RI HUB

RESEARCH NOTE #9

RULE 10: DEVELOP STRATEGIC ALLIANCES

The Ruthven Institute has developed 12 rules for business success. Based on 45 years of analysis of Australia's top 1000 companies, the Ruthven Institute has distilled the essence of a winning business strategy. Research undertaken by the University of Melbourne between 1998 and 2001 supported many of these rules. In this series, the RI Hub examines the literature to assess the validity and continuing relevance of these rules. In each of the following sections, the literature is summarised, the key issues for implementation highlighted, and the questions for future research identified.

> "We live and work in a hypercompetitive economic landscape. It is more critical than ever to have allies; and this principle applies equally to businesses in both goods- and services-based industries. Allies can be local, international or both; and they can operate horizontally, in parallel, upstream or downstream to one's own business (or all of these). [Contracts] can be short-term alliances – annual or seasonal – but are increasingly for longer periods. Overseas expansion often involves taking 'minders' with the [company], or finding alliance partners in the chosen countries. The minders can be as varied as the Australian Trade and Investment Commission (Austrade), one's bank, the business's auditor/chartered accountants or an international advertising agency, among others."
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> Ruthven Institute (2019) *Business Success: In Brief the 12 Golden Rules*

Alliances: their benefits and their costs

Alliances are voluntary arrangements where partners share resources and/or capabilities to attain, sustain, or improve their competitiveness (Gils & Zwart, 2004; Gulati, 1998). Alliances may take different forms, including long-term contracts, joint ventures (i.e., equity alliances), licensing, franchising, and lending contracts (Hennart 2006). They can also be maintained with horizontal, upstream, or downstream partners.

There is agreement among researchers and practitioners that alliances may make a firm vulnerable to knowledge leakage and weaker IP appropriability, and safeguards set up to alleviate the concerns over partner reputation and credible commitment may significantly reduce the value created by alliances (Hill, 1990; Oxley, 1997; Teece, 1986; Williamson, 1991). So why are firms willing to cooperate, even with their competitors? The simple answer is that, as aptly expressed by Powell, Koput, and Smith-Doerr (1996), no single firm has all the internal capabilities necessary for success, especially when many competitors are working toward the same targets.

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This necessitates interfirm collaboration to achieve certain goals (e.g., internal development of a specific service or a product) not attainable or too costly to attain by a single firm. It is true that firms can rely on market transactions (e.g., outsourcing) for certain tasks that need not be internalised or are costly to execute, but this alternative has its own costs as discussed below. Furthermore, the acquisition of some skills and capabilities may be possible only through close observation and emulation of the best players (Hamel, 1991).

Transaction cost theory has been one of the earliest and most influential frameworks used by researchers to examine alliances. In general, transaction costs consist of the costs to plan, adapt, and monitor the completion of a task (Williamson, 1981). These costs affect the degree to which firms rely on market transactions or internalise activities (Williamson, 1991). Market transactions incur search and negotiation costs which vary with the levels of information in the market, the complexity of the intended trade, and the scope for opportunism by the parties involved. Internalisation triggers managerial costs including incentives for performance. As alternative governance modes, reliance on market transactions and internalisation differ in the degree of control afforded to the firm, adaptability, and the incentive intensity (i.e., the strength of incentives offered for achieving performance targets) within the firm versus between firms.

Williamson (1991) proposes that under certain conditions, a "hybrid mode" of transactions – such as long-term contracting, reciprocal trading, and franchising – will have lower costs and hence, can be used as a more flexible means of transacting for firms. Transaction costs for hybrid modes are the costs stemming from bargaining, renegotiation, and safeguarding contracts. A "hybrid mode" of transactions is less costly under some conditions because it largely preserves the firm's autonomy and its ability to react independently (i.e., without needing to consult with other firms) to market demand and supply fluctuations, but dampens incentive intensity due to contractual obligations set in place to safeguard the contracting parties (Williamson, 1991). The hybrid modes of transactions are expected to have lower costs within an intermediate range of asset specificity and when the environmental uncertainty and the uncertainty regarding partner reputation and knowledge appropriability is low.[1] When the transaction costs that

1 Asset specifity refers to the extent to which an asset would be valuable if deployed for other purposes (mainly in an interfirm transaction). For example, plastic sheets have negligible asset specifity, whereas chip-making machines have very high asset specifity. In the context of asset specificity, assets can be a physical or a human asset. Asset specificity can also be procedural, i.e. when workflows and processes are customised to the transaction (Zaheer & Venkatraman, 1994). High specificity limits the ability of parties to find a second best transaction and thus affects bargaining power.

that stem from these factors are high, partners may find it beneficial to develop relational norms and trust to reduce them.[2]

Transaction cost economics, though very influential, is certainly not the only framework used by researchers to examine alliances. As Kogut (1988) notes, in deciding whether to form an alliance, a firm may act strategically rather than according to a criterion of minimising the sum of production and transaction costs. A firm that approaches interfirm collaboration strategically will instead choose the mode that enhances its competitive position the most vis-à-vis its rivals. For example, alliances and networks may be established to increase market share and access new markets (Hagedoorn, 1993; Hennart, 1988), or to be able to compete against a competing network of firms (Das & Teng, 2002). Horizontal alliances can also be used to reduce the uncertainties that arise from unpredictable demand conditions (Burgers, Hill, & Kim, 1993).

Alternatively, a firm may want to form an alliance as a means of expanding its knowledge base (Kogut, 1988). Strategic alliances may help the firm to acquire necessary skills more efficiently, reduce the innovation and product delivery time span, expose it to new ideas and information, and enhance organisational learning (Hagedoorn, 1993; Hamel, 1991; McEvily & Zaheer, 1999; Powell et al., 1996). This motive for collaboration has often been explored in later studies as part of the resource-based view of the firm (RBV). RBV posits that alliances provide access to partner-owned resources and thus have value-creation potential (Das & Teng, 2000; Stuart, 2000). These resources can be tangible or intangible, such as human resources, R&D investments and technology, financial assets, and reputation. RBV considers the alliances that enable the pooling of complementary assets or capabilities especially valuable (Dyer & Singh, 1998). This applies at both the dyadic alliances level and the alliance networks level (Chung, Singh, & Lee, 2000; Wassmer & Dussauge, 2012).

Considering the great number of motives for collaboration, some researchers have classified them under two broad categories: exploration or exploitation alliances (Koza & Lewin, 1998). Exploration alliances focus on discovering new opportunities for wealth creation through innovation, knowledge sharing, building new capabilities,

2 See Noordewier, John, and Nevin (1990), Gulati (1995), Uzzi (1997), Zaheer, McEvily, and Perrone (1998), Artz and Brush (2000), and Robson, Katsikeas, and Bello (2008) for related studies. Relational contracts can also mitigate the inability to extend long trade credit terms (Breza & Liberman, 2017), which can help the firm to better manage its finances and risk (see Rule 9 research note for more).

and entering new lines of business. Exploitation alliances aim at improving and refining existing capabilities, increasing efficiencies, achieving economies of scale through resource pooling, gaining access to new markets through partner networks, or leveraging complementary resources controlled by partners.

An additional domain for exploring alliances is the international arena. Each of the aforementioned motivations and delineations also applies to cross-border alliances. The predominant alliance form in terms of research attention has been the international joint venture (IJV). IJVs are often portrayed as an alternative foreign entry mode, or organisational form for foreign operations, to wholly-owned overseas subsidiaries (Anderson & Gatignon, 1986). As such, IJVs have been cast as a means to facilitate knowledge transfer and learning (Lyles & Salk, 1996; Nippa & Reuer, 2019), to overcome cultural barriers (Tihanyi, Griffith, & Russell, 2005), to mitigate host government hostility to foreign ownership (Luo 2004, 2005), as well as reduce transaction costs and risk (Buckley & Casson, 1998; Hennart, 2019). IJVs form part of the broader spectrum of cooperative organisational and transactional forms which firms may adopt to build advantages internationally (Hennart, 2006, 2009; Pitelis & Teece, 2018). These include non-equity alliances (e.g., R&D consortia, strategic partnerships), franchising (Dunning, Pak, & Beldona, 2007), and licensing (Aulakh, Jiang, & Li, 2013). Among the determinants of mode choice here are desired speed of entry, risk appetite, and resource gaps (Casillas & Moreno-Menéndez, 2014; Chen, Puig, & Paul, 2017).

Strategic alliances and firm performance

Since collaboration among firms take many forms and are forged for various purposes, their impact on firm performance has been investigated by a number of distinct but interrelated streams of literature. The two most populous research streams investigating interfirm relationships are the strategic alliances literature and the networks literature. Central to the networks literature is the concept of embeddedness. Building on Marsden's (1981) work, Uzzi (1996) posits that networks are formed when firms maintain "embedded ties" – ongoing and exclusive relationships among a closely knit group of firms called "structures" – with one another. Network embeddedness then refers to the extent to which a firm is involved in a network of interconnected interfirm relationships (McEvily & Zaheer, 1999). The degree of network embeddedness depends on the number of direct and indirect ties maintained by the firm.[3]

3 Indirect ties are the ties connecting the firm to other organisations in the network with whom the firm does not have direct ties.

Firm performance as measured by innovative output

Given the importance attached in prior research to the impact of interfirm collaboration on a firm's innovative output, in this review we discuss it in a separate subsection. In arguably the first such study, Shan, Walker, and Kogut (1994) found that the number of strategic alliances between innovative but financially constrained startups and established firms was positively associated with the number of patents issued to the startups in their sample. A likely explanation for this finding is that such relationships allow the startups to better focus on innovative activities as the established firms provide other resources. Baum, Calabrese, and Silverman (2000) document similar results in the Canadian setting. More specifically, they provide evidence that biotechnology startups forming alliances with pharmaceutical companies, universities, government labs, and research institutes had higher rates of patenting and R&D growth in their sample.

A common finding in the literature is that not only dyadic relationships between firms but also interfirm networks significantly affect innovation performance. Powell et al. (1996) argue and provide evidence that in an industry where the knowledge base is complex and the sources of expertise widely dispersed, innovation is more likely to happen through networks of learning than in individual firms. Consistent with this evidence, Hagedoorn and Duysters (2002) find that in a dynamic environment, where technology develops at a rapid pace and it is unclear which (group of) firms will be the main carriers of new innovations, exploration alliances are likely to have a greater impact on firms' patent intensity than do exploitation alliances. Furthermore, Faems, Van Looy, and Debackere (2005) document a positive effect of exploration alliances on the success of new products and exploitation alliances on the success of improved (rather than new) products.

A potential implication of these early findings is that interfirm networks act as information conduits that facilitate knowledge exchange (Owen-Smith & Powell, 2004). Knowledge transfer through alliances has also been documented to significantly contribute to the success of venture capital firms (De Clercq & Dimov, 2008). To the extent that alliances foster innovation, even indirect ties are beneficial in such networks as the firm's partners bring to the alliance the knowledge and experience obtained from their collaboration with their other partners (Ahuja, 2000). Consistent with this argument, Ahuja (2000) finds both direct and indirect ties positively affect the patenting rate of US chemicals firms in his sample. However, the relationship between indirect ties and patenting rate is moderated by the number of direct ties.

Later studies in this area have also provided evidence broadly supportive of the positive impact of alliances on innovative output. The factors found to be positively associated with R&D and other alliances include the realisation of new products, the presence and the turnover of new or improved products, the probability of achieving product innovations, and the degree of novelty in those innovations (Becker & Dietz, 2004; Faems et al., 2005; Nieto & Santamaría, 2007).[4] Based on an analysis of networks in the pharmaceutical, chemical, and automotive industries, Gilsing et al. (2008) find that being at the centre of a network improves a firm's innovation performance only if the network density is sufficiently high and the firm's technological distance from its partners is low. Being at the periphery of networks can also be beneficial at a high level of technological distance. The authors explain this result as the peripheral firms having a higher degree of freedom to experiment when they are at a high technological distance from partners. One exception to these findings is documented by Joshi and Nerkar (2011), who show that patent pools inhibit innovation in participating firms.[5]

There has been mixed evidence regarding how alliances with competitors (co-opetition) affect innovation performance. Using a sample of small and medium-sized biotechnology firms, Quintana-Garcia and Benavides-Velasco (2004) provide some evidence that co-opetition is positively associated with the number of product lines and the number of different technologies. Belderbos, Carree, and Lokshin (2004) find R&D collaboration with competitors positively affects the growth of sales per employee from products new to the market. Nieto and Santamaría (2007), however, find no significant relationship between co-opetition and incremental innovation and a negative relationship between co-opetition and more novel product innovation. The mixed findings can likely be explained, at least to a certain extent, by the environmental conditions affecting the success rate of alliances with competitors. For example, Ritala (2012) finds that co-opetition is likely to improve the allies' innovation performance under high market uncertainty, low competition, and high network externalities (e.g., when the collaboration leads to better interoperability and compatibility between the competing products).

Firm performance as measured by accounting ratios

While interfirm collaborations appear to positively affect firms' innovation performance, the evidence on whether they help improve firm profitability is more

4 Each of these studies uses a sample of firms from different countries (Germany, Belgium, and the US, respectively).

5 Patent pools refer to R&D consortia whereby firms participating in the consortium agree to cross-license their patents to one another.

mixed. A survey of the relevant literature suggests that alliances do have a significantly positive effect on profitability, but the effect is usually conditional on some third factor. Empirical evidence points to several such mediating and/or moderating factors, which can be at the alliance level (e.g., different types of alliances) or at the network level (e.g., network density, firm's position in the network) as discussed below. Relatedly, alliances are established to overcome different issues, and the resolution of some of these issues may contribute to firm performance to a greater extent than others. Hennart (2006) specifies several additional factors that may affect the performance of an alliance, such as the structure of the alliance, strategies of each ally, industry structure, interactions between managers, and the resources and attention the alliance receives from each firm.

The above conclusions assume little or no significant contribution to mixed results of research methodologies and data employed in prior research. However, it is likely that at least some of the variation across studies regarding the profitability implications of alliances is driven by sample-related issues such as industry-specific samples, small sample sizes, and/or potentially biased samples. These issues may play a role in shaping empirical results in not only profitability studies but also market value studies. Unfortunately, in many cases sample-related issues are unavoidable as researchers need to collect the data on alliances manually or through interviews, which significantly limits the size and scope of samples used in their studies. Moreover, considering that firm characteristics also affect alliance performance (Zaheer & Bell, 2005), differences across the set of firm-specific controls employed in different studies may lead to inconsistent results. Finally, to the extent that it takes time before firms can reap the benefits from collaborations, the insignificant results may be driven by the relatively short profitability windows examined in some studies. In light of these factors, it is therefore possible that the alliance-profitability relationship is stronger in the real world.

Hagedoorn and Schakenraad (1994) is arguably the earliest study to systematically examine the profitability implications of alliances. Using a sample of 346 companies in the electronics, mechanical engineering, and process industries, they find the association between the number of strategic alliances and profit margin to be significantly positive only in the process industries. Powell et al. (1996) show that collaborative R&D experience and the degree of network centrality positively affect a firm's growth and chances of going public. Based on data obtained from interviews with managers, Uzzi (1996) finds that embeddedness improves firm performance but

only up to a certain threshold, beyond which performance is negatively affected. Firms that connect to their networks through embedded ties tend to have higher chances of survival than those that organise their ties through arm's-length contracting. However, optimal networks are not composed solely of either type of tie but rather integrate the two.

Whether it is the strength of interfirm ties (i.e., relational embeddedness) or the number of such ties/density of the network (i.e., structural embeddedness) that matters for improving firm performance is examined in greater detail by Rowley, Behrens, and Krackhardt (2000). Their results indicate relational and structural embeddedness are alternative ways of reaping benefits from alliances, and the two provide little benefit for firm performance in combination. Additionally, strong ties are found to be more beneficial in environments that demand a high degree of exploitation, while weak ties are more beneficial in environments that demand a relatively high degree of exploration. These findings suggest that developing strong ties in networks with dense interconnections can be redundant and negatively affect firm performance as the resources spent on maintaining such relationships can be better utilised elsewhere. Bae and Gargiulo's (2004) results provide further nuance to these findings. They show that network density is beneficial to the firm's profitability when it has partners with high power and extensive control over key resources, but detrimental otherwise.

Several studies have examined whether there are differences in the impact of interfirm collaboration on profitability across the different types of alliances. Stuart (2000) argues that alliances are access relationships, and hence, their effectiveness depends on the partners' resource profile. Consistent with this rationale, he provides evidence that firms with large or highly innovative allies are likely to have higher sales growth and innovation rates. Baum et al. (2000) find that alliances with pharmaceutical companies, universities, and research institutes – but not those with government labs – increased the revenue growth of Canadian biotechnology startups in their sample. Alliances were likely to yield the highest benefits when they were arranged in a way that allowed access to more diverse information and capabilities. The latter result is consistent with Goerzen's (2007) finding that entering into repeated partnerships – possibly due to trust – may be detrimental to profitability (especially in environments with great technological uncertainty), likely because repeated partnerships may lead to a lack of non-redundant ties that are important for accessing a diverse set of knowledge necessary for maintaining competitive

advantage. Collectively, the results from these three studies may also indicate the value of the complementarity of partners' resources.

Belderbos et al. (2004) investigate the impact of R&D alliances with competitors, suppliers, customers, and universities/research institutes on the performance of a large sample of Dutch companies. Their results indicate R&D collaborations with suppliers and competitors have a positive impact on the growth of value added per employee, while collaborations with universities/research institutes and competitors positively affect the growth of sales per employee from products new to the market. Lin, Yang, and Demirkan (2007) distinguish between exploration and exploitation alliances, and examine whether it is beneficial for a firm to focus on one type of alliances or pursue both (called the ambidextrous approach in the study). They show that an ambidextrous approach is likely to improve firm performance in uncertain environments, but so is a focused approach in stable environments. Moreover, while large firms benefit from ambidexterity, small firms are better off focusing on one type of alliance. İnterestingly, survey evidence from Gils and Zwart (2004) suggests small and medium-sized enterprises are more reluctant to form strategic alliances out of the fear of losing competitive edge due to sharing their know-how. This is despite the finding that young and small firms are likely to benefit more from partnerships with large and innovative firms than do large and old firms (Stuart, 2000).

Similar to the studies discussed above, many of the later studies also document conditional results. Using a sample of 30 international airlines as their sample, Oum et al. (2004) find alliances have a significantly positive impact on profitability only when firms have high-level cooperation. Arend and Amit (2005) fail to provide significant evidence on the positive effect of alliances on return on assets (ROA) and return on equity (ROE). On the contrary, their results suggest a negative association between accounting returns and alliance activity when they control for self-selection bias. However, they also document a positive association between alliance activity and market valuation, suggesting that the negative effect documented for accounting returns might be short-term. Luo (2008) investigates how economic integration (the degree to which alliance members interact to determine an outcome jointly) affects alliance profitability and finds an inverted-U shaped effect, which is consistent with Uzzi (1996). Furthermore, as economic integration increases, trust and procedural justice (the extent to which managers consider the alliance procedures that affect their firms' gains and interests fair) contributes to profitability more strongly.

With respect to the performance implications of co-opetition, Luo, Rindfleisch, and Tse (2007) find that while allying with competitors can be beneficial for profitability, the effect becomes negative if such activity is too high. A potential explanation for this finding is that high-intensity cooperation with competitors risks transferring to them valuable expertise and proprietory information and leaves the firm vulnerable to opportunistic exploitation. Later work by Ritala (2012) documents some of the conditions under which co-opetition is likely to improve firm performance. His results indicate that collaborating with competitors is likely to improve sales growth and profitability under high market uncertainty or low competition or when there are strong network externalities.

Firm performance as measured by the market value of the firm

In the earliest study to explore the market value implications of alliances, McConnell and Nantell (1985) investigate joint ventures (JV) as an alternative to mergers. Upon examining the valuation impact of 136 JVs formed by 210 US companies, they document significant valuation gains following JV announcements by parent firms. The study also finds that the dollar value of gains is generally equally divided between partners, suggesting more significant valuation gains for smaller firms (percentage-wise). Koh and Venkatraman (1991) corroborate these findings, and further show that parents with partners operating in related business lines and parents with a high proportion of business operations related to a JV's operations tend to experience higher valuation gains. These results are consistent with the market value implications of related versus unrelated diversification in the context of mergers (see Rule 1 research note). Chan, Kensinger, Keown, and Martin (1997) document a similarly positive market response to non-equity strategic alliances (both horizontal and non-horizontal alliances). Market value gains from establishing alliances appear to be greater for firms with greater alliance experience and a dedicated alliance function (Anand & Khanna, 2000; Kale, Dyer, & Singh, 2002).[6]

Two studies have examined whether the market reaction to the announcements of strategic alliances differs across different types of alliances. Park and Kim (1999) posit that since industries become more competitive as a result of globalisation, more flexible forms of alliances become more valuable in global industries. Consistent with this argument, they find that in global industries abnormal stock returns to partners forming non-JV alliances are higher than those to partners forming JVs. However, the authors fail to find significant evidence that JVs are significantly more valued than non-JVs in multi-domestic industries.

6 See Kale and Singh (2009) for more on the role alliance management capabilities for the success of alliances.

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Das, Sen, and Sengupta (1998) focus on marketing versus technological alliances. Marketing alliances help firms to stimulate demand, while technological alliances help to reduce (transaction and fixed) costs, facilitate knowledge transfer, and protect against knowledge appropriation by competitors. The results indicate a significantly positive market response to technological, but not to marketing, alliances. This result is consistent with those from Chan et al. (1997) that horizontal alliances involving the transfer or pooling of technical knowledge appear to produce larger market value gains than marketing alliances. These findings can be explained by technological alliances signalling a search for complementary resources to improve competitiveness (Das et al., 1998). Das et al. (1998) further find that the documented effect is more pronounced for small firms, which is consistent with the earlier market valuation studies discussed above and with Stuart's (2000) findings that smaller firms experience greater innovation and sales growth benefits from strategic alliances than do large firms.

The impact of network resources on market valuation has been examined by two studies. Upon analysing the alliance portfolios of 367 US software companies, Lavie (2007) finds that the network's marketing and financial resources positively affect a firm's market value. Partners' technology resources and employee count, however, do not appear to have a significant impact on a firm's market value. Although the latter result is seemingly inconsistent with Stuart's (2000) finding that large and innovative firms make better alliance partners, Lavie (2007) argues that in Stuart's sample (semiconductor industry) different types of partner resources can be considered complementary, and in both studies results suggest the gains derived from network resources increase in the complementarity of shared resources. Lavie (2007) also finds that a firm's market value suffers when its partners have a greater number of alternatives to ally with, which is consistent with Bae and Gargiulo's (2004) arguments that non-substitutable partners can exploit their power on their allies to extract additional benefits.

The interpretation emphasizing the value-enhancing role of resource complementarity in alliances is consistent with that provided by earlier studies such as Chan et al. (1997) and Das et al. (1998) as well as the findings from Wassmer and Dussauge (2012). Wassmer and Dussauge (2012) provide evidence that investors reward alliances with partners whose resources can be synergistically combined with the firm's own resources and the resources accessible through the network. Similarly, investors penalise firms for entering into alliances that lead to substitutable resource combinations.

International Performance

The extensive literature exploring the alliance choices of firms as they internationalise has wrestled with the likely performance effects. First, there is a range of possible performance measures. Zhao, Ma, and Yang (2017), in their meta-analysis of 30 years of studies of the entry mode-performance relationship, distinguish three groups of performance measures: (i) managerial (e.g., perceptions of a subsidiary's performance relative to expectation, reputation, survival rate); (ii) financial (e.g., profitability, return on assets, return on sales); and (iii) operational (e.g., market share, quality, productivity). This diversity of measures reflects the complexity of trying to establish the effects of a choice at a business unit level, and where the strategic expectations are not clear. Second, the choice to use an alliance, and the subsequent selection between alliance types, are highly contingent. Among the contingencies are both internal considerations, such as the firm's broader strategic intent, knowledge, resources and connections, and external factors, such as the host country's institutions, competitive environment, and resource bases.

Not surprisingly, the performance findings are thus mixed. Giachetti, Manzi, and Colapinto's (2019) meta-analysis of 133 studies shows support for claims that greater control of the foreign operations (i.e., wholly-owned subsidiaries or IJVs with higher ownership stakes) outperformed lower control alliances. They also found a range of contingencies (or boundary conditions), the most substantial being that these effects are stronger when entering developing, as opposed to developed, economies. The theoretical argument here is that there is a greater risk of deleterious opportunistic behaviours by alliance partners in such environments, or fewer protections if such problems arise, and that greater control can protect the firm. A meta-analytical study by Zhao et al. (2017) draws a more nuanced conclusion. They find no overall, consistent entry mode-performance relationship. Rather, they find support for the arguments made by Brouthers (2002, 2013) and Shaver (1998) that performance effects are hidden by an endogeneity issue. Put simply, we only see positive performance outcomes from choosing an alliance (or not) when that choice is consistent with the matching contingencies at the firm, strategy, and location level.

Conclusions and future research opportunities

No single organisation has all the internal capabilities required for sustainable success. Interfirm collaborations are a flexible means of transacting that allows the firm to work towards goals that are difficult or too costly to achieve internally, while affording it a higher degree of control than outsourcing. Alliances can reduce

transaction and production costs and allow the partnering firms to take advantage of complementary resources, thus expanding their resource pool and knowledge base. Due to their flexibility and benefits, alliances are increasingly used by firms for a great variety of tasks that were predominantly performed internally until recently. Often they are also an efficient entry mode into foreign markets, making alliances an important tool in internationalisation. However, alliances bring with them certain risks, which may have significant negative effects on firms' chances of survival. These risks include weaker IP appropriability and the increased likelihood of knowledge leakage, especially in collaborations with competitors.

Of the performance metrics we examined in this review, the success rate of entries into foreign markets (i.e., internationalisation) had the weakest link to alliance activity, while innovation had the most consistently positive association with alliance activity. The latter finding is likely driven by the role of dyadic relationships in expanding the partners' knowledge base and the interfirm networks acting as information conduits that facilitate knowledge exchange. An advantage of networks over dyadic relationships is that even indirect ties add value. However, environmental factors may interact with the alliance type to produce outcomes that are not always consistent with this overall conclusion. Network characteristics (e.g., network density, the firm's position in the network) can also influence the strength of this relationship.

Results regarding the positive impact of alliances on financial performance and market value are more mixed and generally contingent on factors such as firm size, alliance type, network characteristics, the strength of the relationship, and environmental conditions. Nevertheless, some common themes are identifiable based on the evidence from this dense literature. First and foremost, an alliance is likely to be more beneficial, and is viewed as such by investors, when it facilitates access to more diverse information and capabilities and when the skills and resources of partners are complementary in nature (i.e., when they can be synergistically combined). Consistent with this reasoning, joint ventures are valued more highly by the market when the partners operate in related lines of business. This finding is also supportive of the claims posited by RI Rule 1. Second, small firms are likely to benefit from alliances to a greater extent than larger firms. Third, there appears to be a threshold level of alliance density and collaboration strength beyond which alliances are detrimental to firm performance, especially when forming alliances with competitors. Likely causes include the difficulty of effectively managing relationships as they increase in number and the greater likelihood of IP

leakage. Trust in interfirm collaborations can help mitigate some of these risks. Finally, the greater the number of alternatives a partner has, the lower the gains from the alliance for the focal firm. Put differently, it helps to be a non-substitutable partner.

Clearly, there is a wide range of alliance opportunities for firms, domestically and when venturing offshore. Intuitively, some of these are likely to be value-enhancing, albeit subject to certain contingencies. As each prior study focuses on a limited set of moderators and mediators, it is not immediately clear if controlling for multiple contingencies would have a significant impact on some of the inferences. A meta-analytical study in this space can shed more light on this issue. Our summary has also highlighted the strong positive link to innovation, which Rule 4 tells us has a performance effect. Likewise, it appears alliances can serve as a form of outsourcing (consistent with Rule 7) and as a complement to focus (Rule 1). We thus recommend including measures of alliance activity (e.g., network embeddedness) in studies of the performance effects of outsourcing, focus, and/or innovation. Alternatively, the mixed results we report on alliance effects could well reflect the failure of many studies in this literature to recognise the likely interactions with the three rules above. In this context, it would also be interesting to see whether the alliance type and the success rate of different alliance types change as the industry goes through stages (e.g., are exploration alliances more fruitful in the growth stage, while exploitation alliances more beneficial in the maturity stage).

One area that has received surprisingly little attention in the strategic alliances literature is how alliances affect firms' borrowing costs and abilities. If maintaining alliances positively affects the partners' survival chances and performance, then it is likely to affect their ability to raise funds, cost of borrowing, and/or the structure of their debt contracts as well. In fact, anecdotal evidence and credit rating methodologies suggest the potentially positive impact of alliances on credit ratings (Fitch Ratings, 2020; S&P, 2019). Another potentially fruitful research opportunity lies in the comparison of alliance performance between public and private firms, because as agents, managers may have different objectives and incentives from private owners. They may also join unprofitable alliances or leave good ones under market pressure. Finally, future research may investigate whether and how the alliance structure and outcomes have changed in the new age economy as the rapid developments in information technologies alleviate communication challenges.

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