A Contingency Model of Export Entry Mode Performance: The Role of Production and Transaction costs *

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Abstract

A contingency theory of entry mode performance is developed based on transaction cost analysis as well as production cost theory and the temporal and embedded nature of exchange relations. This is tested using the results of a nationwide survey of Australian manufacturers export entry modes and, unlike much previous research, correction is made for self selection bias in the sample using the Heckman procedure. The results demonstrate the importance of production as well as transaction costs in determining the most profitable export entry mode and that failing to correct for self selection bias can lead to misleading results and incorrect normative recommendations for management.

Keywords:

Introduction

The main theory used to explain foreign market entry modes is transaction cost analysis (TCA) (Brouthers 2002, Chen and Hu 2002). This theory is primarily normative yet most studies do not explicitly examine its performance effects. Instead, it is assumed that in competitive markets only the most profitable organisational forms survive. This has led to calls for additional research (Brouthers 2002, Chen and Hu 2002, Delios and Beamish 1999, Rindfleisch and Heide 1997).

Here we develop and test a contingency theory of entry mode performance that incorporates the effects of production as well as transaction costs and the way market entry modes are used to access key assets as well as to protect them. Our research addresses a number of the problems raised in the review of TCA by Rindfleisch and Heide (1997). We incorporate the temporal nature of interfirm relations as part of transaction cost theory; show how the frequency of transactions is a form of market size constraint; examine the effects of different types of environmental uncertainty; and examine various interaction effects. Furthermore, we use Heckman's (1979) two-step regression procedure to control for selection bias that undermines the results of previous studies (Shaver 1998). To our knowledge, this method has not been used before in marketing.

The paper is organised as follows. First, we describe the nature of market entry modes, particularly exporting, in terms of how vertically integrated they are and consider the meaning of performance. We then review the factors affecting the production and transaction costs of entry modes, which provides the basis for the contingency theory. Following this, the research methodology is described and the results are presented. The implications of the research are considered in a concluding section.

Foreign Market Entry Modes

Many forms of market entry are available to firms to enter international markets. One classification first distinguishes between equity and non-equity modes (Pan and Tse 2000). Equity modes involve firms taking some degree of ownership of the market organisations involved, including wholly owned subsidiaries and joint ventures. Non equity modes do not involve ownership and include exporting or some form contractual agreements such as licensing or franchising. Each type of modes comprises sub-types. Because of the nature of our empirical study, our focus is on export entry modes, which is a non-equity type in which firms serve a foreign market from products manufactured in their home market. While, the theory is developed in terms of exporting, it is relevant to all forms of market entry and draws on research focused on other types of entry modes.

Export entry modes may be distinguished in terms of the level of a firm's forward integration into exporting activities. The least forward integrated mode is when a firm sells to an export agent or to a local buying office of a foreign customer. Here, the firm does not perform any exporting activities. Next is when a firm takes on some exporting activities and sells to foreign based import agents or distributors. Third, a firm can sell directly to foreign customers. Finally, it can establish a foreign based marketing operation. Beyond this it can establish various forms of a local manufacturing, which are not forms of exporting.

Entry mode performance is defined here in terms of efficiency or profitability. Non profit motives, such as resource and knowledge development or strategic moves against competitors, are assumed to be reflected in long term profit. Profitability depends on costs and revenues. Production costs arise from carrying out the exporting activities involved in linking producer and consumer, whether this is done internally or outsourced. Transaction costs arise from the problem of coordinating different activities within and between firms. The problem is that of trading off the total transaction and production costs of using external specialists against the total transaction and production costs of internalising the activities (Dixon and Wilkinson 1988, Williamson 1981, 1985).

Revenues depend on the value created for intermediate and final customers compared to alternatives and on the share going to different members of the export distribution channel. For the purposes of this research we assume that entry modes result in comparable values being created and delivered to customers and that firms operate in competitive markets. This is in line with previous research examining TCA. Under these conditions profitability depends primarily on costs and this is our focus. However, in interpreting our results we consider revenue based explanations.

Transaction Costs

Williamson (1975, 1985) identifies three dimensions of transactions that affect the nature and extent of the coordination task and the efficiency of governance modes: (a) asset specificity, the degree to which durable transaction specific investments are involved; (b) the frequency with which transactions recur; and (c) the level of uncertainty.

TCA distinguishes between two basic types of governance - markets and vertical integration (or hierarchies). Intermediate modes have also been identified that depend on the nature of the relations between transacting parties such as relational contracting or relational governance. Vertical integration is assumed to be more efficient in minimising transaction costs but the gain from internalising activities has to be weighed against the production cost economies that could be foregone by not using specialist firms such as marketing intermediaries. Firms are able to exercise greater control and monitor performance better than markets and can detect and curb opportunism more effectively. Firms also provide longer-term rewards that reduce opportunism and the atmosphere or culture of firms more closely aligns the interests of members.

Three recent studies have examined entry mode performance. Shaves (1998) used the survival of different manufacturing entry modes as an indicator of performance and finds some support for TCA. But his measure of performance is suspect, as he acknowledges, because entry modes may not survive for a variety of reasons not related to economic efficiency. Chen and Hu (2002), find support for TCA in a study of foreign direct investment in China, in which successful ventures are identified by an Honour Roll of outstanding performance. As they note, this indicator is limited due to under reporting of profits for tax reasons. Lastly, Brouthers (2002), in a study of subsidiaries and joint ventures, uses management perceptions of performance, as we do in this study, and finds support for an extended version of TCA including institutional and cultural factors.

In the following we consider each of the three dimensions of transactions and examine how they affect entry mode performance. We then consider the temporal nature and embeddedness of interfirm relations, production costs, and the institutional and industry context.

Asset Specificity

TCA focuses attention on durable transaction specific investments or asset specificity, which could be in the form of specialised products and services, plant and equipment or expertise tailored to the needs of an exchange partner which have limited value in other relations. Such assets make a firm vulnerable to opportunistic behaviour and, to protect themselves, safeguards are introduced. Contracts cannot exhaustively define in advance every contingency and the enforcement of contracts at a geographic and cultural distance, i.e. in foreign markets, is not cost effective (Macaulay 1963). Under these conditions TCA argues that vertical integration is more efficient than markets. By vertically

integrating a firm is able to reduce the risk of opportunism because of the advantages described. Adaptations to unforeseen conditions can be made sequentially without the need to renegotiate agreements (Klein, Crawford and Alchian 1978; Rugman 1986; Williamson 1985). Empirical studies provide support for these arguments (Monteverde and Teece 1982, Anderson 1985).

Size and Frequency of Transactions

Limited attention has been given to this in previous studies and Rindfleisch and Heide's (1997) excluded it from their review. One reason for this lack of attention is that it has been interpreted narrowly in terms of the frequency of transactions, whereas it should be seen more generally as a form of market size constraint. As Williamson (1985) argues: "the cost of specialized governance structures will be easier to recover for large transactions of a recurring kind" (p 65). The size and frequency of transactions are two dimensions of market size and, as Adam Smith explained, market size limits the division of labour.

Market size limits specialisation, because of the costs in setting up and fully utilising specialised people, systems and equipment (Stigler 1951). This applies to transaction and production costs (Dixon and Wilkinson 1986). The size and frequency of transactions are dimensions of a firm's sales to a customer or distributor and this limits the degree of specialisation that is possible in coordinating the relationship. For example, vertically integration or relational governance involves using more specialised labour and capital inputs such as partner specific EDI systems and key account managers, that cannot be fully and efficiently used if sales levels are low. As Florence (1933) pointed out many years ago, economies of specialization are only potential economies because they depend on firms being able to fully utilize specialist inputs which have various efficient scales of operation (Dixon and Wilkinson 1986).

The economic principle involved here is the economy of bulk transactions, which is a form of scale economy (Florence 1933, Dixon and Wilkinson 1986). Transaction costs do not rise in proportion to transaction size because the time to negotiate, monitor and control an exchange does not increase directly with the amount of business involved. Communication and transport cost economies arise and specialised people and resources can be more fully utilised.

Williamson (1985) points to an interaction effect between asset specificity and the size and frequency of transactions. When asset specificity is low, market contracting can be used for both low and high frequency transactions. But, when asset specificity is high, vertical integration becomes more efficient as the amount and/or frequency of transactions increases, because larger sales (market size) supports a specialised governance structure.

Firm size also affects transaction costs (Nooteboom 1999). Search costs are higher for smaller firms due to lack of specialised staff and resources and this "makes the set-up costs of governance expensive relative to the size of the transaction" (p20). This reduces the efficiency of vertically integrated modes for smaller firms.

Uncertainty and Cultural and Geographic Distance

Uncertainty arises due to a firm's bounded rationality, which limits its ability to anticipate all the consequences of its actions and hence to write comprehensive contracts. Two types of uncertainty are distinguished in TCA. Environmental uncertainty relates to the risks associated with entering less familiar markets and cultures. Behavioural uncertainty is transaction partner focused and concerns the problem of determining whether an agreement has been adhered to.

Environmental and behavioural uncertainty also interact with asset specificity. The former causes adaptation problems in the presence of asset specificity (Rindfleisch and Heide's 1997). When there are no such assets firms are not subject to potential hold-up costs and can more easily replace one exchange partner with another as conditions change. The more complicated or technology and knowledge intensive a product is, the greater is behavioural uncertainty and the more costly is market contracting (Anderson and Gatignon 1986, Teece 1986).

The literature on internationalisation has focused attention on two additional dimensions of uncertainty - geographic and cultural distance (Johanson and Vahlne 1977). Geographic distance includes the physical and time separations between countries that complicate and delay communication and coordination tasks and increase behavioural and environmental uncertainty.

Cultural distance stems from the heterogeneous and multicultural world of international business and increases the problems of communication and misunderstandings among market participants. This makes the monitoring and controlling of foreign counterparts more difficult and costly (Rosson 1984). Cultural distance comprises differences in national

culture, as depicted in the work of Hall (1959), Hofstede (1980) and Trompenaas (1994) and includes differences in language, psychological and socio-economic characteristics and business customs and practices. It also involves differences in industry and market cultures that emerge over time in different locales.

Both cultural and geographic distance increase the importance of transaction costs and hence, by TCA logic, increase the efficiency advantage of vertical integrated modes. But uncertainty can also favour market relations because they are more flexible. For example, Klein et al (1990) found that Canadian firms were more likely use vertically integrated modes in the geographically and cultural close US market, which is inconsistent with TCA. A transaction cost explanation comes from organization theory (Klein et al 1990). To be flexible in response to unforeseeable future conditions firms use intermediaries rather than forward integration, as this converts the fixed costs of establishing internal operations into variable costs. Also, it is easier to hire and fire intermediaries than it is to establish and de-establish an internal organisation structure (Shelanski and Klein 1995, Rindfleisch and Heide's 1997), which makes reliance on markets more efficient when uncertainty is high.

We summarise the foregoing in terms of two general hypotheses. The first reflects the main effects of each of the three dimensions of transactions:

H1: *The performance of vertically integrated entry modes will be greater, a) the greater the asset specificity, b) the greater the size and more frequent the transactions, and c) the greater the uncertainty associated with the transactions.*

The second reflects the interaction effects.

H2: *There are significant interaction effects among asset specificity, the size and frequency of transactions, and uncertainty on entry mode performance*

The Temporal Nature and Embeddedness of Exchange Relations

In TCA the unit of analysis is the individual transaction and the development of exchange relations over time tends to be ignored (Rindfleisch and Heide's 1997). But the temporal dimensions of exchange relations and the way they are embedded in broader business, social and cultural networks can have important effects on the coordination task and the efficiency of different types of governance modes.

Firms that have been trading for some time have a shared history or "shadow of the past" (Axelrod 1984, Miner 1992, Rooks et al 2000) that enables them to manage their interactions more efficiently. There is also a "shadow of the future," in terms of expectations about the amount of trade with an exchange partner, which affects expected market size and the willingness to invest in specialised resources.

The temporal nature of exchange relations is reflected in part in the frequency of transactions and TCA focuses on the efficiencies of more specialised governance with increased frequency. But long term relations also reduce opportunism and promote more cooperative norms due to greater mutual understanding and trust and mutual investments in the relationship (Axelrod 1984, Dwyer Schurr and Oh 1987, Fehr and Gachter 2002, Ford 1980, Hakansson and Snehota 1995, Miner 1992).

Experience in relations and markets not only reduces behavioural uncertainty, it also affects management perceptions of cultural distance and environmental uncertainty, which is reflected in the concept of psychic distance (Hallen and Wiedersheim-Paul 1979). Psychic distance depends on actual cultural distance, as reflected in Hofstede's (1980) or Trompenaas' (1994) work and the experience and knowledge a firm has in conducting business in a focal country. These experience curve effects, plus increases in the scale and scope of international operations, reduce the firm's costs of carrying out exporting activities and reduce the need for acquiring knowledge externally. This has been confirmed in empirical studies of Japanese firms' internationalisation by Chang (1995) and Delios and Beamish (1999).

International experience affects both production and transaction costs but in competing directions. The development of relations improves the efficiency of markets because it reduces behavioural uncertainty. At the same time, as a firm's experience and knowledge of a foreign market grows, environmental uncertainty is reduced and the firm does not have to rely as much on specialists for access to local knowledge. This makes vertical integration more efficient, at least for some activities. Which is the greater effect will depend on the nature of the relevant scale and scope economies and how relations develop over time.

Studies of international business relations provide support for the impact on relationship performance of the development and connectedness of interfirm relations.

(Blankenburg-Holm et al 1996, Kalwani and Narayandas 1995, Reinartz and Kumar 2000). For example, Blankenburg-Holm et al (1996) found that perceived performance was directly linked to relationship commitment and understanding and indirectly, through relationship commitment, to the way the focal relation was connected to other relations.

Three general hypotheses emerge from this discussion:

H3: *The performance of market relations will be greater and transaction costs lower the longer the time firms have been trading with each other.*

H4: *The performance of vertically integrated modes will be greater the more experience a firm has of international operations, both generally and with respect to a focal market.*

H5: *There are interaction effects on entry mode performance between the international experience of a firm and asset specificity, the size and frequency of transactions and uncertainty.*

Production Costs

Factors affecting production costs have been given limited attention in previous studies (Rindfleisch and Heide's 1997). An exception is Klein et al (1990). But the decision to vertically integrate or not depends on the total of transaction and production costs (Klein et al 1990, John and Weitz 1985, Williamson 1975, 1985). Production costs refer to the costs of performing a value adding activity and applies to manufacturing as well as marketing and exporting activities.

Two production costs are relevant - the firm and specialist intermediaries, such as a domestic export agent or a foreign distributor or import agent. The mode with the lowest production costs is the one with the greatest access to scale and scope economies in performing the relevant export activities. The larger the scale and scope of a firm or intermediary the greater their production cost advantage (Dixon and Wilkinson 1986).

Three dimensions of scale and scope seem particularly relevant. The effect of firm size is reflected in a number of studies (e.g. Ford and Slocum 1977; Hirsch and Adar 1974; Munro and Beamish 1987; Reid 1982). Second, a firm's international experience and involvement affects its ability to efficiently carry out international marketing activities (Dixon and Wilkinson 1986). Third, a firm's sales to a target market affects its ability to invest in more market specific governance and marketing systems.

Firms not only need to protect their assets when entering foreign markets, they also seek access to valuable assets (Delios and Beamish 1999). Firms are embedded in domestic and international networks of business and non-business relations (Anderson et al 1994, Granovetter 1985, Wilkinson and Young 2002) through which they gain access to valuable assets (Delios and Beamish 1999, Dunning 2001, Johanson and Mattsson 1988). For example, studies of ethnic business and social networks have demonstrated the important role they play in facilitating foreign market entry and in reducing the risks and uncertainty involved (e.g. East Asian Analytical Unit 1995, Redding 1993). Studies of internationalisation also demonstrate the importance of business networks. Martin et al (1998) show how Japanese firms' patterns of market entry have been affected by domestic relations with actual and potential customers, suppliers and competitors and Chen and Chen (1998) describe the network impacts on Taiwanese firms foreign direct investment.

Knowledge and networks are the means by which uncertainty is reduced, competitive advantage is enhanced and sustained and international customers are reached (Dunning 2001, Dwyer 1998, Wilkinson and Young 2002). An intermediary's access to such assets is a function of its experience in local markets and the history of its relations with customers, suppliers, competitors and regulators. Also, its costs of carrying out marketing and exporting activities is affected by various types of economies of specialisation. These include economies of bulk transactions and pooled risk, that arise because an intermediary can spread costs across the firms they serve (Dixon and Wilkinson 1986), and the economies of being able to develop and efficiently use market specific assets, such as local experts, networks and data bases.

Production efficiencies of this type provide an alternative explanation to the results of Klein et al (1990) discussed above, regarding the use of vertically integrated modes by Canadian firms exporting to the USA. When cultural and geographic distance is low, the ability of specialised U.S. intermediaries to provide better access to valuable knowledge and network assets is limited. Hence firms are more likely to forward integrate into these activities.

A final consideration is that market knowledge is often tacit and embedded in networks and relations that are built up over time (Badaraco 1989, Dunning 2001, Nonaka and Tekeuchi 1995) These cannot easily be reproduced or
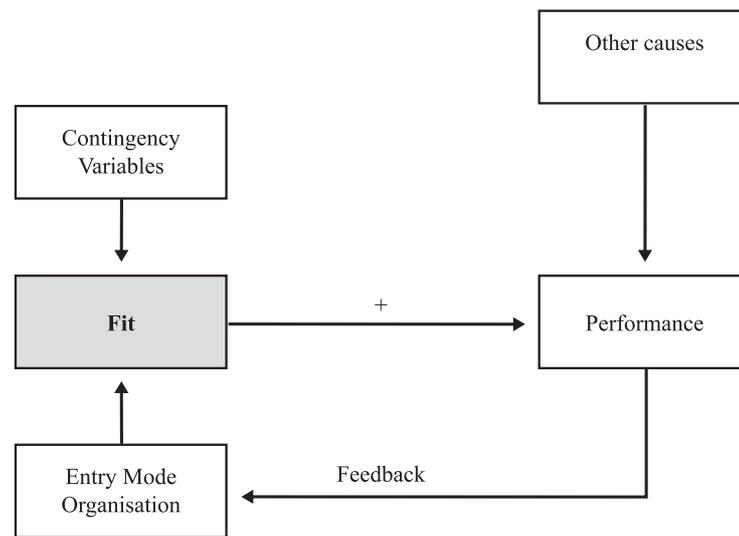
Figure 1: A Contingency Model of Entry Mode Performance

Source: adapted from Donaldson (2001) p12

acquired (Anderson et al 2001, Dwyer 1998). In these circumstances the lower transaction costs from forward integration are irrelevant as what matters is developing relations with key market players (Dunning 2001).

The general hypotheses resulting from this discussion are:

H6   *The performance of vertically integrated entry modes is greater the greater the scale and scope of the firms operations compared to specialist international marketing intermediaries.*

H7   *The more valuable and embedded are the assets of intermediaries the greater the performance of entry modes involving market relations*

Institutional and Industry Factors

In addition to their effect on uncertainty, as discuss above, cultural, institutional and industry factors directly affect entry mode choice and performance (Delios and Beamish 1999, Brouthers 2002, Kogut and Singh 1988). They affect the efficiency of local intermediaries and may mandate particular forms of market entry, which are not necessarily the most profitable. For example, agents and distributors in less developed countries may lack access to modern technologies, which limits their efficiency and some countries require joint ventures rather than fully owned subsidiaries in order promote technology sharing. The institutional context further complicates entry mode

choice and adds to the risks involved and problems and costs of management (Brouthers and Brouthers 2000, Delios and Beamish 1999).

Industry factors also affect entry mode performance. The profitability of industries depends on the type of rivalry between firms and the impact of suppliers, customers, substitutes and new entrants (Porter 1980).

We do not offer any hypotheses for the effect of institutional and industry factors because the effects are too market, industry and entry mode specific. Instead, we treat them as control variables.

A Contingency Theory of Entry Mode Performance

Contingency theories assume that firm performance depends on the degree of fit between contingent conditions and the attributes of an organisation or strategy (Donaldson 2001), where a contingency is "any variable that moderates the effect of an organization characteristic on organizational performance" (ibid p7). The general form of contingency theory is depicted in Figure 1. Performance is lower the greater the misfit between the type of organization used and the contingent conditions. This leads to organizational change until an acceptable fit and performance level is obtained.

The foregoing discussion has identified several types of contingencies that affect entry mode performance. We

have also specified the performance implications of aligning more of less vertically integrated entry modes with these contingent conditions i.e the fit between entry modes and contingencies. The theoretical model resulting is summarised in Figure 2. This shows the impact of contingent factors on the fit and performance of vertically integrated modes and includes the impact of some contingent factors on others. For the sake of clarity, interaction effects are not shown.

Research Methodology

Research Instrument and Sampling

The data used to test the model is taken from a nationwide mail survey of international competitiveness carried out in Australia. The questionnaire covered many aspects of firms' domestic and international marketing activities and used questions derived from previous studies, including Layton and Dunphy (1970), Barrett and Wilkinson (1986) and Bilkey (1987). Other results have been reported elsewhere (Fletcher et al 1997, Wilkinson 2002).

All exporters from a list of Australian manufacturing firms supplied by Dun and Bradstreet were mailed a questionnaire. Useable responses were received from 403 exporters after one reminder, giving a response rate 19%, which is in line with other published surveys. An analysis of late responding firms indicates no significant non-response bias, except that late responders were likely to be larger firms, which probably reflects the time it took to complete the survey and gain approval for participation.
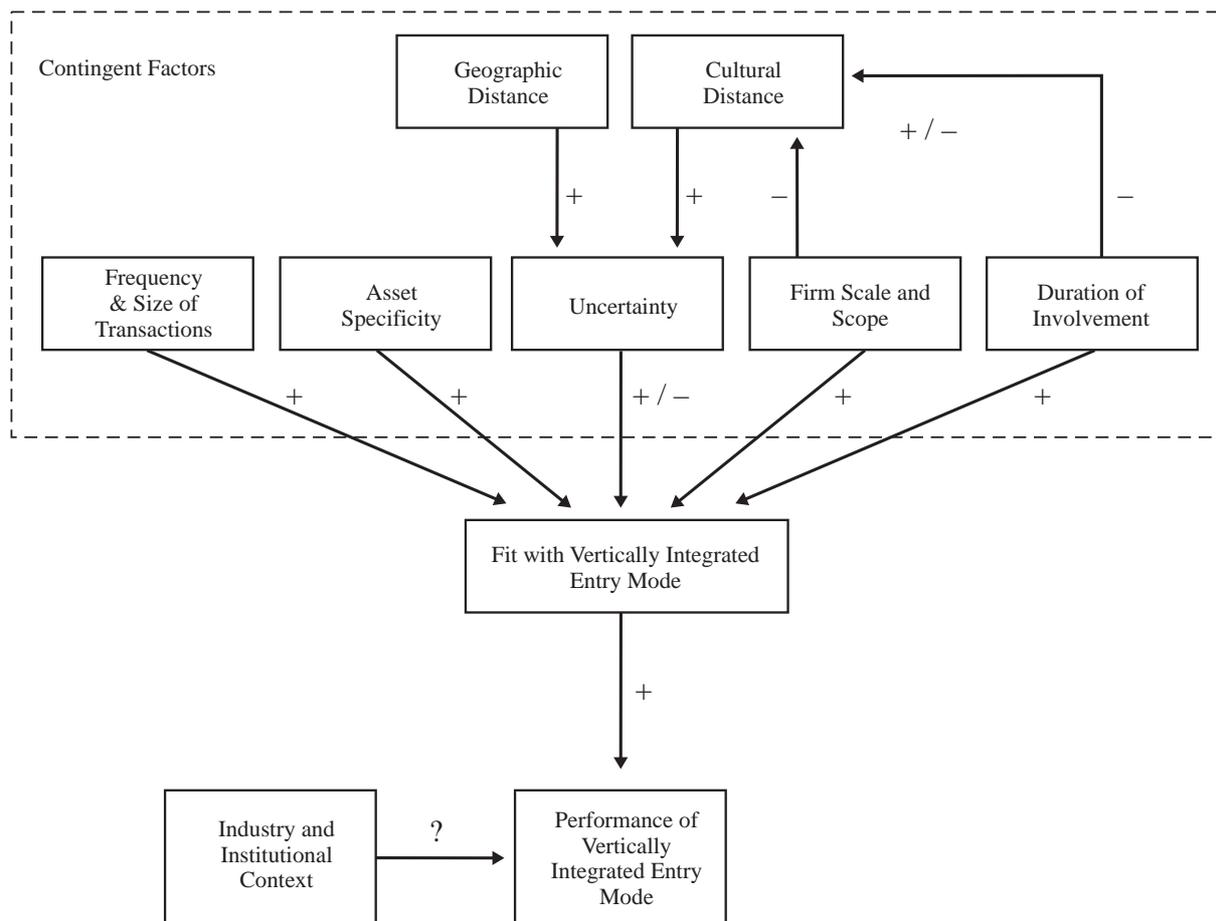

Figure 2:A Contingency Theory of Foreign Market Entry Mode Performance (excluding interaction effects)

Measures

a) Export Entry Mode. Firms were asked to describe the entry mode used in up to five countries. The modes were grouped into four types: a) domestic export agents, including buying offices of foreign firms; b) foreign based intermediaries, including import agents, distributors and retailers; c) direct exporting to customers; d) exporting via a firm's foreign branch offices. Other types of entry modes are not considered here.

The classification reflects different levels of vertical integration, with a) being the least vertically integrated and d) the most vertically integrated. 100 firms reported using more than one of the modes in the same market, which raises issues for theory development (Pedersen and Welch 2002). These cases were excluded from analysis, as did Klein et al (1990). The remaining sample of 1088 comprised 9% using local agents, 50% foreign intermediaries, 25% exporting direct and 14% using a foreign branch office.

The sample of market entry modes is not independent because firms can be exporting to more than one country. To reduce potential bias, one export market was chosen for analysis. We randomly selected export markets with probabilities inversely proportional to the sample frequency of the mode i.e. 1 minus the probability of the entry mode reported in the sample. This over sampling of less frequently used modes was done in order to improve the balance of different types modes in the analysis sample. The analysis sample of 343 market entries comprised 40 (11.7%) using a local agent, 137 (39.9%) a foreign intermediary, 97 (28.3%) exporting direct and 69 (20.2%) using a foreign branch office.

b) Entry Mode Performance. Firms were asked to rate the profitability of the target market using an index in which the Australian domestic market is 100. Thus a score of 110 indicates that the performance is 10% better than domestic activities.

c) Asset Specificity. Two multi item measures (taken from Cavusgil and Nason 1990) were used based on a factor analysis of ratings of the main export product. Hitech, is a four item measure ($\propto = 0.76$) reflecting advanced technology and uniqueness of the product, including items such as 'the product is unique, differentiated or represents advanced technology' and 'the production process is exclusive to our firm.' Service is a two item scale ($\propto = 0.69$) reflecting the extent of pre and post sales support required, i.e. 'requires extensive training to operate and use,' and 'requires considerable

after sales support.' The hitech measure is in line with other measures of asset specificity, such as the percentage of sales spent on R&D (Brouthers 2002, Delios and Hennart 1999). The service measure is similar to that used by others of the human relationship dimension of asset specificity (Rindfleisch and Heide 1997).

d) Foreign Market Size and Experience. A measure of foreign market sales was developed based on the percentage of a firm's total exports to a market, the percentage of its total turnover accounted for by exports and the firm's total turnover in the previous year (rated on a seven point scale from 1= up to $100,000 to 7 = more than $20,000,000). We estimated foreign market sales by multiplying the percentages together and multiplying them by the midpoint value of the rating of a firm's total turnover. For ratings of more the $20 million an estimate of $50million was used. This procedure is similar to that used by Klein et al. (1990). We measured foreign market experience by the years a firm had been exporting to a foreign market.

d) Uncertainty. This was measured in terms of cultural and geographic distance and management's perceived risk of exporting. Cultural distance was measured using a separate questionnaire distributed to a convenience sample of 100 staff and part time business students at two universities in Sydney. They were asked to rate various countries in terms of their socio-cultural distance from Australia on a 5 point scale from 1 = very close to 5= very distant. A response rate of 47 percent was obtained. Mean distance ratings were used as an indicator of cultural distance but, because of the convenience sample used, the mean scores were not used. Instead, the mean scores were used to group countries into low (e.g. New Zealand, U.K., Germany), medium (e.g. Fiji, Hong Kong, Taiwan) and high (e.g. India, Vietnam, Burma) culturally distant countries.

Geographic distance was measured using Airline distances between capital cities and Sydney. These were classified into 3 groups: close (less than 5000 kms), medium distance 5000 to 10,000kms) and distant (greater than 10,000kms)

In addition, a four item Likert scale measure of perceived risk ($\propto = 0.88$) was used based on agreement with the following items: 'there is too much risk involved in exporting;' 'exporting is too different from marketing in Australia;' 'the quality of my company's products could never be good enough to sell in overseas markets;' and 'exporting should only be considered

Table 1

Decision Equations: Logit Regression of Entry Mode on Model Variables (Unstandardised Coefficients)

mode	Domestic Agent	Foreign Intermediary	Direct to User	Foreign Branch
n	37	115	78	55
Profit index mean	85.43	87.85	100.46	84.31
Profit index standard deviation	26.2	26.49	43.79	42.6
constant	-.14	.50	-1.48	-2.81
Product Asset Specificity				
Hitech	-.02	-.00	-.06	.07
Service	-.21	-.02	-.02	.30*
Foreign Market Size and Experience				
Foreign Market Sales	-.03	-.02	-.01	.10
Years Exporting to Market	-.01	.00	-.02	.01
Uncertainty				
Cultural Distance	.15	-.35*	1.26***	-1.42***
Geographic Distance	.38	.20	-.79***	-.04
Perceived risk	-.41	-.04	.14	.27
Firm Scale, Scope and International Experience				
Firm Size	-.00	-.00	.00	.002***
Percentage of Exports	-.70	-.04	.96	-.60
Years in Exporting	.11	-.16*	.22**	-.06
No. of countries exported to	-.27*	.01	-.01	.26*
No. of Products Exported	.34	-.06	-.21	.27
Industry Type				
Consumer	.74	.56*	-.98**	-.39
Industrial	.24	.14	-.48	.11
Cox and Snell R Square	.06	.06	.16	.17
Chi Square (df)	16.60	17.47	49.46***	50.95***
	(14)	(14)	(14)	(14)

*=P<.1   **=P<.05   ***=P<0.01

Note: missing data in some predictor variables reduces analysis sample

when opportunities in Australia are completely exhausted' (Dunphy and Layton 1969, Barrett and Wilkinson 1986).

e) Firm Scale and Scope. This was measured in terms of the firm's overall size and in terms of various measures of the scale and scope of its exporting operations. Firm size is measured on a five point scale from 1= under 10, 2= 10-19, 3=20-49, 4=50-99, 5= 100-500 and 6=500+. In order to convert this to a scale with more interval scale properties, the scale points were recoded to the midpoints of their respective size range, with a value of

750 used for the 500 and over category. Four indicators of the scale and scope of a firm's international operations were used: exports as a percent of turnover; years in exporting; number of countries exported to; number of different products exported. These measures are similar to those used by Brouthers (2002) and Delios and Beamish (1999).

f) Type of Industry. On the basis of the main product exported, firms were grouped into consumer, industrial or mixed product industries. Dummy variables were constructed for consumer and industrial product industries. While the main export product may not be the one exported to a focal market, it indicates the main type of industry in which a firm operates.

Results

Heckman Two Stage Regression Analysis

The impact of a strategy on performance is usually assessed by regressing performance on strategy choice and using the coefficient for strategy choice to identify superior strategies (Shaver 1998). But this results in biased estimates because the choice of strategy is not random but biased in terms of expected performance, given firm and market conditions. "If firms choose the strategy that is optimal given their attributes and those of their industry, then empirical models that do not account for this choice process are potentially miss-specified and the normative conclusions drawn for them may be incorrect" (Shaver 1998, p571).

To overcome the problem a technique developed by Heckman (1979) can be used that incorporates strategy choice into estimates of strategy performance. Others have used TCA to predict entry mode choice and to compare the performance of firms whose choice is predicted by TCA with those that are not (Brouthers 2002, Chen and Hu 2002). But this does not allow direct estimation of the performance effects of particular variables, including non TCA variables. Hence we use Heckman's method here, which, to our knowledge, has not been used before in marketing.

Heckman's method involves estimating two regression equations: a "decision equation" predicting entry mode choice for each mode and an "outcome equation" predicting performance for each entry mode. The procedure is described in an appendix.

Heckman Regression Results

Table 1 shows the mean profit index and standard

deviation for each of the four types of entry modes and the logistic regression results used to estimate the decision equations in the Heckman procedure. Mean performance is highest for those exporting direct to users and indicates that this is seen as slightly more profitable compared to the domestic market. Other modes are perceived as less profitable than the domestic market, but the variance is greater for more vertically integrated entry modes.

Turning now to the results of the logistic regression, the inclusion of interaction effects did not significantly improve the results for any mode and were dropped from this part of the analysis. The distribution of residuals was transformed into probit form, i.e. a normal distribution, for the purposes of calculating the measure of unobserved factors in the second stage of the Heckman procedure.

The logit models for the choice of domestic agents and foreign intermediaries are not significant, although a few of the coefficients are marginally so. The number of countries exported to is inversely related to the use of domestic agents, consistent with H6. Foreign intermediaries are more likely to be used when cultural distance is lower, the firm is a more recent exporter, and when consumer products are involved. These results are consistent with H1 and H6 because uncertainty is lower and firms have less international experience to carry out their own exporting. The industry factor could indicate the effect of lower levels of asset specificity compared to industrial products (H1).

Significant equations result for direct exports and for establishing a foreign branch office. Direct exports is more likely when cultural distance is higher and geographic distance is lower, when exporters have been involved in exporting longer and when consumer products are not involved. This accords with H1 in that this is a more vertically integrated mode used to deal with uncertainty, and geographic closeness reduces transport costs. Foreign branches are more likely to be established for products that are more service intensive, when cultural distance is lower, when firms are larger and they export to more countries. These support H1 and H6. The negative sign for cultural distance reflects problems of firms gaining access internally to local knowledge in a less familiar market and supports H7. For a more detailed examination of entry mode choice, in which a two stage model is estimated using the same data set, see Wilkinson (2002).

OLS regression was used to identify the main factors

Table 2:
Outcome Equations With and Without Heckman Selection Correction Factor
(Standardised Regression Weights and t-statistics)

mode	Domestic	Agent	Foreign	Intermediary	Direct to User[a]	Foreign	Branch
Selection Correction Factor	-.44 (2.75)		-.17 (1.75)			-.28 (1.62)	
Service	.37 (2.23)	.12 (.82)			not significant		
Geographic Distance			-.15 (1.60)	-.12 (1.25)			
Firm Size	.41 (2.20)	.40 (2.57)					
Percentage of Exports			.29 (2.53)	.32 (3.13)			
Consumer						.51 (3.11)	.40 (3.03)
Industrial					0.20 (1.87)		
Goegraphic Distance*Hitech					-0.29 (2.26)		
Cultural distance*Hitech					0.20 (1.61)	.26 (1.53)	.13 (1.00)
Perceived risk *Hitech	.26 (1.51)	.33 (2.10)					
Cultural distance*years in exporting	-.25 (1.54)	-.06 (0.43)		.21 (2.16)			
Foreign Market Sales *years in market	.42 (4.72)	.58 (4.24)	.26 (2.73)				
Adjusted R Square	.51	.38	.20	.18	.06	.16	.13
F (df)	6.97***	5.42***	6.86***	8.68***	3.79 (3,79)**	4.10***	4.68**
	(6,28)	(5,29)	(4,93)	(3,103)		(3,47)	(2,51)

**=P<.05 ***=P<0.01

a = The correction factor was not significant for this mode so only one regression equation is shown.

explaining the performance of each mode, including both main and interaction effects and the selection bias correction factor. Inclusion levels were set at 0.1 to allow marginally significant factors to enter. The variance inflation factor was used to screen for multicollinearity, and variables correlating highly with ones already in the equation were excluded. The resulting outcome equations are shown in Table 2. This shows that the selection bias correction factor is significant for all modes, except direct exports, indicating that unobserved factors have a significant impact on performance.

The effect of the correction factor on the estimated regression coefficients is shown by the changes that result when it is excluded. There are substantial changes in some of the coefficients. For example, the service intensity (asset specificity) of the product or the interaction of cultural distance and years in exporting are no longer significant predictors of performance among those firm's using domestic based agents. Geographic distance is no longer a significant predictor of the performance of foreign intermediaries and the interaction of cultural distance and the hitech nature of products is no longer a significant predictor of performance of the foreign branch office entry mode. Other variables remain significant predictors but the magnitude of the coefficient changes.

Discussion

Domestic agents are more profitable for larger firms and when asset specificity is greater in terms of service levels. The significant interaction effect between perceived risk and asset specificity also indicates that performance is greater when uncertainty and asset specificity are high. This is contrary to H1 as, under these conditions, firms should gain transaction costs savings from internalising exporting activities and

domestic agents should be less profitable. A partial explanation is that larger firms may use their bargaining power and negotiate more favourable contracts. The other results can be viewed as support for H7 and the use of entry modes to gain access to the valuable assets of a specialist agent, especially in conditions of uncertainty and asset specificity. Further support for H6 and H7 comes from other interaction terms that show that domestic agents are more profitable for less internationally experienced firms dealing with culturally close countries and for firms with less market experience and lower sales. In these conditions the firm is limited in its ability to internalise required export activities efficiently and hence gains more from using specialist agents working on behalf of many exporters.

For foreign intermediaries, performance is greater when the market is geographically closer, the percent of exports is larger and market sales and experience are greater. Under these conditions a firm is able to make more efficient use of a local specialist and supports H1, H2, H3 and H4. A large geographically close market reduces transport costs and makes it easier to monitor and control foreign intermediaries. Market experience further increases the efficiency of market relations and reinforces the market size effect. These results support H1; size and frequency of transactions lead to the more efficient use of a local specialist.

No variables significantly predict the performance of direct exporters, even though there is greater variance in the performance of this mode (Table 1), and hence more to explain. Self selection bias will reduce variance in the explanatory variables and thus we may not be able to detect their impact on performance. But there still remains substantial unexplained variance.

The selection bias correction factor is significant indicating that unobserved factors have a significant impact. If this correction factor is excluded some explanatory factors may falsely appear to be significant because they are correlated with the unobserved factors and catch some of their impact. For example, when we ran a stepwise regression excluding the correction factor three factors appeared to be significant as shown in Table 2:

If these variables give a clue as to the nature of the unobserved factors, they suggest that this mode is more profitable in two situations, which supports H1 and H2, i.e. the export of products with low asset specificity to culturally similar countries and the export of products with high asset specificity to geographically distant markets.

These results seem to reflect the pattern of much Australian trade. The first situation reflects trade in simply transformed products, which dominates due to extensive mining and agricultural industries, to culturally close countries such as the USA and UK. Simply transformed commodities and raw materials can be shipped efficiently in bulk directly to such foreign customers. It is likely that the profitability of such exports depends more on the size and growth of the foreign market's economy and international exchange rate and commodity price movements, which are not measured in this research, than on transaction and production cost efficiencies.

The second situation reflects the export of more elaborately transformed products, such as specialty steels and components to geographically distant markets in America and Europe. Unobserved factors such as exchange rate movements, local tax rules, competition and tariff rates may have a large impact on the profitability of such exports.

Lastly, the performance of foreign branches is greater for consumer product industries and when cultural distance is combined with higher asset specificity (hitech), which supports H1 and H2. The uncertainty associated with culturally distant markets reinforces the need to safeguard such assets through greater levels of vertical integration. This reduces the risks of opportunistic behaviour such as counterfeit products and allows the firm to provide services efficiently in the target market. Misfits with this entry mode occur when technical asset specificity, and uncertainty is lower, in exports to culturally similar countries. In these situations the additional costs of setting up a more elaborate internal governance structure reduces profitability.

Conclusions and Future Research Directions

Our results support the impact of various contingent factors on entry mode performance and underscore the need to consider both transaction and production costs. We have shown how entry modes are used not only to safeguard firm assets, as TCA logic emphasises, but also are a means to gain access to valuable assets, including the knowledge, skills and networks of specialists intermediaries in the form of local agents of foreign distributors. We have also found significant interaction effects between several types of factors. These include interactions between asset specificity and uncertainty arising from cultural and geographic distance and between uncertainty and a firm's experience in the

foreign market and in exporting generally. The results in general support those of Brouthers (2002) and Chen and Hu (2002), although our measures of the dependent and independent variables are different.

Our results underscore the importance of including production costs as well as transaction costs. They show how the value of outsourcing exporting activities depends in important ways on factors affecting the scale, scope and experience economies of specialist firms compared to the firms they serve. This is important because many studies focus only on transaction costs and are in danger of confounding production cost effects with transaction cost effects.

Environmental and institutional factors not included in this study that affect export revenues and costs, may have a important impacts on the performance of direct exporting. These include macro economic conditions, exchange rates, commodity price movements and specific regulations in force in specific markets. These need to be included in future studies.

Our results also indicate that the contingency theory is more complex than we first envisaged. The basic premise is that the greater the misfit between the attributes of an entry mode and contingent conditions the lower is performance. However, in some cases the degree of apparent misfit may actually improve performance because, for any mode certain factors always tend to reduce transaction or production costs. Thus lower levels of uncertainty, due to cultural distance for example, tend to reduce transaction costs and boost performance. Geographic closeness reduces transport costs and size increases a firms ability to negotiate better trading terms. This makes the testing of a contingency theory more difficult, as we need to distinguish between variation in performance among entry modes as well as variation for each mode. Switching cost may prevent or delay a firm establishing a more efficient mode, especially if conditions tend to boost the performance of current modes.

For these reasons it may be necessary to use other methods to examine the efficiency of different modes, such as activity based costing, similar to the way it has been used to examine customer relations (e.g. Reinartz and Kumar 2000). A basis for this already exists in models of the cost components of different entry modes developed by Buckley and Casson (1998).

Correcting for self selection bias has been shown to be important. But a large amount of variance is left

unexplained, especially in terms of direct exports. To some extent this is to be expected because, as noted, we did not consider potentially important environmental and institutional factors and we focused on costs rather than revenue effects. Future research needs to include measures of revenue and other performance dimensions as well as the factors affecting them. Two kinds of factors seem particularly relevant: (a) the competencies of exporting firms and intermediaries, including their market and network orientation, management skills and other aspects of their marketing strategies (Cavusgil and Zhou 1994, Deshpande 1999, Ritter 1999); (b) foreign market characteristics, such as tax rules, macro economic indicators, and exchange rate variations that affect the profitability of markets.

Finally, there are some additional limitations to be acknowledged. First, it is based on a study of manufacturing firms carried out in one country and may reflect, in part, the peculiarities of Australian conditions. Second, we focused on exporting and did not examine other modes. Third, the study did not attempt to measure transaction or production costs directly but only the factors theory suggests impact on them. Lastly, better measures of some of the constructs are required, such as asset specificity, for which there is no widely accepted scale. An alternative measure of cultural distance could be used based on Hofstede's (1980) dimensions, or ratings of business risk offered by various agencies. Another approach would be to use managers perceptions rather than general country measures. Hence there is plenty of scope for further research.

Appendix: Heckman Two Stage Regression Analysis

For a particular entry mode i we can write

$$M_i^* = z_i\gamma' + \mu_i \qquad \text{decision equation (1)}$$

$$P_i^* = x_i\beta' + \varepsilon_i \qquad \text{outcome equation (2)}$$

M_i^* is the unobserved probability of selecting entry mode i, z_i is a vector of observed explanatory variables and μ_i is an unobserved error term. We only observe whether the mode is chosen (=1) or not (=0), not the actual propensity to select the mode. P_i^* is the performance of entry mode i and x_i is a vector of observed explanatory variables, that can include variables in z_i from Equation (1).

Two kinds of problems arise. First, because firms choose

entry modes based on expected performance they necessarily restrict the variance of conditions in which we can observe the performance of a given entry mode. This may suppress the significance of particular factors in the outcome equation because we lack sufficient variation in the explanatory variables.

Second, unobserved factors may affect a firm's choice of entry mode such as management characteristics, the nature of competition as well as other network or environmental characteristics. If these factors are correlated with performance, but are not included in the outcome equation, they may result in unreliable estimates of the effects of observable factors. The coefficients may be inflated because they catch some of the effects of these unobserved factors.

The Heckman method overcomes the second problem by developing a measure of the impact of unobserved factors in the selection equation. The procedure assumes the error terms of the choice equation are normally distributed and hence a probit or logit model, with appropriate transformations, is used to estimate the effects of the observed factors on choice. (Aldrich and Nelson 1984, Shaver 1998). For this analysis the entire sample is used. The unexplained residuals are used to construct a measure of the unobserved factors that is used in the outcome equation as follows:

$$P_i^* + x_i\beta + \sigma_{\mu\epsilon}\phi(Z_i\gamma')\Phi(z_i\gamma') + \delta_i \qquad (3)$$

Where $\sigma_{\mu\epsilon}$ is an estimated regression coefficient and $\phi(z_i\gamma')/\Phi(z_i\gamma')$ is the selection bias correction factor in which $\phi(z_i\gamma')$ and $\Phi(z_i\gamma')$ are the standard normal probability density function and cumulative distribution function respectively. The γ' is estimated from Equation (1). Equation (3) is estimated by OLS regression using only those cases where the focal entry mode is used. This results in unbiased parameter estimates for the predictor variables but the standard error estimates are biased due to heteroschedasticity, which requires different estimates of standard errors (see Smits undated for details).

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