

The role of strategic alliances in complementing firm capabilities

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ABSTRACT: *Strategic alliance research emerged to explain alliance formation based upon transaction cost minimisation and opportunism reduction. Later research, and early research from Japan, emphasised the role of alliances in facilitating the transfer of knowledge between organisations. Most recently, alliance research has focussed on the development of shared, potentially idiosyncratic, resource stocks. This paper builds on this recent research, testing the proposition that alliances are important vehicles allowing firms to access or acquire external resources, hence shoring up capability gaps and building new capabilities as required during firm, product and industry life cycles. Using a sample from Australian manufacturing small-and-medium-sized enterprises, the paper reveals that alliances employed by firms can be viewed as initiatives to either fill a gap in the firm's resource stock or to exploit a perceived opportunity in its operational and strategic environment.*

KEYWORDS: strategic alliances, resource based view, contingency, knowledge search, risk aversion, efficiency seeking

As a subset of the strategic management literature, strategic alliance research has developed from an analysis of transaction-cost and opportunism reduction to a more complex analysis of the exchange of resources (both tangible and intangible) between firms (Nahapiet & Ghoshal, 1998; Teng, 2007). The resource based view (RBV) of strategy emerged, in part, due to the inability of other approaches (notably IO economic and industrial ecology approaches) to provide a capabilities-based rationale for the persistent economic profits (or above average returns) achieved by certain firms in certain industries (Barney, 1991), and also the rapid emergence of innovative firms in some industry sectors (Cho, Park, & Choi, 2011; Eisenhardt & Martin, 2000; Hu & Hsu, 2008; Roper & Hewitt-Dundas, 2008; Schleimer & Shulman, 2011a). Within this context, strategic alliances were seen to provide (potential) the basis for enduring, heterogeneous and boundary-spanning resource bundles for adopter firms.

The strategic management literature also had to deal with the emergence and persistence of inter-organisational alliances as a preferred method of enhancing firm scale and scope (Faems, Van Looy, & Debackere, 2005; Khanna, Gulati, & Nohria, 1998; Nohria & García-Pont, 1991). This was in contrast to the more formalistic methods of direct ownership of resources through

vertical and horizontal expansion (Balakrishnan & Wernerfelt, 1986; Harrigan, 1988) or contractual arrangements between firms (Williamson, 1985) that were more common in previous iterations of strategic management research reflecting common business practices.

Strategic alliances, which might be broadly defined as social and relational arrangements of exchange between economic agents, are by their nature elusive to identify, and hence empirically research. The unit of analysis adopted within strategic alliance research has increasingly emerged to be multilateral arrangements and alliance networks (between firms) and alliance portfolios (within firms), with a concomitant lessening of the focus on bilateral, transactional arrangements between pairs of firms (Agarwal, Croson, & Mahoney, 2010; Lavie, 2007; Puranam, Singh, & Chaudhuri, 2009).

In terms of the exploration versus exploitation trade-off (Gupta, Smith, & Shalley, 2006; March, 1991), alliances can clearly allow for both the acquisition of new competencies and the better use of existing competencies (Flatten, Greve, & Brettel, 2011; Rothaermel & Deeds, 2004; Vermeulen & Barkema, 2001). Alliances can also allow for a reduction of systemic risk, especially early in an industry life cycle (Glaister & Buckley, 1996; Hynes & Wilson, 2012; Rice & Galvin, 2006).

In many respects, these search and risk-mitigation rationales are complementary – especially when firms are involved in standards-based endeavours where decisions taken early in a product life cycle establish future path dependencies with regards to emerging standards and interoperability of firm products and services (Aldrich & Fiol, 1994).

An important caveat, of course, relates to the potential (mis)appropriation of partner intellectual assets within alliances. Managing this dynamic tension within collaborative arrangements is an important role of all alliance partners, and most especially those with limited market power and access to intellectual property enforcement regimes (Katila, Rosenberger, & Eisenhardt, 2008).

Traditionally, alliance arrangements were viewed as formal, transactional and dyadic arrangements (Oxley, 1997; Van de Ven, 1976), driven by classical cost–benefit justifications (Park & Zhou, 2005). Research has tended to focus on larger firms (Lavie, 2007; Sampson, 2007), often at the expense of smaller firm arrangements and also alliance arrangements that are less formalised and publicised. More recently, however, the research focus of some researchers (e.g., Ariño, de la Torre, & Ring, 2005; Street & Cameron, 2007) has widened to include less formal arrangements that may exist between firms of all sizes, including those arrangements aimed at facilitating the exchange of intangible resources between firms, including market knowledge and productivity-related know-how and capabilities (Sakakibara & Dodgson, 2003). With this broadened focus, there has been an acknowledgement of the variety of strategic and operational purposes that these formal and informal alliances serve (Galvin & Rice, 2008; Janowicz-Panjaitan & Noorderhaven, 2008).

Thus, alliances can be understood as mechanisms that extend the resource horizons of firms across its existing boundaries as a means to seek necessary resources and competencies (Giannopoulou, Yström, & Ollila, 2011; Gomes-Casseres, Jaffe, & Hagedoorn, 2006; Oxley & Wada, 2009). In this sense, firm alliances may be seen as enhanced contractual arrangements with

the relational benefits of ongoing collaboration (Dyer & Singh, 1998). Alliances also have dynamic and ongoing characteristics, allowing firms to access exogenous resources and capabilities that may be required in order to enter a perceived or desired market (Vermeulen & Barkema, 2001). This is especially true in instances where the lack of relevant internal resources and capabilities and/or complex market requirements lead to an absence of capacity to respond to market challenges and opportunities (Capron & Mitchell, 2004). Recent developments in the dynamic capabilities literature highlight that alliances are a form of resource acquisition strategy that allow firms to dynamically adapt their technical fitness to the environmental changes by accessing (or obtaining) distant resources (Agarwal & Selen, 2009; Dussauge, Garrette, & Mitchell, 2000; Schleimer & Shulman, 2011b; Vermeulen & Barkema, 2001).

In this paper, something of a departure from previous empirical research on alliance rationales is offered. Much research has explored the dynamics of the strategic rationales underpinning alliances by investigating how they have emerged over time (Gay & Dousset, 2005). Instead of tracing the emergence of the alliance relationship *per se*, we focus on the industry life cycle context of the alliance relationships adopted by firms. We do this by investigating the operational and strategic intentions of the firm before the alliances are implemented, as we consider that firms' strategic foci and intended actions are able to be used to comprehend the changes in their markets (Coriat & Dosi, 2002). In doing this, we explore the relationship between alliance portfolios and the strategic intentions of firms.

We focus here on the type of alliance portfolios (exploratory, operational/efficiency seeking and commercially exploitative) held by a focal firm with a purpose of capability development at a point in time and investigate those strategic intentions as the antecedent business activities of the firms before this point in time. Thus, we seek to better contextualise the changing rationales for the use of alliances in terms of the changing competitive dynamics facing firms during their industry life cycles.

Our aim here is to provide some information as to how the alliance portfolios employed by firms can be viewed as an initiative to either fill a gap in the firm's resource stock or to exploit a perceived opportunity in its operational and strategic environment.

THEORETICAL UNDERPINNINGS AND HYPOTHESES

Alliance arrangements are utilised by organisations for a variety of strategic and operational purposes. In many respects, the uses of such alliances are contingent upon the life cycle of the firm and industry, and the alliances themselves also follow a developmental life cycle from emergence to termination (Peltoniemi, 2011; Rice & Galvin, 2006).

The match-specific surplus available from alliances is derived, to a great degree, from the strategic fit that emerges in terms of the *simpatico* of the relationship. This strategic fit is in turn driven by the convergence of strategic rationales between partners – not necessarily driven by similarities in life cycle stages, but rather by potential complementarities (Rothaermel & Deeds, 2004).

Alliance arrangements as knowledge search vehicles

The emergence of the knowledge based view of organisations has given much impetus to an investigation of alliances as learning mechanisms (Inkpen & Tsang, 2007; Kale, Singh & Perlmutter 2000; Lei, Slocum & Pitts 1997). In such approaches, the alliance serves as a mechanism to transfer (or make available) those intangible resources deemed necessary for as learning needs of the participant firms change, so too will the dynamics of the alliance. Early stage alliances tend to have higher elements of knowledge search, while alliances undertaken as products, this focus is supportive of the concept of the development of relational or social capital between and among participant firms (Huang & Rice, 2012; Koka & Prescott, 2002, 2008; Sakakibara & Cho, 2003).

This theme of inter-organisational learning was explored by Grant and Baden-Fuller (2004) who conceptualised alliances as (essentially) mechanisms for organisational learning that spanned the firm's own boundaries to incorporate

the knowledge and expertise of external economic agents and firms. These authors made the distinction between knowledge accessing and knowledge acquisition, noting that knowledge as an intangible resource tended to be as valuable in terms of ready availability as would be the case if it was internally developed and 'owned' (inasmuch as knowledge is a resource that can be corporately owned).

The theme of inter-organisational learning has been extended from looking at dyadic arrangements between pairs of organisations to include those arrangements between multilateral networks of organisations (Hagedoorn & Duysters, 2002; Mowery, Oxley, & Silverman, 1998). Drawing heavily on social network theory, the authors here focus on the emergence of centrality-related power and influence by key firms in multilateral networks.

Hypothesis 1(a): Firms seeking to introduce new products or services will tend to develop information seeking alliances (for example, R&D alliances) to increase their knowledge stock in subsequent years.

Hypothesis 1(b): Firms seeking to introduce or increase exporting will tend to develop information seeking alliances (for example, R&D alliances) to increase their knowledge stock in subsequent years.

Alliance arrangements as moderators of environmental uncertainty

Alliance research has emerged, like the broader strategic management literature, from a transaction-based approach to one focussed on the exchange of resources (Madhok, 1996). Within this early strategic management literature, alliances were seen as transactional mechanisms for securing operational resources or market position (Williamson, 1979; Joskow, 1987). As such, decisions to enter alliances were determined by a requirement for direct resource exchange or the accrual of market influence (Katz, 1986), rather than the extension of a firm's knowledge resources for non-specific reasons.

Waddock (1991) noted that much academic thinking viewed collaboration between firms, *per se*, as a way of structuring the organisational environment in such a way that uncertainty is reduced. Gresov and Drasin (1997) proposed that

low task uncertainty tends to require a mechanistic relationship arrangement between partners to handle routinized tasks, while horizontal interdependence, organic organisational structures and partner flexibility are more appropriate relationship features where task uncertainty is high. Such findings are consistent with those of Lindsley, Brass, and Thomas (1995), who contended that cross-level relationships within and between firms will be stronger when task uncertainty or complexity is high, and weaker and less defined under low task uncertainty or complexity.

These market power/positioning/development rationales seem to be particularly relevant for firms seeking market growth (Rahman & Korn, 2009). In terms of firm emergence, one would expect that a firm seeking to grow market power and share would have in place competitive products or services, and would be seeking access to new customers through supply chain development initiatives.

Other research has developed a model of hybrid cooperative and competitive behaviour (Brandenburger & Nalebuff, 1996; Gnyawali, He, & Madhavan, 2006) termed co-opetition. Co-opetitive behaviour might have many rationales, including the capacity to differentially access superior resources and hence create sustainable competitive structural positions. Further, the co-opetitive arrangements could be seen to moderate the competitive environment through the reduction of uncertainty and an increase in potential barriers to entry to potential competitors outside the co-opetitive syndicate. It may be posited:

Hypothesis 2(a): Firms with a focus on growing production levels will tend to develop marketing and distribution alliances in subsequent years.

Hypothesis 2(b): Firms with a focus on opening new business locations will tend to develop marketing and distribution alliances in subsequent years.

Alliances as efficiency seeking mechanisms

As firms grow, choices relating to enhancing scale within the firm's boundaries, or outside the firm's boundaries, present themselves. This set of operational and strategic options, termed 'make or buy' (Poppo & Zenger, 1998) actually constitute a continuum of choices whereby managers can attempt

to optimise operational and strategic effectiveness through the synergistic use of internal and external resources (Mudambi & Tallman, 2010).

While both the internalisation and externalisation of productive activity have their own distinct advantages and disadvantages, those transactional arrangements that span the focal firm's boundaries and incorporate the resources and capabilities of external firms (i.e., buy transactions) tend to be more flexible and more able to be contingently applied to sporadic episodes of growth (Hennart, 2007; Williamson, 1975).

Nohria and García-Pont (1991) and García-Pont (1992) viewed alliances as both a mechanism to mitigate market failure in the acquisition of particular resources, and a vehicle to facilitate favourable competitive barriers that could be harnessed by the focal firm as a source of competitive advantage. In their study of the automotive industry, strategic linkages were formed in response to market imperfections for particular resources. That is, alliances were seen to be formed as a direct response to firms requiring access to resources not held internally, and potentially not readily available in the market.

Acquiring resources through relational arrangements that spanned the firm's boundary had the benefit of securing them for the firm, while avoiding the risks associated with internal resource development and ownership. Furthermore, alliances could themselves create sustainable competitive advantage based on the inimitability of their socially complex, path dependent and causally ambiguous nature (c.f. Barney, 1996). Silverman and Baum (2002) note that the increasing web of alliance arrangements creates competitive pressures for firms outside these arrangements, with this consideration spurring the increase in alliance participation across industries.

Hypothesis 3: Firms seeking to decrease production levels will tend to develop production based alliances to increase operational efficiency in subsequent years.

METHODS

Dataset and sample

The paper assesses the hypotheses by modelling longitudinal data from the Business Longitudinal Survey (BLS), available from the Australian Bureau of Statistics (ABS). The purpose of the

BLS was to provide primary statistical information regarding growth and performance characteristics of Australian industrial firms. The BLS provides 4-year panel data (according to Australian financial years from 1994–1995 to 1997–1998) at the firm level. It has been widely utilised in empirical research on Australian businesses in recent years (Huang & Rice, 2009; Liao & Rice, 2010; Steffens, Davidsson, & Fitzsimmons, 2009). These microdata were released under the Australian *Census and Statistics Act 1905* as a confidentialised unit record file (CURF, CD ROM Catalogue No. 8141.0.30.001). Data gathering was restricted to Australian small-and-medium-sized enterprises (SMEs) with less than 200 employees.

We sub-sampled only firms that were engaged in alliances (noted *business links* in the BLS referring to a firm's special business cooperation arrangements, relationships or partnerships rather than those normal supplier–customer links with other businesses). While questions relating to alliance in the BLS were only required to be reported by manufacturing firms and the data were only collected in the financial year 1995–1996, the paper delimited the research scope to the Australian SME manufacturing sector and utilised the former 2 years of the CURF (from 1994–1995 to 1995–1996, as we measured the temporal lag effect of cooperate strategic intentions on alliance portfolios) to undertake the statistical analysis. This left us with a subsample of 584 Australian manufacturing firms.

Measures

Consistent with the hypotheses of the paper, the following variables were drawn from the BLS and measured in terms of corporate strategic intention to pursue capability development through alliances.

Alliance portfolios

The paper defined three variables (as the dependent variables), including operational efficiency, market enhancement and information seeking, to measure the components of firms' alliance portfolios. These three variables were derived from questions in the BLS relating to the underlying intentions of the use of business links and alliances.

Using the Thurstone scaling technique (through the weighted sum according to equivalent weightings to each of the associated dummy variables in the BLS), the measure of operational efficiency was gained from the questions in the BLS relating to the degree to which a firm is engaged in alliances to increase its 'production' and 'purchasing' capabilities; the measure of market enhancement was developed by integrating 'marketing' and 'distribution'; and the measure of information seeking was derived from 'research and development' and 'training'. This re-rating was considered necessary since those business links related to the questions in the BLS were reported solely in dummy variable form.¹ Through this procedure, the paper re-rated those dummy variables into the alliance portfolio measures with a form of three-point Likert intervals.²

For the pre-analysis of the alliance portfolios factor, the paper conducted confirmatory factor analysis (CFA) to assess its reliability and validity. The results showed that the latent factor of alliance portfolios (under the assumption of unidimensionality) had sufficient composite reliability and construct validity with the subsample. The measure of composite reliability was 0.62, being greater than the threshold of 0.6 nominated by Bagozzi and Yi (1988). While the measure of average variance extracted (AVE) was about 0.42, thus not reaching 0.5 (the benchmark of sufficient convergent validity nominated by Fornell, Johnson, Anderson, Cha, & Everitt-Bryant, 1996), the significant convergent validity of the alliance portfolios factor is acceptable as all of its

¹ The direct use of dummy variables as endogenous variables for the exploration of a latent construct is in contravention to the assumption of normality in multivariate statistics that requires endogenous measures on the basis of non-nominal scales.

² While it has long been argued that trichotomous measures (ex. three-point Likert scales) are of limited value in providing sufficient variance for measurement, evidence from Jacoby and Matell (1971) and Lehmann and Hulbert (1977) demonstrates that trichotomous measures are reasonably adequate in measuring scale in statistical analyses due to the appropriate reliability and validity comparing with higher points measures (ex. five- or seven-point Likert scales).

indicators' item factors loadings exceeding 0.5 (at a strong level of significance) (operational efficiency = 0.62, market enhancement = 0.62, information seeking = 0.53, all p values <0.001) (Anderson & Gerbing, 1988; Dunn, Seaker, & Waller, 1994; Nunnally, 1978).

Corporate strategic intentions

Five variables regarding corporate strategic intentions referring to the questions in the BLS regarding the business intentions (that were held by firms for future three-year development and operations) were adopted. Those variables include: 'introduce new products or services'; 'commence or maintain exporting'; 'increase production levels'; 'open new business locations'; and 'decrease production levels'. Consistent with the hypotheses, and allowing for a temporal lag, these five variables were drawn from the preceding financial year's data (1994–1995) that was reported in the BLS CURF. In addition, by definition in the BLS, these five measures were collected through a dummy variable form.

The model applied

The primary analytical technique used in the paper to test the proposed hypotheses was a multiple indicator multiple cause (MIMIC) form in structural equation modelling (SEM, undertaken with AMOS 7.0 with the maximum likelihood [ML] method).

The MIMIC approach has been considered an effective method to explore and identify the causal relationships between multiple dependent variables and independent variables (Jöreskog & Goldberger, 1975; Jöreskog & Sörbom, 1989; Long, 1986). In general, MIMIC could be viewed as a special case in SEM analysis. A single MIMIC model fundamentally comprises two major parts. One is a measurement model, which is used to illustrate the relationships between the latent variable and its observed indicators (e.g., the factor of alliance portfolios); and another part is defined as a structural model, which is to describe the causal effects from observed exogenous causes on the latent variables (e.g., the variables defined in cooperative strategic intentions) (Fornell & Larcker, 1981; Jöreskog & Goldberger, 1975).

For the analysis developed in this paper, we included two groups of control variables that have often been suggested as relevant in alliance-related articles (that were available within the BLS CURF in the financial year 1995–1996), including 'firm characteristics' and 'alliance types'. Firm characteristics data allowed for the control of factors related to firm size (Horst, 1972; Li & Guisinger, 1992) and firm age (Powell, Koput, & Smith-Doerr, 1996). The firm size variables were comprised of measures for total assets and total employees. These two variables were measured by using the linear logarithm transformation to adjust their normality in the paper.

Further, to control for the potential confounding effects from alliance types (Nakos & Brouthers, 2008), we selected three variables available from the BLS relating to the final forms of created business links, which were managed by the selected companies in 1995–1996. These three variables, collected by using a dummy variable form, were 'formation of a new business', 'formal agreement without creating a new business' and 'an informal understanding'.

RESULTS AND ANALYSIS

Table 1 presents the results of descriptive analysis and correlation matrix for the independent variables, control variables and the latent factor of alliance portfolios. The largest correlation is within the variable pair of *firm assets* and *employee numbers* with a value = 0.52, significant at a moderate level. Overall, this reflects that since low correlations are present among independent variables and designed control variables, no imperfect multicollinearity (correlation measures >0.9) is detected between any two independent/control variables in the hypothetical model.

Table 2 presents the results of the hypothesis tests. Model 1 is used to estimate the only effects of the control variables on alliance portfolios. Model 2 is the primary hypothetical model, including the estimation for both independent variables and the control variables, to test the hypotheses proposed in the paper. Model 3 represents the theoretical (proposed) model only reporting the analysis for cooperative strategic intentions.

To analyse the results, we first assess the model fit of the proposed model (Model 3). The model fit

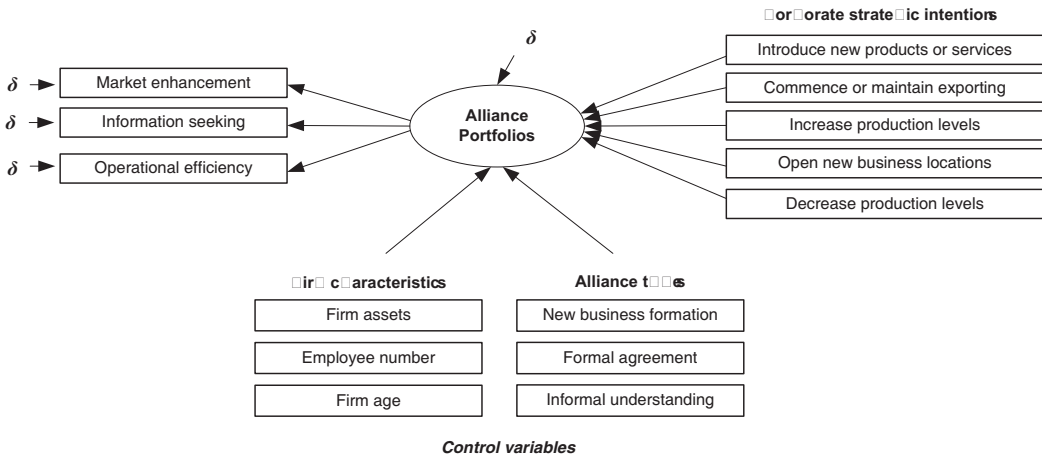


FIGURE 1: THE HYPOTHESISED (MIMIC) MODEL

TABLE 1: DESCRIPTIVE STATISTICS AND CORRELATIONS

	mean	s.d.	1	2	3	4	5	6	7	8	9	10	11
Corporate strategic intentions													
1. Alliance portfolios	0*	1*											
2. Introduce new products or services	0.46	0.50	0.17										
3. Commence or maintain exporting	0.26	0.44	0.35	0.25									
4. Increase production levels	0.40	0.49	0.27	0.25	0.21								
5. Open new business locations	0.19	0.39	-0.09	0.19	0.14	0.11							
6. Decrease production levels	0.29	0.45	0.03	-0.14	0.01	-0.45	-0.13						
Firm characteristics													
7. Firm assets (linear log)	5.96	2.22	0.21	0.03	0.17	0.08	0.08	-0.09					
8. Employee number (linear log)	2.85	1.38	0.14	0.14	0.18	0.10	0.21	-0.11	0.52				
9. Firm age	6.94	4.74	0.15	0.14	0.11	0.04	0.03	0.09	0.25	0.27			
Alliance types													
10. New business formation	0.13	0.33	-0.04	-0.00	0.02	0.10	0.03	-0.08	0.03	0.02	-0.01		
11. Formal agreement	0.33	0.47	0.05	0.08	0.05	-0.01	0.06	-0.04	0.16	0.22	0.07	-0.15	
12. Informal understanding	0.52	0.50	0.02	-0.01	-0.03	-0.03	-0.08	0.03	-0.10	-0.15	-0.05	-0.31	-0.57

s.d.: standard deviation; valid sample size = 584; *The factor of alliance portfolios is presented as a latent variable and measured in a standardised mode with mean = 0 and SD = 1

diagnoses show that the model's statistical specification is considered adequate and fits the sample well. The chi-square (χ^2) test statistics appear to be insignificant at a significance threshold of 0.05 ($df = 9$,

$\chi^2 = 11.82, p = 0.22, \chi^2/df = 1.31$). Alternative indices, including GFI = 0.995 > 0.9, AGFI = 0.980 > 0.9, IFI = 0.995 > 0.95, CFI = 0.995 > 0.95 and RMSEA = 0.023 < 0.05, also meet or exceed the

TABLE 2: ESTIMATION RESULTS OF SEM ANALYSIS (STANDARDISED MODE)

	Model 1	Model 2	Model 3
Firm characteristics			
Firm assets (linear log)	0.177**	0.146*	
Employee number (linear log)	0.026	0.020	
Firm age	0.093+	0.053	
Alliance types			
New business formation	-0.013	-0.036	
Formal agreement	0.046	0.045	
Informal understanding	0.077	0.058	
Corporate strategic intentions			
Introduce new products or services		0.076+	0.085+
Commence or maintain exporting		0.258***	0.273***
Increase production levels		0.274***	0.288***
Open new business locations		-0.170	-0.161
Decrease production levels		0.145**	0.138**
Diagnoses			
χ^2 (df, p)	20.24 (12.06)	30.40 (21.08)	11.82 (9.22)
GFI/AGFI	0.992/0.972	0.993/0.963	0.995/0.980
RMSEA	0.034	0.028	0.023
Adjusted R ² (ΔR^2)	0.06	0.24 (0.18)	0.21

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; + $p < 0.1$. According to the posited hypotheses, p value calculation for the corporate strategic intentions related variables is based on the right-tailed test of the mean

generally accepted benchmarks of model goodness of fit (Bollen & Long, 1993; Hu & Bentler, 1999; Jöreskog & Sörbom, 1989).

To justify the causal relationship between corporate strategic intentions and alliance portfolios, we examine the confounding potentials from the designed control variables. In contrast to Model 1 and Model 2, we find that, overall, control variables from both firm characteristics and alliance types cannot contribute any confounding effects to the relationship between corporate strategic intentions and alliance portfolios. The change of adjusted R^2 from Model 1 to Model 2 increases by 0.18 (from $R^2 = 0.06$ in Model 1 to $R^2 = 0.24$ in Model 2). Moreover, when the measures of cooperative strategic intentions are included in the estimation, the effects of control variables, either from firm characteristics or alliance types, marginally reduce in strength (e.g., the coefficient of firm assets falls from 0.177 to 0.146). These results may tend to

suggest that the variance of alliance portfolios is more relevant to our designed independent variables defined in corporate strategic intentions.

To test our hypotheses, in accordance with the results of Model 2, we investigate the implied indirect effects on various indicators of alliance portfolios from cooperative strategic intentions (see Table 3). Hypotheses 1a and 1b suggest that firms seeking to introduce new products or services (1a) and commencing or increasing exporting (1b) will tend to develop information seeking alliances. The results support these predictions, for Hypothesis 1a, is supported (test statistics = 0.037 and $p < 0.1$). For Hypothesis 1b, test statistics = 0.126 and $p < 0.001$ showing a strong and strongly significant test result.

Hypotheses 2a and 2b predict that firms with the strategic intention of increasing production levels (2a) and opening new business locations (2b) will tend to develop marketing and distribution alliances. These hypotheses are sustained in part by the sample. According to the results of implied indirect effect analysis, the effect of 'open[ing] new business locations' on 'market enhancement' (Hypothesis 2a) appears to be insignificant in a right tailed t -test of the mean (-0.117 , $p > 0.5$). This suggests that firms that seek market growth by means of opening new business locations may not tend to change or extend their existing marketing and distribution related alliances in the Australian manufacturing sector. By contrast, the test for Hypothesis 2b exhibits a very strong level of statistical significance (0.189, $p < 0.001$), indicating that alliances for the purpose of marketing and distribution capability development may be extended and/or developed by those firms with the strategic intention of significantly increasing their own production capacity.

TABLE 3: IMPLIED INDIRECT EFFECTS ON THE INDICATORS OF ALLIANCE PORTFOLIOS (STANDARDISED MODE)

	Independent variables				
	Commence or maintain exporting	Introduce new products or services	Open new business locations	Increase production levels	Decrease production levels
Alliance Portfolios					
Information seeking	0.126***	0.037+			
Market enhancement			-0.117*	0.189***	
Operational efficiency					0.085**

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; + $p < 0.1$; According to the posited hypotheses, p value calculation for the corporate strategic intentions related variables is based on the right-tailed test of the mean

Finally, Hypothesis 3 suggests that to emphasise operational efficiency, firms seeking to decrease production levels will tend to develop production-based alliances. This hypothesis gains support from the sample. The result presents at a strong significance level (0.085, $p < 0.01$), showing that the variance of 'operational efficiency' would vary in accordance with firms' intention to 'decrease production levels'.

CONCLUSION AND DISCUSSION

The main intention of this paper has been to provide empirical evidence to show that alliances, as a form of boundary-spanning capability, may help firms to operate in an uncertain environment by utilising or acquiring specific resources that are held outside their boundaries.

In many respects, a firm's operational and strategic environment will at least partially determine its intended actions. This paper has attempted to provide a multi-faceted MIMIC model to explore the relationship between corporate strategic intentions and alliance portfolios. Using a sample drawn from Australian manufacturing SMEs, the analysis reveals that firms manage their alliance portfolios purposively to develop their capabilities, with these alliance portfolios anticipated by the strategic intentions that firms held in prior years. Recent data releases by the ABS may facilitate further, and longer term, analysis of these issues.

The present results, which are generally consistent with the hypotheses developed for this study, suggest that firms confronting increasing technological change will tend to develop information seeking alliances (e.g., R&D alliances) to increase their knowledge stock. In turn, the improved knowledge and resources confer those

firms renewed capabilities to exploit (e.g., to increase their new market targets), and further develop (to introduce new products or services), their existing resources. Moreover, alliances may also be utilised to enhance a firm's capability to access distant resources and deploy their existing resources. Thus it can be observed that firms seeking to increase their production levels will tend to develop marketing and distribution alliances. On the other hand, a firm with the intention to decrease its production levels will tend to develop production-based alliances with external partners.

An implication of these findings is that firms can successfully reduce the threat of market failures through the use of alliances. Firms may face market failures due to a lack of necessary resources that prevent capability development and adaptation in response to rapidly changing markets (Teece, 2007). Dynamics in product and factor markets, and their perceived dynamics, are a critical precursor to the development of a firm's intended strategy and actions. As Coriat and Dosi (2002) suggest, alliances are able to provide efficient coordination between existing and distant resources. They form a vehicle through which firms can effectively identify technological options and market opportunities, while further reducing the gap within their existing resource and capability bases.

It is important to recognise that a firm's strategic intentions are in part limited by its existing resource base. The uncertainty of firms' environments and competitive markets, due to rapid technological evolution, have driven the emergence of notions like dynamic capabilities in the strategic management literature (Teece, 2007). This enhanced dynamism and structural resource constraints facing

firms (in terms of both tangible and intangible resources) drive firms to explore the broader environment to meet perceived resource and capability absences through the use of alliance arrangements.

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