EU-JAPANESE JOINT VENTURE MANAGEMENT : Towards a new valuation logic of Performance

by

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Abstract Throughout this study the author has aimed at presenting a different concept of company performance from that engendered by previous research, both qualitative and quantitative. The data, processed through the EM Algorithm technique, have been empirically cross-checked on a new database, and prove to be statistically sound.

Although previous research has generated similar deductions, particularly on strategy, the authors put forward original conclusions for discussion, based for the first time on companies' own data.

Key Words Management - Performance - Strategy - Valuation Logic - EM Algorithm

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I. General Introduction

The question of the role of joint-ventures in economic competition is an important part of current works on strategic alliances. Recent literature on business economics addresses the idea of International Joint-Ventures (IJV) as minimising competition, especially when one of the partners is Japanese (Pate, 1969; Geringer & Moxon, 1985). Japan's rise to the status of economic super power, especially in the 80's, has created rancour and anger (Morita, 1992). Provocations include "unfair" business practices, difficulty of access to the Japanese market, and, in the special area of joint-ventures, Japanese capacity to better encapsulating partner's skills and knowledge (Brown,Rugman &Verbeke, 1989)

Although each of them has been more or less studied in the past years, three different puzzles have still to be solved about IJVs.

The first concern is about the firm's choice to joint-venture when investing in a foreign country. In Foreign Direct Investment (FDI) literature, joint-ventures are mostly seen as inferior to wholly-owned investment (Hamel, Doz & Prahalad, 1989; Ciborra, 1991; Beamish, 1996), although some studies (Chowdury, 1992) place the two structures in direct opposition. Unfortunately, financial success is measured on a static scale, while company strategy must be perceived as dynamic. Joint-ventures may, however, develop the flexibility needed in business, and the two systems should not be opposed but implemented according to context. Other studies have highlighted the IJV as a best option but only in theory (Casson, 1986; Hennart, 1988; Kogut, 1988a), and the problem is to choose which arrangement is more appropriate, rather than absolutely better than the other.

The second concern is about IJVs place in competition. At first glance, co-operation is seen as a first step to collusion ; the case of NUMMI has shown how much American Federal Trade Commission worried about this risk (Bresnahan & Salop, 1986). The European Commission, in reference to the article 85 of the Treaty of Rome, authorises JVs, especially in R&D, as long as they have both a positive impact on competitiveness and when they allow benefits to all the competitors of one industry (Teece, 1992). At the opposite,when firms co-operate at production level, the overall impact on competition is not so clearly established. Indeed, fears of collusive practices stemming from JVs are, now, less important than there were in the early eighties. Such opinion is partly explained by the frequency of such practice today (Glaister and Buckley, 1994; Hergert and Morris, 1988) and by the obvious stability of competition.

The third concern is about IJVs impact on the performance of the firms. If in general, JVs improve the competitiveness of "allied" firms, if they allow risk-sharing, product rationalisation (Glaister and Buckley, 1996), they must have a positive effect on firms' performance. This question is not easy to deal with, especially because of the ambiguity of both the notion of performance itself and the complexity to handling with the performances of the parent firms as well as that of the JVs.

The paper concentrates on the third puzzle, with special reference to IJVs set up by European and Japanese firms, and deals with an original data base (see Appendix 1 and for more details, Straboni, 1995, chap.3). Results should pave the way to an evaluation of the

performance of the joint-venture within the specific context of each firm's corporate strategy.

II. Theoretical background

In today's world economy, entry barriers are numerous, and may include culture-specific factors, market concentration and complexity of industrial relations inter alia.

Economists have argued that differences in the performance of firms can be explained by the analysis of the fit between Structure and Strategy. The same concept of fit, both between industry characteristics and the company's strategy (Caves & Porter, 1977), as well as between the company strategy and its organisation (Chandler, 1962), has also been used to explain why some firms do better than others. Yet, throughout all these analyses, the concept of performance always used to be static. As a matter of fact, information at firm level has never been put forward before for empirical investigation. Basically, the analysis of joint venture performance relies upon 2 perspectives which rather than being exclusive of one another are compatible and complementary.

On the one hand, analysts built upon the Transaction Cost approach to introducing economic benefits. Hennart (1988), Porter & Fuller (1986) refer to joint venture strategy to attain economies of scale. Buigues & Jacquemin (1994) and Dunning & Gugler (1992) justify International Joint venturing as a substitute to FDI with regard to export constraints and as well as being a good option to reduce R & D costs respectively.

On the other hand, in economic theory, with special reference to collusive behaviour and Strategic Behaviour, joint venturing is one among many strategies which may transform

the competitive setting of an industry (Jacquemin, 1987). Entry barriers and industrial standards also serve to reduce potential or direct rivalry (Porter, 1990). Geringer & Moxon (1985) stipulate that these agreements are meant to control new entrants and/or to improve a firm positionning payoff *vis à vis* the partner (Tucker, 1990; Mucchielli, 1992). As a matter of fact, parent control over the venture activities appears to be the cornerstone of the performance of the alliance (Killing, 1983; Schaan, 1983; Beamisch, 1984; Geringer & Hebert, 1989).

Based on works by Jacquemin (1987) and Acocella (1992), the aim of the matrix hereby presented has changed. It has switched from explaining MNEs determinant factors concerning FDI to trying to explain the behaviour of managers in terms of both economic and strategic efficiency when joint-venturing. Within this framework, which, *De Facto*, embodies the paper conclusions, joint-venture valuation reveals itself a firm specific concept.

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Table I
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III. Research Methodology

For a study to be valid, data must be unbiased and relevant to the characteristics being measured, therefore, the validity of the following concept in measuring joint-venture's performance must be questionned. Although researchers are aware of the pitfalls between rhetoric and practice (i.e. how pleasant it could be for a manager to show that he thinks more on a 'global' level than his competitors), the concept of performance in this paper is tackled through a qualitative view rather than a quantitative approach. Indeed, financial

indicators merely express a quantitative benefit which is insufficient for the understanding of joint-venture's performance. Thus, despite good or poor financial results, one or both parent firms could be unsatisfied due to the unfulfilled expectations they had about joint-venture strategy (Geringer & Hebert, 1991). A qualitative perception must be added which could be perceived through a performance-strategy interaction. Obviously, strategy is not only the maximisation of profit.

The conclusions presented in this paper are based upon a 41-item questionnaire (cf. Straboni, 1995) sent all over Europe (EU countries) and to Japan, plus 7 in-depth interviews conducted in France, Italy and the United Kingdom. This pilot test was, therefore, both culturally and geographically widely dispersed, ensuring that the response would be of interest and relevant to the research. Finally, to gather as much information as possible, a single-item-scale measure of performance in the questionnaire was applied to some individual dimensions of the international joint-venture and addressed to both parent firms and the JVGM (Joint-Venture General Manager). Multiplicity of respondent and the criteria of performance employed, assure beyond doubt the reliability of the *modus operandi*. The last question was intended to cross-check the increase in parent commitment to the international joint-venture, while an open question about expected changes in the venture indirectly assessed the degree of future commitment. This enquiring method (i.e. meticulously designed questionnaire divided into strategy, resource and control sections, plus a single-item-scale measure of performance, as well as evaluation of the parent company's evolving commitment to the venture) provides information on whether or not parent firms have attained their objectives.

With regard to all these limitations, a new concept of performance is advanced. JVGM diagnosis was also investigated, the resulting arbitration data providing a control on parents' judgement. The decision to cross-check earlier results was taken with the intention of testing for both information accuracy and systematic bias in JVGMs' assessment of parents' responses. As a general rule, one would expect the JVGM to be convinced with the strategic interest of the venture for the parent companies and to overvalue the real performance of the jointventure. At the same time, general managers of the parent company are likely to moderate JVGM's valuation of the performance of the joint-venture. One might also expect general managers of the parent company to reassess joint-venture performance in a more parent orientated prospect.

Results would allow generalisation about the necessity of including data from JVGMs in future surveys of joint-ventures. Finally, this paper should definitively reject the notions of stability, survival and duration as adequate criteria/proxy for measuring the performance of joint-ventures.

IV. Evidences from earlier studies enquiring about the performance of the joint-venture

IV.a. Criticisms of financial measures of performance

In general, and more specifically in the case of Euro-Japanese joint-ventures, financial-objective measures of performance are not exempt from criticism, nor are such matrices always appropriate to the effective assessment of joint-venture performance (Raffi, 1977; Killing, 1983). To begin with, one of the best variables for grasping effectively the concept of financial measurement of performance could be the growth of the value-added,

though this is unrealistic in practice. Secondly, the use of financial indicators - such as rate of growth, market share gains, product quality and costs relative to those of competitors - have already been implemented in different studies (Tomlinson, 1970; Dang, 1977; Lecraw, 1983). These traditional measures of performance are limited, notably when parent companies are interested in qualitative criteria. More explicitly, learning experience, establishment and/or reinforcement of a parent reputation cannot be accounted for within this framework of measurement. Moreover, the return on investment ratio is one of the most widely accepted measures of performance. Unfortunately, limitations of accounting measures are twofold.

Firstly, they are only good enough to explain the past performance of a firm. Thus, firms must react quickly to a rapidly changing environment. Strategic decisions, based on a one year old experience seems to be an antique mode of management (Anderson, 1990; Chakravarthy, 1992). In other words, the notion of performance should be understood in a real time framework. Secondly, a long term vision of performance, such as the building of a reputation and/or the purpose of learning, is discarded for a more short-sighted orientation.

To conclude, criticism to the financial market measure of performance (usually, one refers to book value ratio) appears through the lack of standardisation in international accounting practices (Nobes, 1992). Obviously, this specific criticism applies to the Euro-Japanese international joint-ventures (Nisikawa, 1994). Finally, the value of using an accounting measure of performance through a cross-industry analysis is questionable.

IV.b. Criticisms of commonly used objective measures of performance

In earlier surveys some authors have also related joint-venture performance to its survival (Franko, 1971; Stopford & Wells, 1972; Raveed, 1976). In turn, Killing (1983), Gomes-Casseres (1988), Harrigan (1988), Kogut (1988b) looked at joint-venture duration and/or ownership instability respectively.

According to Dunning (1990; p 7), "Research on joint-ventures - the most intensively studied form of alliances - has shown that most of them fail within four years. Thus, any joint-venture that survives beyond this period is, in comparative terms, a success." However, as argued by Harrigan (1988) and Gomes-Casseres (1989) a short-lived joint-venture does not necessarily mean it was a failure. Parents' objectives could have been met and the end of the joint-venture appears to be the normal termination. Instability could be a sign of success not failure. Therefore, the basic duration concept hypothesis fails.

The same argument applies in rejecting the assumption about ownership stability. According to the argument pioneered by Schaan (1983), results demonstrate that a joint-venture can be controlled by a partner in a minority ownership position. Moreover, since a parent company's objectives evolve, so does the evaluation of performance. An identical equity structure from one year to another might not be relevant in the changing pattern of joint-venture performance appraisal. Similarly, choosing performance measures depends on firms' objectives.

In addition, the traditional concept of survival (ie. no change in ownership structure) as described by Franko (1971) and Raveed (1976) is useless for the comprehension of the

notion of performance. Firstly, this traditional concept does not discriminate between the performances of two joint-ventures which are still in operation. Secondly, survival does not mean good performance. For example, a joint-venture where some of the equity shares are state-owned can be artificially maintained in operation (for employment reasons) even if it is performing poorly.

In Geringer & Hebert's (1991; p 258) research where the authors test the appropriate degree of correlation between objective and subjective measures of performance, they conclude "This result suggests that IJVs perceived by their parents as performing more successfully were more likely to remain in operation than those IJVs that were evaluated as being less successful." This conclusion reinforces a theoretical framework which would explain performance level as a result of attained objectives and an increase in parents' commitment to the IJV. In this way the methodological limitations of previous surveys are removed.

IV.c. Parent expected increase in commitment

When asking about the expected future changes related to the joint-venture, a wide range of options is available starting from an expected change in the ownership structure of the venture (13%), to a strong development of production capacities (17%), an increase in market share and/or closing down the business (4%).

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Table II
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Yet, EU and Japanese responses differ greatly from one another.[2] In general, European firms neither feel the necessity for a change in management nor do they expect a closure of the venture activity. Still, 25% of these firms are looking forward to enlarging the co-operative agreement while at the same time apprehending a change in ownership structure (18.75%). For both expectations, highly satisfied firms account for 75% and 66.67% respectively.

The Japanese firms studied repudiated the possibility of future expansion of cooperation. While only 5.26% reckon a new management team will take over, they hold similar opinions about parents' satisfaction with the venture's performance. Yet, Japanese interest in developing production capacities and increasing market share through diversification underscores a difference (44.74% and 18.42% respectively). Finally, four companies - representing 10.53% - suggest that the venture will terminate; out of these firms, 75% are dissatisfied with the venture's performance.

To conclude, despite reluctance to increase participation in terms of human resources, European firms intend to secure their learning through an increase of their share of ownership, while Japanese firms, counting on increasing their market share, do not intend to augment their commitment before having cash on previous investment. In actual fact, the venture is still considered to be in its infancy by Japanese MNEs.

IV. An empirical investigation into joint-venture general manager contribution to joint-venture survival

[2] The respective rates of missing frequency are 61.9% and 45.71%.

Before the analysis starts, it must be kept in mind that while the results of an earlier T-test [3] produced a constant statistically-significant difference for the question about parent firms'satisfaction at both aggregate and desaggregate levels, evidences from a from a paired T-test (JVGM assessment of both parents'satisfaction) stands firmly in opposition with a non-significant response. Moreover, direct comparison of European and Japanese firms responses against the respective JVGMs' assessment of both firms sheds some light on the JVGM's appreciation of parents satisfaction with the venture, although Japanese firms are not as satisfied as the JVGMs think they are. JVGMs' judgement is quite accurate, however, in assessing the European degree of satisfaction. To sum up, JVGMs always over-emphasise the EU contribution to, and minimise Japanese participation in the venture. Secondly, they never correctly assess the importance of the venture to parent firms' strategy. Thirdly, and logically, JVGMs do not perceive parents' degree of satisfaction with their joint-venture. Finally, and more importantly, JVGMs do not perceive the right variables upon which parents evaluate their venture. Altogether, the results underline JVGMs poor assessment of Japanese parent perception of the venture and therefore a fairly poor reliability for this kind of data. To conclude, results suggest a bias in the JVGM assessment of parent satisfaction with the venture. Furthermore, reliance upon JVGMs' response would definitely lead to the extension of joint-venture life. Hence, control analysis on regressions results using JVGM's response data was abandoned.

[3] Straboni, C. (1995) An Empirical Investigation into European-Japanese Joint-Ventures in the Context of the European Integration, *Unpublished doctoral dissertation*, University of Reading, Department of Economics, UK.

VI. Regression on determinants of joint-venture's performance at R & D and production levels.

What are the variables which influence performance results ? [4]

VI.a. Regression results of a joint-venture created for R & D purposes

When surveying the full sample (N = 112), results suggest that potential partners must be identified with regard to compatibility of objectives rather than their respective position on the market. Secondly, once potential partners have been carefully assessed, the selection process should be based upon their reputation.

Sensitive information is also elicited through 'company's previous experience with joint-ventures'. For example, 77% of the firms rated 'partner cheating' as an unimportant variable for explaining joint-venture termination. Firms might not want to comment on a previous disastrous experience or to admit that they were mistaken in their choice of partner. This could indicate that great care is taken in partner selection and that firms do not rush for an agreement at any cost.[5] A successful joint-venture is first and foremost a time-consuming process.

As far as partner contribution is concerned, reliance upon a partner's former employees decreases the likelihood of good performance, while employees' loyalty to their home company may pose further problems. Parents' knowledge about the production

[4] When one focusses attention on the main objectives of the parent companies, all variables registered a missing frequency figure of 50% or above with the exception of 'market share' which has registered a positive response from at least 65% of the companies from each of the four industries examined. Further, Electric & Electronics is the only industry within which 60% of the population are seeking to achieve a technological lead. For the Japanese partners, this objective has been ticked by one out of two companies in each industry but in Chemicals within which 87.5% did not. The European partners followed the same pattern of answers but in the Electric & Electronics industry within which this objective is considered important by 62.5% of the firms.

[5] Within section II, 'resources of the joint-venture', question 10 which deals with firms previous experience with joint-ventures has a missing frequency figure of 10.71%. This low response rate restricts the weight which can be given to this question.

processes and the human resource management is crucial to joint-venture performance while the venture's dependence on financial resources is not. Moreover, easily reproducible assets give way to tacit dimensions embodied in each specific firm. Pooling of not easily accessible assets reinforces the idea of a joint-venture of complementarity as opposed to a joint-venture of similarity.

To conclude, companies tend to consider long term commitment to the venture as a prerequisite to good performance. Achievement of planned results is not an end *per se*. (see Table IV.)

Surveying Japanese firms' analysis (N = 70) of performance displays eleven new variables compared to the original sample, though these remain within the same line of conduct, albeit with some differences.

Market knowledge, necessary to the achievement of planned performance, is a most important EU contribution to joint-ventures. Since getting closer to competitors and accelerating entry are two variables which positively influence Japanese perception of performance, it is probable that Japanese firms co-operate in joint-ventures to enter the EU single market and reduce the time needed to assess the wishes and needs of potential customers. Japanese companies clearly want to benefit from the venture in terms of development rather than research. Moreover, the size of partners is a variable to be taken into account since Japanese firms tend to prefer a smaller EU partner.

Japanese firms also consider their first move to initiate the agreement as an important contribution to joint-venture performance. Conversely, the desire to extend R &

D, rationalise production and overcome a saturated home market are perceived as aims which would diminish performance. Finally, combined hard (parent's approval for all decisions) and soft, but pernicious, (future attractive career for the joint-venture general manager at parent's headquarters) control mechanisms are decisive in assuring the achievement of planned performance.

To conclude, ventures which perform well are those which benefit the Japanese partner more than the EU company. **Table III**

As far as EU firms are concerned (N = 42), they differentiate themselves considerably from Japanese companies.

First of all, partner identification methods emphasise the importance EU firms attach to business relatedness and its positive impact on performance. Logically, and in contrast to Japanese firms, EU firms tend to team up with a bigger company. EU companies also consider that mutual strategic needs, reputation, and compatibility of objectives should not influence their choice of partner as they are unimportant to overall good performance. Joint-venture dependence on input transfer strengthens the idea of a joint-venture of complementarity. EU firms' knowledge about human resource management is crucial to performance but not to the production process, whereas the opposite is true for Japanese companies. Finally, to emphasise differences, EU parents consider long-term commitment and regular meetings with the joint-venture general manager as likely to improve performance. In the same way, strong and hard control mechanisms (eg. legal contract) will ensure that EU companies' perception of performance characterised by profitability and reputation will be achieved.

VI.b. Regression results of a joint-venture created for production purposes

According to Japanese firms, many variables are likely to affect joint-venture performance at the production level. Firstly, partners' business relatedness and compatibility of objectives are criteria upon which the choice of partner should be based if the venture is to perform well. Secondly, Japanese parents consider that the product they transfer to the venture is likely to improve performance. Thirdly, and to conclude the section dealing with resources, skilled and abundant population as well as government incentives increase the likelihood of good performance. Yet, Japanese firms would not cooperate in a joint-venture to rationalise production or increase organisational knowledge.

According to past research, these results are logical. Accelerating entry and overcoming a saturated home market are two variables also seen as positive reasons for the creation of joint-ventures. These two factors give weight to Japanese tactical decisions to set up joint-ventures at the production level where it is recognised that Japanese firms enjoy a comparative advantage over their EU partners. Japanese firms also seem to hold to the autonomy of the venture since they consider that direct influence over the board of directors and majority ownership may inhibit good performance. They would insist, however, upon the necessity of their approval of all the JVGM's decisions.

A Japanese company's evaluation of a venture is based both on its reputation, and on its ability to benefit the Japanese partner at the expense of the European, rather than on how its contribution to both firms may improve performance - the influential factor in the assessment being their own input of human resources. EU companies' analysis differs widely from that of their Japanese counterparts. Indeed, if EU firms perceive a larger

partner as necessary to improved performance, they still prefer to initiate the venture. Furthermore, potential partners with mutual strategic needs would decrease the level of performance whereas partners with complementary skills would have the opposite effect. Once again, results suggest a quest for economies of scope rather than economies of scale. Furthermore, EU firms do not consider skilled and abundant population and physical infrastructures to be location variables worthy of concern. These variables may be statistically significant, but if too much importance is attached to them the venture will be less performant. Political stability increases the likelihood of good performance, as does a venture created with the aim of overcoming a saturated market at home. To the same extent, frequent meetings between parent and JVGM will produce a positive impact on joint-venture performance. Yet, those meetings should not be considered as efficient control mechanisms. Indeed, EU firms clearly prefer majority ownership over the venture.

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Table IV

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Finally, EU firms clearly point out that the more joint-venture evaluation is based on profitability, on joint-venture ability to benefit one company at the expense of its partner and on joint-venture ability to bring Japanese partners into their network, the less likely will good performance be achieved. European firms also disregard human resources as a positive influence over joint-venture performance.

VI.c. Comparison of regression results

Japanese and European companies exhibit diametrically opposed opinions on three particular factors – majority ownership, human resources, and inequality of benefit – each

variable being positive or negative for each partner in explaining performance. In an emerging new management system, R & D and production departments tend to converge rapidly. Indeed, what determines competitive advantage today is to design products that are cheaper to build (The Economist, 1994). Yet, valuation principles diametrically oppose each other. If the parent companies set performance as their priority, the achievement of planned objectives is not an end *per se*. On contrary, if they wish to be satisfied with the venture generally, then such achievement becomes important. The initiator of the venture is more prone to interpret performance positively, and a pattern emerges indicating also that initiators perceive the venture as likely to fulfil their need for learning. Japanese firms are still closely tied to an old management system where investment in the labour force is only perceived as a means of forcing down production costs. Moreover, they express a higher level of aggressive behaviour which materialises in the desire to benefit from the venture at the expense of their EU partner. However, some marginal differences persist between the two valuation logics. On the other hand, this pattern is not repeated in the EU firms' data. Companies now perceive strong control mechanisms and frequent meetings with the JVGM as positively influencing performance. The need for complementary skills and resources from partners is similarly valued, while the selection of an associate based on partners' mutual strategic needs is regarded by EU companies as negatively affecting performance.

Yet, results suggest diverging logic. Mainly, EU companies rely upon a 'virtuous management circle' where long term commitment to the venture is needed, where investment in people is required, and where the evaluation of the joint-venture is based on its reputation.

VII. Summary and concluding remarks

" The presumption must be that such alliance make the partner better off, at least in the *Ex Ante* context, in comparison to some other governance structure" (Wolf & Globerman, 1992; p 43). It is no longer realistic to seek a single measure of performance. In reality, a context-specific index of performance is more appropriate (Chakravarthy, 1992). A joint-venture could be performing well while not appearing as an excellent operation in the sense that one partner's benefit exceeds the other's. In fact, achievement of planned results and financially acceptable dividend are only necessary conditions. The sufficient condition comes from the parent ability to respond strategically to changes in its environment through the creation of the joint-venture (technically, it is the capacity one member of the pair displays for internalising the other's knowledge). Collaboration must not be seen as a means of gaining short term advantage but as a strategic option to achieving longer term objectives such as the building of the tacit value-added. Definitively, the joint-venture valuation must be grabbed from a firm specific factor point of view.

In the specific context of joint-venture valuation, the notion of performance must be understood through the existence of the joint-venture itself - not through its output - which in a specific context will procure to the parent company some advantage in a relatively superior way when compared to other strategies. Modern firm perception of performance has switched from 19th to 20th century quantitative orientated measure of success to a modern and strategic qualitative perception of performance. This statement was confirmed during interviews conducted with MNEs top executives prior to the survey and is sustained by recent work (Badaracco, 1991; Doz, 1993; Molteni, 1993). More explicitly, EU firms' quest for learning paired with ambition for an increase in ownership confirm the conclusions

[6] (e.g. smaller EU firms consider participating in joint-ventures as a short-cut to acquiring knowledge). The interest of Japanese companies in becoming real insiders of the EU coupled with their desire to benefit at the expense of their partner is the combined appendent.

[6] As far as the strategic purpose of entering the joint-venture is concerned, to accelerate entry into the market (e.g. the European Single Market) is the criteria which prevails and is correspondingly classified as very important by Japanese firms. Furthermore, 55.41% of the respondents consider their main objective to be to achieve a technological lead and 89.17% look forward to increase their market share.

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Table I *A theoretical framework of joint-venture motivations*

ACTION	***MOTIVES***	
	Efficiency	***Strategy***
Organisation	a. Internalisation factors (TransactionCost Approach)	a'. Strategic Organisation Factors (costs and advantages of forms of co-operation / conflict)
Organisation-production (where to and who produces)	a. + b. Location factors Partner selection	a'. + b'. Appraisal of rivals' action Incentives given by local authority or Government 'home made' product effect Spider's web (network)
Production (how much and how to produce)	a. + b. + c. Resources brought into the venture by each partner Control (target-oriented)	a'. + b'. + c'. j-v as a catch up phenomenon collaboration to compete (reduction of basic costs but effective competition on market) Blocking situation (barriers to entry and artificially maintained competitors)

Table II *Parent firms future commitment to the venture with regards to the actual level of satisfaction*

Commitment to the venture	EU		Japan		TOTAL
	Satisfied	Unsatisfied	Satisfied	Unsatisfied	(%)
No changes	1				1 (1.85)
Change in ownership structure	2	1		2	5 (9.25)
Enlargement of cooperation	3	1			4 (7.4)
Strong development in production			11	6	17 (31.48)
Diversification			6	1	7 (12.96)
Increase in market share (sales, growth)	6	1	4	1	12 (22.22)
Changes dependent on economic and environmental variations	1		1		2 (3.7)
New management			1	1	2 (3.7)
Closing down the venture			1	3	4 (7.4)
TOTAL (%)	13 (24.07)	3 (5.55)	24 (44.44)	14 (25.92)	54 (100)

Table III *Coefficient estimate of probit analysis on joint-venture's R&D performance*

Question Number	*Independent Variable*	*Estimate*		
		Japanese Sample	European Sample	Full Sample
S2.Q3.L1	p. identification:			
	business relatedness		4.1373	
			(0.0003)	
S2.Q3.L3	objectives compatibility	0.8999		0.5895
		(0.0004)		*(0.0001)*
S2.Q3.L4	sales network	- 0.4802		- 0.1956
		(0.0091)		*(0.1095)*
S2.Q3.L5	market position	- 0.9947	- 1.6243	- 0.3551
		(0.0002)	*(0.0040)*	*(0.0071)*
S2.Q4	partners assessed	0.0451		0.0185
		(0.0001)		*(0.0006)*
S2.Q5	size of partner	- 0.4354	1.0665	
		(0.0326)	*(0.0498)*	
S2.Q6.L2	p. selection:			
	mutual needs		- 1.5281	
			(0.0296)	
S2.Q6.L3	reputation		- 1.2057	0.2745
			(0.0294)	*(0.0608)*
S2.Q6.L4	compatibility objvectives		- 2.3029	
			(0.0034)	
S2.Q7.L1	p. contribution:			
	employee provided	- 0.9248		- 0.1940
		(0.0001)		*(0.0438)*
S2.Q7.L5	market knowledge	1.1870		
		(0.0001)		
S2.Q8.L1	j-v dependency on p:			
	financial resources			- 0.3766
				(0.0010)
S2.Q8.L3	production process	0.8491	- 1.6906	0.2667
		(0.0001)	*(0.0002)*	*(0.0137)*
S2.Q8.L4	marketing	- 0.5570		
		(0.0009)		
S2.Q8.L5	H.R.M.		1.1999	0.2035
			(0.0017)	*(0.0332)*
S2.Q8.L8	distribution process		- 0.6835	- 0.1680
			(0.0378)	*(0.0733)*
S2.Q9.L2	j-v location: competitor present	0.6294		
		(0.0012)		
S3.Q2.L1	j-v creation purposes:			
	control raw materials		- 1.2199	
			(0.0037)	
S3.Q2.L2	extend R&D	- 0.7754		- 0.3281
		(0.0001)		*(0.0003)*
S3.Q2.L3	product rationalization	- 0.8600		- 0.3714
		(0.0001)		*(0.0018)*

S3.Q2.L4	saturation home market	- 0.4060 *(0.0089)*		
S3.Q2.L5	accelerate entry	0.3418 *(0.0519)*		
S3.Q2.L9	secure sale network			0.2865 *(0.0040)*
S3.Q4	who initiated the venture	- 1.2018 *(0.0013)*		
S4.Q5	jv-parent meeting frequency		- 1.7881 *(0.0027)*	
S4.Q6.L3	control mechanisms: approval decisions	0.3435 *(0.0371)*		
S4.Q6.L5	attractive career	0.5028 *(0.0054)*		
S4.Q6.L6	legal contract		1.1745 *(0.0414)*	
S4.Q6.L7	personnel j-v are former employee	- 0.3692 *(0.0658)*		
S5.Q2.L1	j-v evaluation : profitability		1.7247 *(0.0024)*	
S5.Q2.L2	market share		- 0.3403 *(0.5774)*	
S5.Q2.L3	reputation		2.3578 *(0.0005)*	
S5.Q2.L6	parent group	- 0.5338 *(0.0161)*	- 3.7331 *(0.0003)*	- 0.2144 *(0.1410)*
S5.Q2.L8	Co. better than partner	0.4529 *(0.0536)*		
S5.Q6.L3	influential resources: technology know-how			- 0.2632 *(0.0539)*
S5.Q6.L5	managerial			- 0.2984 *(0.0408)*
S5.Q10	j-v should come to an end		1.3489 *(0.0085)*	0.3137 *(0.0141)*
Constant		- 0.9183 *(0.6143)*	- 1.1792 *(0.7893)*	- 0.5118 *(0.6022)*
Goodness of fit test Pearson $\chi^2 \sim \chi^2$ (DF)		584.8308 *(0.8412)* [620]	55.0033 *(1.00)* [217]	1252.7398 *(0.3267)* [1231]
Log Likelihood for Normality		- 76.0966	- 18.4038	- 159.3095
N		70	42	112

N represents the total number of observations
p stands for parent company j-v stands for joint-venture company

Marginal significance levels are displayed as *(.)* Degrees of freedom are displayed as [.]

Note: Since the chi-square is small (p>0.100), fiducial limits will be calculated using a t value of 1.96

Table IV *Coefficient estimate of probit analysis on joint-venture's operation performance*

Question Number	*Independent Variable*	*Estimate*		
		Japanese Sample	European Sample	Full Sample
S1.Q4	market concentration			- 0.4461 *(0.1205)*
S2.Q3.L1	p. identification:			
	business relatedness	0.2505 *(0.0920)*		
S2.Q3.L3	objectives compatibility	1.2601 *(0.0001)*		
S2.Q5	size of partner		- 1.0455 *(0.0499)*	
S2.Q6.L1	p. selection:			
	complementarity skills & resources		1.1659 *(0.1282)*	
S2.Q6.L2	mutual needs		- 4.1389 *(0.0034)*	
S2.Q8.L7	j-v dependency p:			
	transfer of products	0.5624 *(0.0014)*		
S2.Q8.L8	distribution process	- 0.3453 *(0.1287)*		
S2.Q9.L3	j-v location: skilled and abundant pop	0.5361 *(0.0102)*	- 1.7444 *(0.0005)*	
S2.Q9.L5	benefit physical infrastructures		- 1.7261 *(0.0149)*	
S2.Q9.L6	benefit political stability		0.8493 *(0.0565)*	
S2.Q9.L7	benefit govt incentives	0.3465 *(0.0537)*		
S3.Q1	strategy pursued	0.6408 *(0.0017)*		
S3.Q2.L3	j-v creation purposes:			
	product rationalization	- 0.9616 *(0.0002)*		
S3.Q2.L4	saturation home market	0.3171 *(0.0827)*	1.4142 *(0.0017)*	
S3.Q2.L5	accelerate entry	0.3509 *(0.1245)*		
S3.Q2.L6	organizational knowledge	- 1.0491 *(0.0002)*		
S3.Q2.L8	overcome govt restrictions		- 0.9133 *(0.1351)*	
S3.Q4	who initiated the venture		- 2.2510 *(0.0188)*	
S4.Q5	jv-parent meeting frequency		1.4447 *(0.0176)*	

S4.Q6.L1	control mechanisms:			
	board directors	- 0.7974		
		(0.0001)		
S4.Q6.L3	approval decisions	0.5326		
		(0.0033)		
S4.Q6.L9	meetings for results		- 1.3940	
			(0.0053)	
S4.Q6.L10	majority ownership in j-v	- 0.4274	1.7316	
		(0.0199)	*(0.0018)*	
S4.Q7	joint-venture autonomy	- 0.5379		
		(0.0367)		
S5.Q2.L1	j-v evaluation :			
	profitability		- 2.1658	
			(0.0142)	
S5.Q2.L3	reputation	1.0286		0.6690
		(0.0010)		*(0.0357)*
S5.Q2.L5	contribution to overall performance	- 0.8126		- 0.5441
		(0.0023)		*(0.0732)*
S5.Q2.L7	contribution to both cies	- 0.3691		
		(0.1321)		
S5.Q2.L8	Co. better than partner	1.2048	- 1.1726	
		(0.0003)	*(0.0374)*	
S5.Q2.L9	bring partner into network		- 1.2561	
			(0.0173)	
S5.Q6.L1	influential resources:			
	human resources	0.4692	- 2.7030	
		(0.0263)	*(0.0164)*	
S5.Q6.L4	production process	- 0.9824		- 0.4421
		(0.0001)		*(0.0927)*
S5.Q6.L5	managerial	- 1.1025		
		(0.0001)		
Constant		- 5.4130	42.2047	3.5042
		(0.0137)	*(0.0035)*	*(0.1854)*
Goodness of fit test		270.6460	64.1503	2712.81
Pearson χ^2 ~ χ^2 (DF)		*(1.00)*	*(1.00)*	*(0.0)*
		[490]	[179]	[1008]
Log Likelihood for Normality		- 60.5530	- 22.6349	- 129.9436
N		70	42	112

N represents the total number of observations
p stands for parent company j-v stands for joint-venture company

Marginal significance levels are displayed as *(.)* Degrees of freedom are displayed as [.]

Note: Since the chi-square is small (p>0.100), fiducial limits will be calculated using a t value of 1.96

APPENDIX 1

The database the paper is build upon is divided in three different groups (Japanese and European parent firms, Joint-venture companies as well as the parent firm - joint-venture "couple"). Firstly, joint-ventures created by European and Japanese MNEs represent 45 companies out of which 15 (33,33%) are EU majority owned, 13 (28,88%) are equally owned whereas Japanese firms hold a majority stake in 17 of them (37,78%). Secondly, out of 42 EU enterprises 14 (33,33%) hold a minority position in their venture compared to 12 (28,57%) which hold a majority position. The 38,09% Test went for 50-50 joint-ventures. Thirdly and finally, 15 (22,38%) Japanese firms invested in 50-50 joint-ventures while 24 (35,82%) and 28 (41,79%) prefere a majority, minority position when venturing respectively. Therefore, 36 (33,02%) companies in this thesis negociated a majority stake in their venture whereas 42 (38,53%) accepted a minority position. Finally, 28,44% chose a 50-50 orientated venture.

Yet, all results must not be taken verbatim. Actually, sometimes both parents and/or one parent and the joint-venture are represented in the database (9 "triples" and 37 "pairs" of partners cases respectively) which indicates that certain results would overlap if added.

APPENDIX 2

As a matter of fact, due to the particularity of qualitative data, normal linear regression model (O.L.S.) could not be performed. Among other problems, the error term does not follow a normal distribution, and is heteroschedastic (Gujarati, 1988). Instead, a probit procedure was computerised. The Probit procedure calculates maximum likelihood estimates of regression parameters and natural threshold response rate for discrete event data. When running a probit analysis, the researcher faced a 'missing value' problem. Actually, the Proc Probit procedure in S.A.S (as in any other statistical software available on the market) does not use any observation which have missing values for any of the independent variables. Since the researcher knew that very few questions had missing values (cf. frequency distribution tables for missing values), and missing values were missing at random which means that missingness is related to the observed data but not to the missing data (cf. the percentage of missingness is always inferior to 9%), two separate methods were investigated to solve the problem.

The first option requires the missing values to be set to the average answer of the all lot of observations for this particular variable. Yet, at that moment, the researcher introduces a statistical bias (one variable is not free anymore but dependent on other's answer). It could be that the general manager who filled out the questionnaire deliberately miss the variable for many particular reasons specific to this company. Therefore, the missing value can not assumed to be identical to the average answer for this particular variable. Furthermore, this average option would decrease the variance, increase the F statistic and then the level of significance of an infinite number of variables. However, this procedure follow the rule of thumb which all in all could have a zero effect.

A second option was to set the missing values to zero. This method is preconceive and/or questionnaire independent. Furthermore, it is more conservative than the first one in the sense that the variance will increase (i.e. the mean squared error in $F =$ mean squared model! mean squared error will increase), the F statistic will decrease and so will the level of significance. Yet, the major problem remains the importance the software analysis will give to

the missing value. Having been set to zero, the extreme value will be given too much importance.

For the safety of the analysis, the three methods were performed (regressions with observations with missing values set to the mean , regressions with observation with missing values set to zero and regressions without observation with missing values). These methods were highly conflicting in the results produced.

Having restricted the analysis to two methods (the method which drops the observations with missing values and the method which set the missing values to the mean), the researcher reran four different regressions. Actually, for each of the above mentioned method, two regressions -one which excludes missing values and one which keeps them within the multivariate analysis- were reprocessed. At that moment, one must admit that there is no scientific evidence that neither are those methods statistically incorrect nor is one method better than the other; one introduces an error term while the other which restricts the analysis to the units with all variables observed discards a considerable amount of information on the observed firms.

In the case of Missing At Random (as opposed to Missing Completely At Random - M.C.A.R- where missing values- are observed and missing data independent), the completely observed units are not a random sample of the original sample, and therefore the resulting estimates are biased. Yet, the intuitive approach which does not exclude observation with missing values appears to be similar in concept to a more mathematical correct procedure.

The Expected Maximisation Algorithm (EM) technique just improves the accuracy of the mean used to fill out the missing values. The EM Algorithm is a method that relates maximum likelihood estimation of an unknown parameter Ø from a function $L(Ø \mid Y_{obs.})$ where Yobs. are the observed data in the sample to maximum likelihood estimation based on the complete-data log likelihood $L(Ø \mid Y)$. This method run according to the following steps:

1- replace missing values by estimated values,

2- estimates parameters,

3- reestimates the missing values assuming the new parameter estimates are correct,

4- reestimates parameters, and so forth, iterating until convergence.

Indeed, according to Little & Rubin (1987),

"while the M step in the EM Algorithm uses the computational methods as ML estimation from a log likelihood for a model with complete data, Assuming, Y = (Yobs, Ymiss) and L(Ø | Yobs) = $\int f$ (Yobs,Ymiss | Ø) *d*Ymiss..... the E step finds the conditional expectations of the 'missing data' given the observed data and current estimated parameters and then, substitutes these expectations for the 'missing data'. The quotations around 'missing data' are there because the missing values themselves are not necessarily being substituted by EM. The key idea of EM, which delineates it from the ad hoc idea of filling in missing values and iterating, is that 'missing data' is not Ymiss but the function of Ymiss appearing in the complete-data log likelihood, that is L(Ø | Y)." (p 130)

This method was performed with *BMDP software* (Dixon, 1983) and the model converges after only five iterations which definitively accredits the method under which missing values were set to the mean.

To conclude, another S.A.S. procedure was computed to interpret and analyse the influence of the last entered independent on the dependent variable (which keeps the other influences constant). This partial correlation analysis appears to be very useful in determining the respective influence of the explanatory variables on the explained one.

In top of respecting the statistical -as opposed to the traditional- rules necessary to conduct this kind of empirical research, the researcher pioneered the utilisation of the EM Algorithm technique which, bas far as the researcher is aware of, bas never been incorporated in any of the recent survey of this nature.