

RESEARCH NOTES AND COMMUNICATIONS

ASYMMETRIC INFORMATION AND JOINT VENTURE PERFORMANCE: THEORY AND EVIDENCE FOR DOMESTIC AND INTERNATIONAL JOINT VENTURES

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The increased number of perspectives on joint ventures (JVs) raises important issues for theory development on interfirm collaboration. In this paper, we bring together two key theoretical perspectives on joint ventures—the asymmetric information perspective and the indigestibility view. On a theoretical level, we focus on the relationship between these two different explanations of joint ventures. We also present new evidence on the firm valuation effects of JVs in domestic and international investment contexts. The findings lend support to the asymmetric information perspective on resource combination through joint ventures. Copyright © 2000 John Wiley & Sons, Ltd.

INTRODUCTION

The growing prevalence of joint ventures (JVs) and other forms of interfirm collaboration has attracted the attention of many scholars from fields such as economics, international business, marketing, organization theory, sociology, and strategic management. These developments have translated into significant theoretical diversity in extant JV research, with identified motives for collaboration finding their roots in the various theoretical perspectives employed by these different fields. As just one indicator of this diversity, current strategy texts highlight more than a dozen

reasons why firms might engage in interfirm collaboration (e.g., Hitt, Ireland and Hoskisson, 1997; c.f., Koza and Lewin, 1998). The growing variety of theoretical perspectives on joint ventures raises significant questions regarding the complementary or competing nature of these perspectives, their relative explanatory power in different empirical settings, and the specific relationships between theories of joint ventures.

It is within this broader theoretical context that Hennart and Reddy (1997) contrast and test two explanations of joint ventures. First, they posit that a JV is attractive when a firm would face substantial costs of integrating targeted assets through an acquisition (see also Hennart, 1988; Kogut, 1988). They expect that such *ex post* transaction costs will be large when desired assets are commingled with nondesired assets in the target firm. This post-acquisition integration problem is most likely to be substantial when the

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target firm is large in size and employs a non-divisionalized organizational structure. 'Indigestibility' problems are less significant in acquisitions involving either small target firms or targeted assets that are largely isolated within a semi-autonomous division. By contrast, joint ventures are attractive under conditions of indigestibility because JVs enable the expanding firm to link into targeted assets without the need of disentangling these resources. This structural, 'indigestibility' explanation for JVs parallels Kogut and Singh's (1988) argument that firms prefer IJVs over acquisitions when national cultural distance is great and the administrative costs of integrating a foreign management would be correspondingly high.

Second, Hennart and Reddy take up the 'competing' perspective that JVs are attractive vehicles for reducing the uncertainty and costs of valuing complementary assets *ex ante* (Balakrishnan and Koza, 1993). This asymmetric information view suggests that firms will prefer joint ventures over acquisitions when resource valuation problems occur due to the buyer and seller's disparate information sets and the seller's difficulty in credibly signaling the assets' true value. For instance, when the acquiring and target firms operate in different industries, JVs enable the two firms to combine resources in a piecemeal fashion such that the learning that follows allays the adverse selection problem that can arise from initial valuation uncertainties in an outright acquisition (e.g., Akerlof, 1970). However, Hennart and Reddy reject the asymmetric information view of JVs in favor of the 'indigestibility' perspective summarized above. In fact, they find that Japanese entrants into the U.S. are *less* apt to use JVs when the two parties do not manufacture any of the same products and information asymmetries are therefore likely to be problematic. They conjecture that JVs are unattractive as diversification tools and are more suitable for obtaining scale economies when target firms have a dominant position.

In light of these recent findings, the need to bring together different theoretical perspectives on joint ventures, and the importance of the 'indigestibility' and asymmetric information views of JVs to current and future research, this article examines these two perspectives and the relationship between them. On a conceptual level, we propose that the two perspectives are comple-

mentary and overlapping. In particular, we discuss how *ex post* 'indigestibility' problems are likely to contribute to asymmetric information and resource assembly challenges at the *ex ante* valuation stage. We also present new evidence on the firm valuation effects of JV formation in domestic and international investment contexts. The results show that the stock market generally reacts favorably to JV investments when asymmetric information exists between parent firms. In other cases, the market responds negatively or insignificantly to firms' announced JVs. These findings lend support to the asymmetric information view that domestic as well as international JVs are attractive when firms face difficulties valuing complementary resources *ex ante*.

RESOURCE ASSEMBLY THROUGH JOINT VENTURES

Ex ante and *ex post* challenges

Hennart and Reddy emphasize that the 'indigestibility' and asymmetric information explanations of joint ventures are competing theories. The former deals with the 'costs of integrating the target firm's labor force (what has been called the postacquisition integration problem),' while the latter is 'concerned with transaction costs in the market for firms' (1997: 1). In the 'indigestibility' case, resource indivisibilities and management costs associated with integrating a target firm are the key sources of transaction costs. Indivisibilities arise when it is difficult to readily extract desired assets from nondesired assets, and management costs derive from the integration of two sets of employees, each with its own culture and organizational routines. In the asymmetric information view, transaction costs result from resource valuation problems occurring when transacting parties have different information sets and the seller cannot credibly signal the targeted assets' true value.

In our view, the relationship between the 'indigestibility' and asymmetric information perspectives can be characterized in two ways. First, the two explanations are complementary rather than competing. Firms forging together resources need to contend with both *ex ante* valuation uncertainties and *ex post* integration challenges, and both factors can affect the attractiveness of a joint venture relative to an acquisition. Balakrish-

nan and Koza take up the case when assets are completely alienable. Their arguments suggest that an acquisition can be costly and risky vis-à-vis a joint venture even when 'indigestibility' problems do not exist. Under conditions of asymmetric information, a joint venture mitigates the firm's need to engage in costly efforts to reduce valuation uncertainties, as well as the risks of either offering too little and failing to complete the transaction or overpaying for the targeted resources (e.g., Varaiya, 1988). *Ex post* transaction costs due to resource indivisibilities and differing routines can also shape transacting parties' preferences for a joint venture over an acquisition. While Hennart and Reddy's focus is on the assets targeted by entrants into foreign markets, for other combinations the issue of resource indivisibility can be important on both sides of the dyad. For instance, if Firm A would face difficulties acquiring Firm B's resources, the firms could enter a joint venture, or Firm B might acquire Firm A's assets if they are alienable instead. The same logic holds if the identities of A and B are swapped, which suggests that resource indivisibilities for one party need not be a necessary or sufficient condition for JVs in general.

Second, the 'indigestibility' and asymmetric information perspectives on joint ventures are overlapping rather than orthogonal. In particular, the *ex ante* valuation uncertainties highlighted by the asymmetric information view are apt to exist when *ex post* integration challenges noted by the 'indigestibility' perspective are present. For instance, it will be difficult for the acquiring firm to value targeted assets when these resources reside in an organizational context with a unique culture and different routines. Moreover, the *ex ante* valuation problem is exacerbated if desired resources are embedded and shared rather than isolated within a semi-autonomous division of the target firm. Thus, our conclusion is that information asymmetries will tend to be present when 'indigestibility' problems exist, but the converse need not be true. Given that the 'indigestibility' and asymmetric information explanations for joint ventures are complementary and overlapping, it follows that Hennart and Reddy's finding that Japanese firms prefer JVs when 'indigestibility' concerns arise does not permit acceptance of the 'indigestibility' view over the asymmetric information view.

Governance choices and outcomes

Potentially more problematic for the asymmetric information perspective of joint ventures, however, is Hennart and Reddy's finding that Japanese firms tend to enter the U.S. with acquisitions rather than JVs when the parties produce different products and asymmetric information likely exists between the entrant and target firm. This result seems to directly contradict the asymmetric information view, yet it also raises issues regarding the generalizability of the findings and whether results from governance choice models should be carried over to draw conclusions for firm performance.

Prior studies in financial economics and strategic management speak to these issues. Harris and Ravenscraft (1991), for example, examine foreign acquisitions of U.S. firms using a sample from a more diverse set of home countries. They report that in almost three-fourths of the international takeovers, the buyer already had operations in lines of business closely related to those of the U.S. target. Harris and Ravenscraft (1991) conclude that cross-border acquisitions predominate in areas where the buyer has business expertise. Moreover, prior studies on the acquisition relatedness-performance relationship have produced mixed findings (e.g., Barney, 1988). While some work reports a negative effect of relatedness on performance (e.g., Doukas and Travlos, 1988; Eun, Kolodny and Scheraga, 1996), other studies find a positive or insignificant effect (c.f., Chatterjee, 1986; Lubatkin, 1987; Markides and Ittner, 1994; Seth, 1990; Singh and Montgomery, 1987). In fact, some of the worst performing acquisitions involved firms investing free cash flows to diversify into unrelated industries (Shleifer and Vishny, 1991).

After considering these empirical findings and the theoretical issues raised above concerning the overlap between the 'indigestibility' and asymmetric information perspectives on joint ventures, it is not possible based on Hennart and Reddy's evidence to reject the asymmetric information view of joint ventures in favor of the 'indigestibility' perspective. In the remainder of the article, we present an empirical analysis of the firm valuation effects of JV formation using event study methodology to evaluate domestic and international JVs.

METHODOLOGY

Sample and data

The dataset comprises two-parent JVs that terminated during the 1985 to 1995 time horizon by a firm buying out the JV, selling out to a partner or outsider, or liquidating the JV. Predicast's *Funk and Scott (F&S) Index* and Lexis-Nexis' company news library were used to identify venture announcements for a broad cross-section of domestic and international JVs. For purposes of collecting stock returns data, at least one parent firm had to be a publicly-traded, U.S. firm with daily stock returns data obtainable from the Center for Research in Security Prices (CRSP) data files. When the joint venture was based in the U.S., the venture was classified as being international. Governance structures other than parent-child equity joint ventures involving parent firms' joint ownership and control of a separate business entity (e.g., minority investments, partial acquisitions, non-equity alliances, etc.) were not included in the sample due to their different characteristics (e.g., Chi, 1994; Kogut, 1988).

Each of the ventures was classified into one of four information asymmetry groups based on the JV and parent firms' industries at the three-digit SIC level (e.g., see Table 1). In Group I, the JV's industry of operation matches both

parent firms' primary industries. Information asymmetries should be lowest for this group since all three entities operate in the same industry. Group II represents collaborations in which both parent firms operate in the same industry, but the JV operates in a different industry. In Group III, the JV operates in the industry of one parent firm, but the parent firms' primary industries do not match each other. Finally, for Group IV all three entities operate in different industries.

The final sample consisted of 297 domestic and international joint ventures. 8.4 percent of the JVs were in Group I, 6.1 percent were in Group II, 34.7 percent were in Group III, and 50.8 percent were in Group IV. Based on a sample of 64 domestic JVs formed during the mid-1970s, Balakrishnan and Koza reported that 11 ventures (or 17.2 percent) involved parent firms in the same 3- or 4-digit SIC. As such, despite the fact that the present sample includes more recent ventures as well as international JVs, the proportion of ventures between parent firms in the same industry is comparable (i.e., 14.5 percent in Groups I and II vs. 17.2 percent in Balakrishnan and Koza). Roughly half of the ventures (i.e., 45.1 percent) were based outside of the U.S., and 60.3 percent of the JVs operated in manufacturing industries.

Table 1. Abnormal returns from forming domestic joint ventures^a

Parent and JV Relations ^b :	Group I	Group II	Group III	Group IV
$P_1 - P_2$	A - A	A - A	A - B	A - B
$\backslash /$	$\backslash /$	$\backslash /$	$\backslash /$	$\backslash /$
JV ₁₂	A	B	A	C
Event day (t)				
-2	-0.031	-1.034*	0.330	-0.197
-1	-0.096	-0.081	0.444	0.150
0	-0.389	1.099	-0.500	0.085
1	0.184	0.731	0.717‡	0.418*
2	-0.081	0.783	0.115	-0.415†
CAR _{-1,1}	-0.301	1.749	0.661	0.653*
N	15	13	43	92

^a ‡ p < 0.15, † p < 0.10, * p < 0.05, ** p < 0.01

^b Key to the Four Groups:

I: Both parent firms and the JV are in the same industry.

II: Parent firms are in the same industry, but the JV operates in a different industry.

III: The JV operates in the industry of only one parent firm.

IV: All three entities are in different industries.

Analytical technique

The firm valuation effects of JV formation were measured using event study methodology. The Sharpe-Lintner market model was used as a benchmark for generating firm-specific forecast returns (i.e., $R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}$, $t \in [-250, -50]$), where R_{it} is firm i 's stock return on day t , R_{mt} is the value-weighted stock return on day t , and ϵ_{it} is the error term assumed to be distributed $N(0, \sigma^2)$. We then calculated risk-adjusted abnormal returns (i.e., $AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt})$) for trading days surrounding the announcement as well as cumulative abnormal returns (CARs) over days $t = -1$ to $t = 1$ (i.e., $CAR_i = \sum_{t=-1}^1 AR_{it}$).

RESULTS

Consistent with prior research reporting a positive average firm valuation effect of JV formation (e.g., Koh and Venkatraman, 1991; McConnell and Nantell, 1985; Park and Kim, 1997; Woolridge and Snow, 1990), the mean CAR for the full sample is 0.439 percent ($p < 0.05$), which indicates JV formation announcements are generally received favorably by the stock market. The average CAR from domestic JV formation announcements is 0.655 percent ($p < 0.05$), and the mean abnormal return on trading day $t = 1$ is 0.500 ($p < 0.01$). For JVs based outside of the U.S., the mean CAR is 0.177 percent (n.s.), and the mean abnormal return on the announcement date is 0.357 percent ($p < 0.05$). As such, there is evidence that both domestic and international JVs enhance firm value in general (c.f., Chung, Koford and Lee, 1993; Finnerty, Owers and Rogers, 1986; Lee and Wyatt, 1990).

For the entire sample of domestic and international joint ventures, the mean CAR for each of the four groups is -0.497 percent for Group I (n.s.), 1.361 percent for Group II (n.s.), 0.635 percent for Group III ($p < 0.05$), and 0.350 percent for Group IV ($p < 0.15$). As such, the shareholder wealth effects of JV formation are insignificant for joint ventures in Groups I and II and positive for ventures in Groups III and IV involving information asymmetry. The mean duration of ventures does not differ across the four groups (i.e., $F = 0.659$; 3,293 d.f.), but JVs based outside of the U.S. were on average longer-lived than domestic

JVs (i.e., 7.21 vs. 5.60 years, $p < 0.01$) (c.f., Park and Ungson, 1997).

Table 1 presents mean abnormal returns for domestic JVs for each of the four groups. None of the average abnormal returns or CARs are significantly different from zero for ventures in Group I. For cases in which the parent firms are based in the same industry but the JV operates in a different industry (i.e., Group II), the mean CAR is not significant and the average abnormal return on day $t = -2$ is -1.034 percent ($p < 0.05$). Given the small sample sizes of Groups I and II, we also examined the stock market reactions for these two groups together. This analysis similarly produced an insignificant CAR and a negative mean abnormal return on day $t = -2$ (i.e., -0.496 percent, $p < 0.15$).

Positive mean abnormal returns are evident for Groups III and IV involving asymmetric information between parent firms. The average abnormal return is 0.717 percent ($p < 0.15$) for Group III on day $t = 1$, though the CAR of 0.661 percent does not reach significance.¹ For Group IV comprising collaborations in which all three entities are in different industries, the average abnormal return for the day after the JV formation announcement is 0.418 percent ($p < 0.05$), and the mean CAR is 0.653 percent ($p < 0.05$). When Groups III and IV are combined to create a subsample of collaborations for which information asymmetries exist between parent firms, the mean abnormal return is 0.513 percent on the day after the JV formation announcement, and the mean CAR is 0.655 percent (both $p < 0.05$).

Table 2 provides average abnormal returns for international JVs for each of the four information asymmetry groups.² As earlier, no positive average abnormal returns or CARs are evident for Groups I or II involving parent firms in the same

¹ To address the symmetric treatment of partners within Group III due to measuring abnormal returns to one party, we differentiated JVs that operated in the core business of the focal firm from JVs that operated in the core business of the partner. We then examined the CARs and abnormal returns for these two subgroups. In none of the resulting six two-sample t-tests was the mean market reaction significantly different across these two subgroups. The same insignificant results were obtained for the six tests for the IJV portfolio.

² For each of the four information asymmetry groups in both the domestic and international portfolios, we also developed subsamples for foreign-partner and two-party American ventures, and two-sample t-tests for the tables' cells revealed no evidence that abnormal returns differ across these two subgroups.

Table 2. Abnormal returns from forming international joint ventures^c

Parent and JV Relations ^d :	Group I	Group II	Group III	Group IV
$ \begin{array}{c} P_1 - P_2 \\ \backslash \quad / \\ JV_{12} \end{array} $	$ \begin{array}{c} A - A \\ \backslash \quad / \\ A \end{array} $	$ \begin{array}{c} A - A \\ \backslash \quad / \\ B \end{array} $	$ \begin{array}{c} A - B \\ \backslash \quad / \\ A \end{array} $	$ \begin{array}{c} A - B \\ \backslash \quad / \\ C \end{array} $
Event Day (t):				
-2	0.052	0.435	-0.216	0.228
-1	0.152	-0.481	0.142	-0.238
0	0.005	-0.258	0.637**	0.183
1	-0.948*	1.090	-0.162	-0.066
2	-0.019	-0.605	0.194	0.063
CAR _{-1,1}	-0.791	0.351	0.617 ^d	-0.121
N	10	5	60	59

^c $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

^d Key to the Four Groups:

- I: Both parent firms and the JV are in the same industry.
 II: Parent firms are in the same industry, but the JV operates in a different industry.
 III: The JV operates in the industry of only one parent firm.
 IV: All three entities are in different industries.

industry. For Group I, the mean abnormal return is -0.948 percent ($p < 0.05$) on the day after the JV formation announcement, and the mean CAR is insignificant. For Group II, all of the average abnormal returns and the mean CAR are insignificant. When Groups I and II are pooled, all of the average abnormal returns and the mean CAR are likewise not significant. Hence, the stock market reacts negatively or insignificantly to domestic as well as international JV formation announcements in the absence of asymmetric information between parent firms.

The average abnormal returns for Groups III and IV are positive and larger than for Groups I and II (i.e., $t = 1.53$ on day $t = 0$). For Group III, the mean abnormal return is 0.637 percent ($p < 0.01$) on the announcement date, and the mean CAR is 0.617 percent ($p < 0.10$). No significant mean abnormal returns are evident for Group IV, however. This anomalous result contrasts our positive finding for domestic joint ventures in the same information asymmetry group (i.e., Group IV) and the positive results for Group III for both the international and domestic portfolios. When Groups III and IV are pooled together for the international portfolio, the average abnormal return is 0.412 percent ($p < 0.01$) on the announcement date. As before for the

sample of domestic JVs, there is some evidence that the stock market responds favorably to international JV formations when there are information asymmetries between parents.

CONCLUSION

Based on the questions raised by the growing diversity of theoretical perspectives on joint ventures as well as Hennart and Reddy's theoretical arguments and conclusions on the relative merits of the asymmetric information and 'indigestibility' views of JVs, this article sought to consider these two perspectives and the relationship between them. On a conceptual level, we submitted that the perspectives are complementary and overlapping, suggesting that firms need to contend with both *ex ante* valuation uncertainties and *ex post* integration challenges when assembling resources. We also proposed that *ex ante* valuation problems arise when resources are located in an organizational context with its own unique routines and when resources are shared rather than isolated within a semi-autonomous division of the target firm. This indicates that information asymmetries tend to be present when 'indigestibility' problems exist, but the converse need not

be true. These theoretical considerations on the relationship between the asymmetric information and 'indigestibility' perspectives on joint ventures and prior evidence on acquisitions in strategy and finance research lead us to conclude that the two views are not competing and that the asymmetric information perspective cannot be rejected in favor of the 'indigestibility' view based on Hennart and Reddy's evidence.

In the empirical portion of the present article, we examined the firm valuation effects of JV formation using a new data base containing more recent ventures as well as international JVs. Like Balakrishnan and Koza, we found that the stock market generally judges favorably those JVs formed under conditions of asymmetric information between transacting parties. Conversely, the market is more apt to respond negatively to JV formation when no asymmetric information is present between parent firms. In broad terms, the value the market attaches to diversifying JVs is also consistent with the learning, option perspective on joint ventures (Kogut, 1991).

The growing number of different forms of interfirm collaboration as well the theories used to understand them raises important questions regarding the relationships between these theories and their relative explanatory power overall and in different empirical settings. The present article is confined to examining the relationship between two explanations of joint ventures resting on transaction cost rationales that have proven fruitful to research on joint ventures during the past decade. It remains for future research to address other implications of asymmetric information or 'indigestibility' beyond firms' initial governance choices or valuation effects. As collaboration increases in significance for practitioners and the alliance literature continues to develop in a fragmentary fashion, we hope that this article also provides an impetus for additional work on core theoretical concepts in the collaborative strategy area.

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