.0005
COOPHIST	0.7957	0.0258
PARTCNTRL	0.4358	0.0348
PARTCONT	0.4818	0.0818
Overall goodness of fit (X2)		.0000
Likelihood Ratio Index		25.3%
Threshold parameters		
μ_1	1.7651	.0000
μ_2	3.7261	.0000
μ_3	5.7892	.0000
Proportion of hits	62.5%	

NATPAR is a control variable that was introduced into the model to control for the partner differences. This variable is negative but is only significant at 10%. From the coefficient's negative sign it appears that Indian partners are less likely to perceive the IJV as having a satisfactory performance. PARTREL emerges as the most significant determinant of performance from the model, significant at the 1% level. This confirms the initial observations from the survey, which showed that a majority of the UK and the Indian partners attached great importance to good partner relations as the most important element for the success of an IJV. The preliminary analysis also showed that good partner relations were positively correlated with partner credibility and absence of opportunistic behaviour. Buckley and Casson (1988), states that within a transaction cost perspective, cooperative behaviour between parents helps to reduce potentially costly monitoring and safeguarding activities within IJV. This is because cooperation between partners is positively associated with trust and negatively associated with perceptions of opportunistic behaviour (Parkhe, 1993). Thus, one could assume the implicit importance attached to these behavioural aspects by the IJV partners in our study in stating good partner relation as the most important factor. COOPHIST is positive and significant in our model, leading us to conclude that a previous history of cooperation is likely to have a positive impact on performance. This is consistent with the hypothesis drawn out in the earlier section that a previous history of cooperation between the partners would contribute to better understanding between the partners which in turn would lead to a better performance. This corroborates previous empirical evidence on the performance correlates of IJVs where a previous history of cooperation between the partners was found to reduce partner conflict and reduce opportunistic behaviour, thus leading to a more satisfactory performance. The positive sign of PARTCONTRIB in the model suggests that when firms perceive a significant contribution from their partners this will lead to a more satisfactory performance of the IJV. Also, from our own exploratory analysis, it was clear that

the nature of resource dependency between the partners was quite balanced and complementary. While the Indian partners benefited from the technology and export prospects of the British partners, the foreign partners in turn benefited from the familiarity of the local market and culture and the access to various distribution networks. However, these arguments only account for a partial explanation given the marginal insignificance of the parameter estimate. The insignificance of this variable in the model is quite unexpected. However, it may be explained by the fact that resource complementarity was almost endogenous in the JV process, thus being a prerequisite for the alliance formation rather than a post determinant of its performance.

A definitive sign was not hypothesised for control 'PARTCONTRL' because of the inconclusive evidences from prior research. However, in the model this variable turns out to have a positive relation with overall satisfaction. This indicates that when partner firms exercise higher levels of control it contributes to better performance in terms of higher levels of satisfaction. This finding is consistent with earlier empirical evidence on LDCs where control has a positive relationship with performance (Lee and Beamish, 1995). Traditionally, control was modelled by the relative degree of ownership, but more recent work on alliance forms suggest that ownership may not be the optimal means of control in every situation. Preliminary analysis of our survey also showed that the degree of control exercised by the parents was not restricted by the level of equity holding. Therefore, it is interesting to note that high levels of control, regardless of the levels of equity holding, is a significant predictor of performance in Indo-British IJVs.

MODEL 2

This model estimates the determinants of the objective measure of performance. From the model it can be seen that coefficients of four variables: nationality of parent (NATPAR), fulfilment of cost based motivation (MINCOSTF), management control with UK parent (UKDOM) and expectation of long-term financial gains (FULFINF) are significantly different from zero at least at the 5% threshold level.

Thus, determinants of the objective performance measured in terms of partner perceptions on financial indicators can be formulated as:

$$\text{PERFIN} = f(\text{NATPAR}, \text{MINCOSTF}, \text{MANCNTRL}, \text{FULFINF}, \varepsilon)$$

Table 3 Ordered Probit Estimates for Model 1

Description	Model 2	
Dependent Variable	PERFIN	
	Coefficient	P value
CONSTANT	3.0560	0.0340
NATPAR	-1.7930	0.0156
MINCOSTF	0.8410	0.0030
MANCNTRL	-0.7471	0.0135
EXITDET	-0.5623	0.0834
EXPFIN	2.0375	0.0017
<i>Overall goodness of fit (X^2)</i>		.0000
<i>Likelihood Ratio Index</i>		39.0%
<i>Threshold parameters</i>		
μ_1	3.7261	0.0004
μ_2	5.7892	0.0000
μ_3	7.5079	0.0000
<i>Proportion of hits</i>	67.4%	

NATPAR has a negative sign and turns out to be significant in Model 2 leading us to conclude that the Indian partners were more likely to rate the performance of the IJV poorly compared to the British partners. This could be attributed to the fact that the financial expectations from the venture were higher for the Indian partners as compared to the British partners. This finding however confirms the observation got from the exploratory analysis, where the performance rating given by the British partners were in most cases higher than those given by the Indian partners.

The variable MNCNTRL turned out to be significant in the model. Typically, the management control of the JV is given to one of the partners for the initial few years of operation. The positive sign of this MNCNTRL in the model confirms the hypothesis that better success rates follow when management control rests with the developed country (UK) partner for the initial years of operation. This is attributed to the more superior techniques of firm management associated with the developed country partners. Management control as a predictor of performance also holds a lot of importance keeping in view the short life span of most JVs. Also, from our exploratory analysis, the number of UK partners who expected short-term strategic gains and long term financial gains were far greater than the Indian partners who were more focussed on short-term financial gains. Expectation of Short-term financial gains also lead to a higher tendency for opportunistic behaviour in the form of value appropriation rather than value creation in the venture. Thus, if management control were to lie with the less opportunistic partner and the more credible partner, then this could have positive effects on the financial performance of the IJV. The survey results also showed that the UK partner was the more credible and less opportunistic partner. This argument thus confirms our finding that management control with the UK partner for the initial years of operation will contribute to positive performance.

The negative sign of EXITDET in the model suggests that high levels of exit deterrents are associated with high levels of financial performance. However, the poor significance of this variable limits the empirical support to this hypothesis. The positive sign and the significance of MINCOSTF shows that it has a positive impact on performance. Though, fulfilment of the motivation of minimising cost MINCOSTF did not emerge as an important predictor of the subjective indicator of performance, it proves to be an important determinant of the financial performance of IJV. Cost minimisation is a financial consideration for any operating firm and quite obviously a fulfilment of that would lead to positive financial gains for the firm. Though cost minimisation was not an important motivation for either partner to enter into a JV, it was one of the reasons that motivated the MNE partner to seek foreign developing markets. Expectation of long-term financial gains EXPFIN, as can be seen from the model contributes to better performance of IJVs. The positive sign of the variable confirms the hypothesised relationship between the two. It can be argued that when the partners have a more long-term view, joint ventures tend to be more successful because the tendency for opportunism by the partners is less likely in the short-run. Contrarily, JVs where partners are driven by short-term financial gains they fail to create any value into the venture because of their appropriative behaviour. Further, mutual perception of opportunistic behaviour by the partners creates mistrust and can affect partner relations which has been seen to be an important determinant of performance.

Comparison of the two models

It is clear from the above analysis that the determinants of perceptible performance in the case of subjective indicators is quite different from that of objective indicators. This could probably be attributed to the fact that subjective performance and objective performance

measure different aspects of the performance of the IJV. Since subjective performance relates to general satisfaction of the partners with the IJV, it is not surprising that good partner relation, co-operative history and partner control come out as significant. Objective performance on the other hand relates to partner perceptions on more specific parameters of financial performance like return on assets, investment, profits etc. of the firm. Therefore fulfilment of the motivation for minimising cost, expectation of long-term financial gains seem to matter more with regard to objective performance. It is, however, quite likely that a sound financial performance of the IJV will translate into a satisfactory perception of the performance of the IJV; but it also indicates that it is not a prerequisite for perceiving the performance of the IJV as satisfactory. Thus in this sense the two indicators of performance are independent of each other. This enables us to understand why yardsticks for the measurement of a satisfactory performance of IJVs go beyond analysis of financial indicators of performance.

Marginal Effects

As explained earlier, due to the difficulty in the interpretation of probability models, most researchers employing these models tend to concentrate on the significance and signs of the coefficients and ignore the magnitude. However, this interpretation is somehow superficial and vague because it is not known how much any variable x increases or decreases the likelihood of the response (event) or what the functional form of such an effect is (Liao, 1994). This practice, also common in OLS regression, though easy to implement, does not utilise the rich information these probability models can provide. A more systematic way of interpreting probability models includes the consideration of *marginal effects*, which enable a more complete and rigorous understanding of the results (Liao, 1994). However, a problem with these marginal effects is that they vary along a distribution and therefore we don't have a

summary statistic for the relationship between x and y. Instead, we have different relationships at different points. As these are given for each single category in each variable, it was decided to report just on some examples taken from the models, the remaining cases being subject to a similar kind of interpretation.

All the marginal effects of the two models sum up to zero, which permits us to check the correctness of the results (here confirmed). In the interpretation of the marginal effects of the significant (from the model) predictors of performance, variables other than the one being interpreted are held at their mean values.

Marginal effects for Model 1

Description	Coefficient	P value	OVERAL LSAT=0	OVERAL LSAT=1	OVERAL LSAT =2	OVERAL LSAT =3	OVERAL LSAT =4 ⁹
Constant	-2.5661	0.0073	.1520	.8538	-.5574	-.4434	2.5538
NATPAR	-0.8480	0.0735	.0502	.2821	.1842	-.1465	.4045
PARTREL	0.7581	0.0005	-.0449	-.2522	.1647	.1310	-.7572
COOPHIST	0.7957	0.0258	-.0471	-.2647	.1728	.1375	-.8200
PARTCNTRL	0.4358	0.0348	-.0258	-.1450	.0947	.0753	-.4698
PARTCONT	0.4818	0.0818	-.0285	-.1603	.1047	.0833	-.5628

For variable ‘PARTREL’, with a unit improvement in the partner relation, the probability of performance being classified as totally unsatisfactory (y=4) will decrease by .7572 but that of being classified as relatively satisfied (y=2) will increase by .1647. In the case of PARTCNTRL, with a unit increase in the degree of control exercised by the partners, the probability of performance being classified as highly unsatisfactory (y=4) will decrease by .4698 but that of being classified as relatively satisfactory (y=2) will increase by .0947. In the case of the dummy variable ‘COOPHIST’, the presence of a previous cooperation between the partners will lead to a decrease in the probability of subjective performance of the IJV

⁹ LIMDEP 7.0, the version used for the econometric analyses for this study does not give results for the marginal effects for y=4 (confirmed by Professor Greene through personal correspondences). These have been computed by using the assumption that the sum of the marginal effects should sum up to zero.

being classified as totally unsatisfactory (y=4) by .8200 and will increase the probability of being classified as relatively satisfactory (y=2) by .1728.

In spite of the fact that PARTREL, PARTCONTRL and COOPHIST had a significant positive impact on performance from the model, an interpretation of the marginal effects shows that a unit increase in any of these variables leads to an increase in the probability of subjective performance being in the middle quarters (y=2 and y=3) rather than in the first two quarters. However, it must be noted that in the above three cases, with a unit improvement in the variables, the amount of decrease in probability of being classified as highly satisfied is almost insignificant when compared to the decrease in the probability of being classified as (highly unsatisfied y=4). The marginal effects thus shows that the positive relation of the three variables with subjective performance as explained by the model is largely concentrated in the middle areas of the distribution of the dependent variable.

Marginal effects for Model 2

Description	Coeff	P value	OVERAL LFIN=0	OVERAL LFIN =1	OVERAL LFIN =2	OVERAL LFIN =3	OVERAL LFIN =4
Constant	3.0560	0.0340	-.0009	-1.2144	1.0444	.1696	-3.0887
NATPAR	-1.7930	0.0156	.0005	.7125	-.6127	-.0995	1.7766
MINCOSTF	0.8410	0.0030	-.0002	-.3342	.2874	.0467	-.8437
MANCNTRL	-0.7471	0.0135	.0002	.2969	-.2553	-.0415	.7333
EXITDET	-0.5623	0.0834	.0002	.2234	-.1922	-.0312	.4787
EXPFIN	2.0375	0.0017	-.0006	-.8096	.6963	.1131	-2.0384

We can interpret marginal effects for partner contribution in a similar manner. Here, a unit increase in the partner’s contributions to the IJV will increase the probability of partners being relatively satisfied (y=2) but will decrease the probability of them being totally unsatisfied (y=4) by .5628. However, this variable did not come out as significant in the model.

In the case of the dummy variable 'MANCNTRL', with the dominance of the UK partner, the probability of the IJV being classified as a high financial performer in terms of supernormal profits ($y=0$) will increase by .0002. and that of being in the next quarter ($y=1$) will also increase by .2969. In the case of 'MINCOSTF' a unit increase in the fulfilment of the motivation of minimising cost will lead to a .2874 increase in the probability of the IJV breaking even ($y=2$) but will lead to a .8437 decrease in the probability of having heavy losses ($y=4$).

Concluding Remarks

This paper discusses two econometric models of the determinants of performance, using a discrete choice ordered probit specification as required by the nature of the data and problem under analysis. This paper draws on the results of a primary survey of 56 Indo-British IJVs in India. By extending the survey to include both partners involved in an IJV, this paper presents a framework which incorporates the perspectives of both the host and the foreign partner involved in the IJV. Based on a set of explanatory variables, the models validated some of the main propositions hypothesised earlier. An important contribution of this paper is in its use of alternate measures of performance and the analysis of performance correlates at a multivariate level in a developing country.

Several explanatory factors proved to be significant in understanding the performance of IJVs. Good partner relations, high degree of control and previous history of cooperation between the partners emerged as important determinants of the subjective indicator of performance. In the predictors of objective performance, however, dominance of the foreign partner in the initial years, an expectation of long-term as opposed to short-term financial gains, and the fulfilment of the motivation for minimising costs, all contributed positively to performance.

An important suggestion from the analysis in this paper is that predictors of subjective and financial performance of IJVs are different. This reinforces the fact that performance in IJVs is a multidimensional phenomenon and using any one of the alternate measures of performance to evaluate it or to look at its determinants may be rather inadequate.

Appendix

Questions in the survey relating to the variables

1. 'PERSAT' : *“What is the level of overall satisfaction among the representatives of your firm in the joint venture?”*

The overall satisfaction was rated by the respondents on a single item, five-point likert scale ranging from 1 (Highly satisfied) to 5 (Highly unsatisfied).

2. 'PERFIN' : *“How would you describe the financial performance of the joint venture?”*

The response values ranged from 1 (Supernormal profits).....3 (breakeven)...to....5 (Heavy losses).

3. 'PARTREL' : This is a discrete single item variable and is the response to the question in the survey: *“How would you describe the relation with your partner?”*

The responses were coded on a 5 point scale likert scale of 1-highly cooperative to 5-highly uncooperative.

4. 'COOPHIST' This binary variable denotes the response to the question in the survey: *Was there any previous history of co-operation between you and your partner?* The responses were coded 0=No 1=Yes.

5. 'PARTCONTRIB': This multi-item variable collates the average responses to the question in the survey:

What is the level of your partner's contribution to the JV in relation to your contribution? in terms of (i) Faster entry into local market, (ii) Local political advantage, (iii) Raw material supply, (iv) Knowledge of local business practice, (v) Local managers, (vi) Knowledge of local market and culture, (vii) Better export opportunities and (viii) Technology/equipment? Responses on each item were coded on a 5 point likert scale from 1 (100%contribution from our partner) to 5 (0%Contribution from our partner).

6. 'PARTCNTRL' :This multi-item variable also collates the average responses to all the items in the question:

What degree of control do you exercise over (i) Major decision making (ii) Financial Matters, (iii) Day-to day operation and (iv) Recruitment of senior staff in the IJV. The responses were ranked on a 5 point likert of 1-high degree of control to 5-no control at all.

7. MANCNTRL This is a dichotomous variable and denotes the response to the question in the survey:

Which partner had management control for the first three years of operation? The responses were coded 1-UK partner, 2-Indian partner, 3-other. These responses were recoded into 3 dummy variables. MANCNTRL is thus a dummy variable which was coded 1 if the UK partner had the management control for the first three years of operation and if otherwise was coded 0.

8. EXITDET This multi-item variable collates the average responses to all the items in the question:

If this alliance were to be dissolved how would you describe your firm's non-recoverable investments in terms of (i) Capital (ii) Technology (iii)Physical assets? The responses were ranked on a 5 point likert of 1-(Negligible losses)...to... 5-(Heavy losses).

9. MINCOSTF' This variable is the response to the question in the survey:

To what extent was the motivation of 'minimising cost' fulfilled after the joint venture was formed? The responses were coded on a 5 point scale likert scale of 1(fulfilled to a large extent) to 5(Not fulfilled at all).

10. EXPFUFIN This binary variable is the response to the question in the survey:

Once the JV was formed what did you expect from it in terms of financial gains? (a) Immediate financial gains (b) Future financial gains. Each of these responses were further recoded as dummy variables. EXPFUFIN was coded 1 if the partner's expected future financial gains and was coded 0 if otherwise.

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