

SUBSIDIARIES IN MOTION: ASSESSING THE IMPACT OF SUNK VERSUS FLEXIBLE ASSETS

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ABSTRACT

This chapter addresses an unresolved theoretical issue in international business: the impact of existing, committed assets in a host location on parent and subsidiary decisions regarding the configuration of future value-adding activities for the location. We develop a measure of investment committedness, or the degree of flexibility versus specificity of existing assets in a host location, to explore this issue. The measure assesses whether assets, such as brands, human capital, process technologies, and supplier relations, retain only scrap value outside their current application or they can be redeployed to alternative value-adding activities in the host location or shifted offshore, either within the multinational enterprise (MNE) or to another user. The measure is a key step in developing a model of strategic choice for the future configuration of value-adding activities by MNEs in host locations. Drawing on firm-specific data from 237 MNE subsidiaries operating in Australia, we first present a traditional integration-responsiveness classification of subsidiary activities. This static snapshot of the subsidiaries' current profiles is then compared with the measure's preliminary findings on the levels of

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investment committedness and strategic flexibility available to the sample MNEs and how this may shape strategic allocation decisions, including divestment and withdrawal.

The design and dominant logic of a multinational network (Prahalad & Doz, 1987) reflect market-by-market decisions about how to reallocate existing resources and maximize innovation and competence development. Internationalization models have long emphasized how firms increase their resource commitments to international markets (Stopford & Wells, 1972), particularly focusing on optimal models of entry form (e.g., licenses, joint ventures, or wholly owned affiliates) and entry mode decisions (e.g., Greenfield investments or acquisitions). Less attention has been devoted to subsequent decisions about the role of particular subsidiaries within the multinational network, particularly with respect to multinational enterprise (MNE) divestment and exit (Benito, 1997; Chang & Singh, 1999; Mata & Portugal, 2000) and to subsidiary survival (Shaver, Mitchell & Yeung, 1997; Zaheer & Mosakowski, 1997; Shaver, 1998). The prevailing taxonomies for examining subsidiary roles are either simplistic and static (the Integration-Responsiveness (IR) framework (Jarillo & Martinez, 1990; Taggart, 1997; Bartlett & Ghoshal, 1989)), or overly focused on the value-enhancing roles available for capture by subsidiaries (Cantwell & Mudambi, 2005; Enright, 2000). There is comparatively little research on the retention of existing subsidiary operations but with a decreased resource commitment. As such, it can be argued that the full strategic suite available to parent MNEs is currently underdefined by international business (IB) scholars.

Foreign investments involve the transfer, development, or acquisition of assets and resources. The subsequent impact of these investments on decisions to expand, shrink, or even exit activities in host countries is overlooked in much of the IB discussion of subsidiary evolution. In this chapter, we develop a schema to populate the strategic options available to both parents and subsidiaries, based on pre-existing investments in the host country. We focus on the characteristics of the assets the subsidiaries hold and their impact.

To conceptualize the choices facing managers in light of their firm-specific assets and commitments, we adapt a strategic management framework proposed by Ghemawat and del Sol (1998). We also draw on ideas proposed by Rugman and Verbeke (2001) with respect to non-location-bound, firm-specific assets and incorporate elements of industrial organization (IO)

models of exit barriers and asset flexibility, which underpin Ghemawat and del Sol's (1998) framework. This schema is complementary to existing models of subsidiary evolution and strategy, introducing an internal driver that has thus far been overlooked: the impact of existing commitments on subsidiary paths of development, including the willingness of parents to abandon long-established investments.

The second half of the chapter reports an exploratory empirical application of our schema. We develop measures of *investment committedness*, on the basis of survey data on 237 foreign subsidiaries in Australia, to capture the degree of flexibility available to the MNE in reconfiguring or disposing of committed investments. Many of these subsidiaries were established as locally focused facilities operating within highly protected and inefficient industries, in an economy exhibiting long-run characteristics of inhibiting local innovation (Hunter, 1962; Quiggin, 2002). We contrast our findings with a standard IR classification of these subsidiaries. This allows us to demonstrate the "value-added" of our approach. We find that a quarter of the subsidiaries in our sample have made location-specific investments. These investments may limit the parent's willingness to exit the market, and also may hamper their ability to adapt the subsidiary to alternative roles. Other MNEs in our survey do, however, have considerable scope to pursue more flexible growth options within Australia and beyond. We conclude by suggesting directions for future research.

LITERATURE REVIEW: SUBSIDIARIES, GROWTH, AND DECLINE

The recasting of the MNE network as a global knowledge repository has inspired research on how parents and subsidiaries can proactively pursue capability development and the assignment of product mandates or charters to enhance the subsidiary's position in the multinational network (e.g., Enright, 2000; Birkinshaw & Hood, 2001; Frost, 2001; Cantwell & Mudambi, 2005). Emphasis is particularly placed on the impact of the local environment, with numerous studies focusing on positive variables, such as the dynamism of the local environment, the extent of government support, richness of local research and technological infrastructure, related and supporting industries, and the intensity of competition (e.g., Foss & Pedersen, 2002; Almeida & Phene, 2004).

Despite the literature's shift to viewing subsidiary networks as active participants in knowledge generation and product development, the focus on value-enhancing roles for subsidiaries obscures alternative scenarios. There is a growing literature on MNE failure or exit in host countries. These studies have tended to look at the role of prior experience, entry mode and timing, and location factors on survival likelihood (Shaver et al., 1997; Zaheer & Mosakowski, 1997; Shaver, 1998). The process of divestment from the host countries has not typically been the focus, or the impact of sunk investments.

Ignored in this literature are the instances where a subsidiary either exits the MNE system or slowly devolves into a black hole, serving little purpose other than to distribute products developed elsewhere. Processes of integration and consolidation of value-adding sites, which underpin the dominant IR framework (Prahalad & Doz, 1987), necessarily entail that this is the fate of some MNE subsidiaries. Yet, there have been few attempts to theoretically model and test subsidiary evolution, particularly with respect to clearly defining subsidiary starting points (initial conditions) and paths of transition.

Moore (2001, p. 278) hypothesized that subsidiaries from most medium to small countries would end up as implementors of technologies developed elsewhere in the multinational network, with many devolving into a "considerably diminished role for the subsidiary, without international mandates ... or Black Holes in Ghoshal and Bartlett's terms." If Moore is correct, an important empirical and theoretical question is how MNEs unwind and reconfigure foreign operations, as part of the realignment of affiliate networks.

Unwinding Foreign Commitments

Divestment has received some coverage in the IB literature. Boddewyn (1983) argued that geographic and emotional distance rendered foreign divestments easier propositions for senior managers than closing domestic plants and facilities and that such decisions are more easily sold to local stakeholders on the basis of difficult-to-verify rationalizations, such as high perceived political risk, and remoteness of the "victims." Compared with purely domestic divestments, foreign exits are distinguished by lower barriers to exit due to the usual availability of alternative market-servicing options (e.g., export, licensing) and to the smaller size of most foreign direct

investments (FDIs), compared with the MNEs overall and home market operations (Boddewyn, 1979, 1983).

In a rare study of divestment decisions, Benito (1997) hypothesized that positive economic growth, political risk, cultural distance, shared equity (joint ventures), acquisitions, and international experience would affect the decision to divest foreign assets. Analyzing Norwegian manufacturing FDIs for 1982–1992, he found that while acquired operations were statistically more likely to be divested than Greenfield investments, and investments in growing economies and closely related operations were less likely to be divested, joint venture status, international experience, and cultural distance were not significant.

Looking at divestment (through sale) against closure exits by foreign firms, Mata and Portugal (2000) analyzed population data for Portugal from 1983 to 1989. They found that decisions to shutdown and decisions to divest facilities were affected by different factors. For example, Greenfield entry was found to increase the likelihood of closure and decrease that of divestiture, while limited liability status raised the probability of divestiture and lowered that of shutdown, compared with unlimited liability operations. Overall, the probability of closure declined with experience, while the likelihood of divestment was roughly constant over time. For both exit paths, the survival of foreign firms was highest in industries with higher rates of foreign ownership.

Diminishing a subsidiary's role entails walking away from location-specific investments. These investments include supplier relationships and goodwill, and, with complete exit, tacit knowledge of local market demand, rivals, investments in government, and local firm relationships. A foreign operation's unwinding may occur through divestiture or through the reallocation of assets to other parts of the MNE. Divestiture may represent a change in the intensity of the foreign market servicing mode with respect to both the form of investment and range of products sold, or it may entail complete withdrawal from a host country (Benito, 1997). This latter option may also be the end point of a staged exit or creeping divestment of product lines and, ultimately, assets.

However, Chang and Singh (1999) found that within domestic multi-business firms the development of idiosyncratic, firm-specific assets and the sharing of knowledge and resources between different business units made the exit from lines of business more difficult and sales of assets to other firms less likely. They highlighted that "it may be difficult to segregate this already integrated business and repackage it for sale" (Chang & Singh, 1999, p. 1021).

Hence, Birkinshaw and Hood's (1998) proposal that parents present divestment decisions as fait accompli to subsidiary managers and host governments overly simplifies a complex decision. Atrophy may occur, but not through subsidiary neglect or explicit parent direction, as proposed by Birkinshaw and Hood (1998), but through (1) an inability of the affiliate to shake off the past, (2) the depletion of capabilities in the subsidiary not rendering existing resources valueless in their existing application, or (3) the switching costs of transferring resources to alternative locations or disestablishing investments exceeding the costs of leaving assets in place.

The Role of Sunk Costs

Applying the concept of sunk costs to foreign investments introduces a moderating variable to any divestment, unwinding, or reconfiguration decision. Sunk costs are those costs which have been incurred and cannot be recovered and which will not vary with output or scale, unlike fixed costs that disappear with the cessation of production (Baumol & Willig, 1981). Arrow (1968) and Pindyck (1988) refer to these as irreversible investments. Industrial organization models of barriers to exit have identified sunk costs as discouraging exit, even at lower-than-average returns (Caves & Porter, 1976). Sunk costs are typically associated with problems of inertia, as many sunk costs, whether arising from the costs of entry or setup, accumulated through operation, or created through exit, have limited salvage value (Clark & Wrigsley, 1995). For example, sunk costs have been associated with problems in innovation, as firms already committed to a particular technology or product have invested in resources and capabilities specific to that technology or product, which are likely to have a lower value when applied to an alternative (and typically newer) technology. Despite lower-than-average returns, sunk costs can lock firms into particular paths of accumulation and contribute to a reluctance to exit a market, because of the uncertainty of the costs of reentry (Ghemawat, 1991; Clark & Wrigsley, 1995).

Corporate bureaucracy can also become an accumulated sunk cost that disincentivizes exit decisions (Clark & Wrigsley, 1995). Benito, Pedersen and Petersen (2005), among others, presented such investments as a form of switching costs or switching deterrents that may prevent shifts in firm strategy.

Phelps and Fuller (2000) argued that high levels of repeat investments in locations may arise from the negative effects of corporate inertia. Parents

may decide to stick with existing facilities and brands with known returns, rather than switch to strategic alternatives of servicing the location (including withdrawal). Divestment inertia may arise from uncertainty surrounding costs from the loss of goodwill, such as damage to a brand name following the withdrawal of local manufacturing (e.g., from adverse publicity or after-sale service concerns for consumers), and over the residual value of productive capacity, brands, and distribution infrastructure. Conversely, the phenomenon of offshoring indicates that many firms are seeking ways of managing sunk costs by decreasing their exposure to them through strategies with built-in flexibility and low levels of commitment. In the following section, we adapt Ghemawat and del Sol's (1998) framework of strategic choice, based on resource specificity versus flexibility, to construct measures of investment committedness that capture the degree of strategic flexibility available to the MNE in light of the committed assets of their subsidiary.

CONCEPTUAL FRAMEWORK: SPECIFICITY VERSUS FLEXIBILITY

Ceteris paribus, for any given set of subsidiary assets in a particular location, the MNE faces four generic options.

- (1) To redeploy assets outside the country, either in-house or through sale.
- (2) To re-deploy assets within the country, either in-house or through sale.
- (3) To write the assets off.
- (4) To use the assets as they are.

The fourth option includes using assets in their current application at a constant, reduced, or expanded scale, with the latter potentially applying to assets that are creating new value-adding opportunities through competence creation, as well as exploitation. These four options pivot on estimating the costs of divesting assets against the costs of continued operation, irrespective of location. For each subset of costs, we are attempting to estimate the value of the assets in their next-best alternative use (the size of the Ricardian rent on the assets), the costs of switching assets to their next-best use, and their irrecoverable costs.

The traditional IB approach to such challenges is to populate each of the four options with a list of conditions, describing what may lead to one over the other. Alternatively, we propose a measure of *investment committedness*.

This measure attempts to capture the extent of an asset's *flexibility* or *specificity*. An asset is flexible when it can be viably employed in an alternative application and a firm could thus reap reasonable returns from any such change. An asset is specific when it has little or no value when employed in an alternative fashion. *Investment committedness* of subsidiary assets can be measured along three axes that separately capture the flexibility-specificity of assets with respect to (1) the firm, (2) use, and (3) location.

Firm and Use Committedness

Ghemawat and del Sol (1998) identified two forms of committedness that impact upon the strategic options available to a firm. They defined a firm-specific resource as having "value to the firm [that] exceeds its value to any other firm" (p. 28). These assets may utilize knowledge or be tailored to be particular processes unique to the firm. Firm-flexible assets can be readily sold to other firms, which would extract considerable value from their use, as little to no modification or adaptation costs would be incurred in using them. The authors also identify usage specificity. An asset is use specific if it cannot be readily adapted to another product market application. There may, of course, be a secondary market where the firm could sell these assets to other firms who may be interested in undertaking such production (i.e., the assets are firm flexible). The prices within that market may give some indication of any discount incurred due to firm specificity.

An example of a use-specific asset might be a factory that can only produce bicycles or a license to drill for oil in a particular location. If the firm sought to undertake a different activity, these assets would have little to no value to them.

The resulting framework produces a 2×2 matrix of scenarios a firm might face (Fig. 1). The framework highlights that firms may find that a given resource or asset is flexible both in its use and its user (quadrant A) or specific to the firm and to its current purpose (quadrant D). The asset may also have a flexible dimension and a specific dimension (quadrants B and C). The subsequent discussion highlights the interactions between firm and use committedness. Decisions about firm-specific assets are seen as highly *strategic* as the "commitments implicit in them underpin the possibility of sustainable superior returns or irreversible losses" (Ghemawat & del Sol, 1998, p. 41). Meanwhile, a usage-flexible resource's adaptability provides the firm with greater scope to deal with uncertainty.

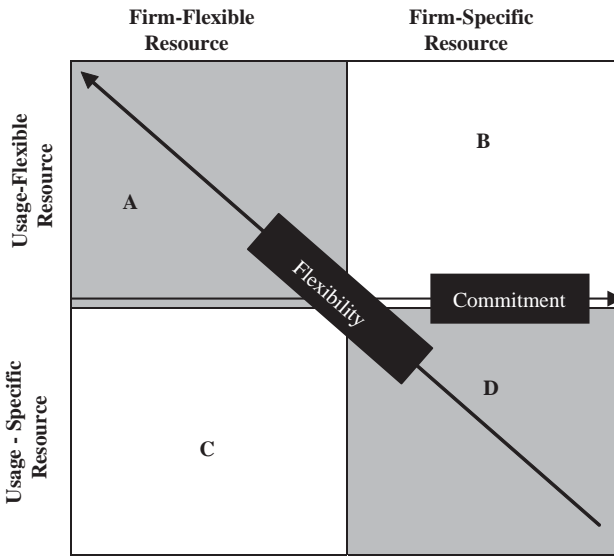


Fig. 1. Resource Specificity Matrix. Source: Ghemawat and del Sol (1998, p. 29).

Location Committedness

Classifying assets along flexibility-specificity dimensions is conceptually similar to Rugman and Verbeke’s (2001) location- and non-location-bound firm-specific advantages (FSAs). They argue that FSAs can be developed internally in three distinct geographic locations: the parent home country, a host country operation, or the internal network spanning several countries.

Location-bound FSAs can be defined as FSAs that benefit a company only in a particular location (or set of locations), and lead to benefits of national responsiveness. In the context of FDI, these location-bound FSAs cannot easily be transferred as an intermediate good and require significant adaptation in order to be used in other locations. (Rugman & Verbeke, 2001, p. 240)

Our proposed classification captures Rugman and Verbeke’s distinction between location- and non-location-bound FSAs, but also extends the schema to all assets in the subsidiary. For example, an automobile manufacturer will hold significant capital assets in the form of buildings and production equipment that represent standard investments for all automakers, which a priori, makes them fairly firm flexible, but far less use flexible, as they have been tailored to the production of automobiles.

However, while the buildings will be location specific, individual pieces of equipment may be moved, expanding their use and firm flexibility. Finally, in a location where all automobile producers are already operating well below minimum efficient scale or there is only one automobile manufacturer, the firm flexibility of the assets disappears (given the minimal recoverable cost through sale), demonstrating the importance of location as an influential determinant of investment committedness.

Adding location (i.e., the IB dimension) generates a three-dimensional ($2 \times 2 \times 2$) variation on the Ghemawat and del Sol matrix. Each of the cells in this three-dimensional plot represents a different combination of the three measures of specificity. For example, marketing capabilities that are valuable in the local host environment, but are difficult to de-embed from the subsidiary's specific environment, exhibit high degrees of firm and location specificity. The ongoing value of capabilities may be particularly determined by their use flexibility, or the extent to which they can be applied to other products the firm may choose to launch in the location.

Applying the schema, leads to the following classification of assets:

- (1) Assets that can be redeployed offshore (i.e., are location-flexible).
 - (a) Assets redeployed offshore within the MNE (firm specific).
 - (b) Assets sold offshore (firm flexible).
- (2) Assets that can only be redeployed in Australia (location specific).
 - (a) Within the firm (firm specific, use flexible).
 - (b) Sold (firm flexible).
- (3) Assets that can only be used in their current application.

While subsidiary assets in groups 1 and 2 can be left as is in their current application, reduced in scale, expanded in scale, redeployed (through sale or reapplication), or written off, assets in group 3 face a narrower set of options: write off, use as is, or expand or reduce in scale. Further investment clearly entails greater risk, as the sole exit option incurs a full loss on disposal. Hence, while use specificity is the least influential in terms of determining the redeployability of assets, it is crucial to the third option, since it renders all alternative uses near zero.

Considering these assets as part of value-adding chains leads to a conclusion that production of intermediate products may be the most mobile and contestable of activities within MNEs, due to their low location and, possibly, firm specificity. The ability to decouple intermediate production and support activities, such as business processes and customer service centers, from more location-bound activities renders these activities vulnerable to parent reallocation, intracorporate competition, and

outsourcing (Phelps & Fuller, 2000). In the following sections, we present a preliminary application of the measure to the assets and activities of foreign subsidiaries in Australia.

DATA, CONTEXT, AND RESEARCH DESIGN

The study utilizes a 2001 mail survey of managers of foreign firms in Australia. A list of foreign firms in Australia was constructed from *Who Owns Whom*, membership lists of bilateral business and trade associations, and firms in the *Business Review Weekly's* 500 largest firms in Australia. The surveys were endorsed by the federal minister for industry, science and technology and were followed by a selective remail and phone calls to firms. Responses were received from 270 firms, with 237 yielding usable information.

As an economy with low numbers of indigenous MNEs (Maitland & Nicholas, 2002; Merrett, 2002), the attraction of FDI to Australia has been a crucial source of industrialization, economic growth, and technology transfer since European colonization. Hunter (1962, p. 2) famously described the “derivative industrial structure” as the outstanding feature of the Australian manufacturing sector. By the 1960s, foreign-dominated oligopolistic industries made up three-quarters of the manufacturing sector, dominating the production of motor vehicles, pharmaceuticals, aluminum, nonferrous metals, iron ore, soap, cigarettes, refined oil, and agricultural, telecommunications and electrical engineering equipment (Hunter, 1962, p. 7; see also Commonwealth Treasury, 1972; Carr, 1978). Between the 1960s and early 1980s, concentration ratios and the level of foreign value adding in major industries continued to increase (Caves, Ward, Williams, & Wright, 1987, p. 59).

The presence of large, foreign affiliates in import-substituting manufacture was associated only with high rates of ownership concentration, overcapacity, economy-wide inflated cost structures, high rates of inefficiency, and very low rates of innovation and research and development (R&D) (Carr, 1978; Parry & Watson, 1979; Parry, 1980). By 2000, the picture of Australian manufacturing was remarkably similar. In the decade to 1998–1999, manufacturing grew by 10%; the rest of the economy grew by 45%. Spending on R&D was well below the OECD average, with little devoted to new product or technology development (Dow, 2002, pp. 62, 63; Quiggin, 2002). Foreign subsidiaries maintained their dominance of key sectors, including petrochemicals, chemicals, machinery and equipment, and

wholesale trade (Australian Bureau of Statistics (ABS), 2004). With lowering trade barriers, greater ease of transportation, and the development of larger, more dispersed international value chains within and across MNEs, the future of many long-lived Australian subsidiaries is clearly an important issue for the Australian economy.

As shown in Table 1, our sample of subsidiaries reflects the spread of the population across the industrial landscape, with 57% active in manufacturing and 14.3% in wholesale trade. The parents' home countries were also roughly in line with population statistics from the ABS (2004), with 46.8% from Europe, 34.5% from North America, and 18.6% from Asia (or 21 different home countries in total). When asked about their financial performance in the previous year, 76.8% claimed to have been profitable.

To provide a snapshot of the subsidiaries' roles at the time of survey, we developed multiple measures of their IR, in line with previous studies (Jarillo & Martinez, 1990; Taggart, 1997). This analysis serves as a contrast to our *investment committedness* framework, which is a forward-looking mechanism focusing on future strategic options for existing investments. Three integration variables were constructed; each expected to be positively related to the level of subsidiary–parent integration. A technology transfer (TECH) variable was constructed by averaging the importance (on a 5-point Likert scale from 1 = low to 5 = high) of transferred technology in 10 areas. In this instance we used a broad, but not uncommon, definition of

Table 1. Respondent Firm Characteristics.

	1st Quartile	Median	3rd Quartile
Years since establishment	40	24.5	11
Number of operations worldwide	100	40.5	18
Number of Australian operations	5	2	1
Number of employees in Australia	225	87.5	24.75
Annual sales/turnover (AUS\$m)	120	40	12
Manufacturing	57.0%		
Wholesale trade	14.3%		
Property and business services	9.3%		
Transport and storage	3.8%		
Parent – US	31.6%		
Parent – UK	15.4%		
Parent – Japan	13.9%		
Parent – Germany	11.0%		
Parent – Sweden	5.3%		

technology transfer that includes a range of knowledge flows beyond just capital equipment. The 10 areas were product or service quality, strategic management skills, human resource (HR) expertise, advertising and marketing methods, brand name reputation, product technology, process technology, quality control, information technology platform, and environmental management. The Cronbach alpha across these items was 0.89.

The second variable, parent control (PCONTROL) measured the degree to which parents controlled or expected subsidiaries to follow their lead in eight areas, on a 3-point scale (not at all, partly, totally). The eight areas were product or service range, product or service design, production technology, work organization, marketing methods, HR policies and practices, subcontracting practices, and accounting systems. The Cronbach alpha across these items was 0.82. The firms were offered 3-point scales (not at all, partly, totally) on both the control and expected-to-follow fronts. PCONTROL summed the number of totally expected-to-follow, partly control, or totally control responses.

Finally, a network (NETWORK) measure was generated that collected the highest importance response (5-point scale) for each firm across three items regarding involvement in a regional subsidiary network or global network and acting as a regional headquarters.

Three responsiveness variables were also developed, each expected to be positive indicators of the level of responsiveness to the Australian market. A change (CHANGE) measure was calculated. CHANGE was calculated by the importance placed on production for the Australian market (a 5-point scale) multiplied by the level of changes made to products for the local market (no changes = 0, minor changes = 1, major changes = 2, minor and major changes to multiple products = 3).

A local input (INPUTOZ) measure was used that reported the percentage of inputs sourced domestically. Finally, a local supplier network (SUPNETOZ) measure was calculated averaging the responses to 20 items regarding frequency of interaction with suppliers on different tasks (a 4-point scale from 1 = never to 4 = usually). The Cronbach alpha across these items was 0.91. As these six strategic variables had different scales each was z standardized before further analysis was undertaken.

Using the standard principle component analysis for IR studies (Harrigan, 1985; Robinson & Pearce, 1988; Jarillo & Martinez, 1990; Taggart, 1997), we extracted summary integration and responsiveness factors. TECH, PCONTROL, and NETWORK loaded most heavily on the *integration* factor, and CHANGE, INPUTOZ, and SUPNETOZ on *responsiveness*. This analysis explained 51.3% of the variance, and Bartlett's

test of sphericity was significant at the 1% level with the resultant Bartlett scores subjected to hierarchical cluster analysis.

As usual for cluster analysis, multiple solutions arose. Adopting a similar methodology to Liang and Nicholas's (2007), the four-cluster solution produced under Ward's method was accepted in light of its favorable consistency with other hierarchical and K-means nonhierarchical outcomes. The clusters were labeled along the standard four-strategy taxonomy of *active*, *receptive*, *autonomous*, and *quiescent subsidiaries*. Table 2 reports the four subsidiary types' mean Bartlett scores for integration and responsiveness factors, along with the mean z scores of the six variables used in the factor analysis and some indicative structural information (medians). Note in Table 2, four firms had scores on one of the two factors that sat more than 1.5 times the interquartile range and were conservatively excluded as mild outliers.

Only 12.4% of the sample fell into the *active subsidiary* cluster. This grouping had the highest median integration and responsiveness scores. These firms were active participants in their parents' MNE networks, contributing to and drawing upon the MNEs' knowledge and resources, while also adapting these advantages to Australia. This *active* group included the larger and more experienced of the sample firms.

Table 2. Variables by Strategy Type.

Mean Scores	Active	Receptive	Autonomous	Quiescent
Integration	1.17	0.64	-0.85	-0.42
Responsiveness	1.07	-0.21	0.65	-0.72
MNE technology transfer (TECH)	0.75	0.50	-0.69	-0.26
MNE parent control (PCONTROL)	0.96	0.34	-0.56	-0.11
MNE network involvement (NETWORK)	0.73	0.40	-0.44	-0.43
Local product modifications (CHANGE)	0.85	-0.45	0.45	-0.72
Local input usage (INPUTOZ)	0.20	-0.47	0.83	-0.98
Local supplier network (SUPNETOZ)	0.81	0.18	0.28	-1.11
<i>Median levels</i>				
Years since establishment	32	26	23	21
Operations worldwide	50	50	37	32
Australian operations	5	2	2	2
Employees in Australia	160	80.5	120	36.5
Annual sales/turnover (AUSSm)	101.5	29.5	40	31.5
<i>N</i>	29	87	77	40

The *receptive subsidiaries* were the largest group (37.3% of the sample). While participating in their parents' networks, these firms felt little need to learn from or adapt to Australian conditions. Although placing comparable import on utilizing their parents' knowledge and technology to the *active subsidiaries*, the subsidiaries were less involved in the broader MNE network, and the parents were less involved in subsidiary decision making. These subsidiaries made little change to their products or services and scored low on the domestic sourcing variable. The sourcing relationships they did develop were nurtured at a comparable level to the much more responsive *autonomous* group, indicating some desire to make the most of linkages once established. These *receptive subsidiaries* were considerably smaller than the *autonomous* and *active* clusters, although their parents were larger in terms of median number of worldwide operations. This group was also the second most experienced, in terms of years since establishment.

The *autonomous* group was the second biggest cluster (33%), and they were focused on building location-specific advantages for Australia, scoring poorly on all three integration variables. They did modify and adapt products for Australian consumers at a comparable level to the *active* group and had by far the highest use of Australian inputs. Despite this, they did not nurture their local supplier relationships to the extent of the *active subsidiaries*.

Finally, almost a fifth of the sample (17.1%) were *quiescent subsidiaries*. These firms had little involvement with their broader multinational network, made few modifications to products, sourced few inputs domestically, and developed limited ties with local suppliers. They were typically new arrivals, with the lowest numbers of Australia-based employees.

Unlike Jarillo and Martinez (1990) and Taggart (1997), this study includes firms from across a variety of industries. We found that the clustering outcomes did differ significantly between industries.¹ As shown in Table 3, manufacturing was most representative of the overall sample. Wholesale trade, on the other hand, was much more likely to adopt a *quiescent* strategy than any other industry group and much less likely to be *autonomous*. Clearly, local responsiveness was not seen as a source of competitive advantage for these subsidiaries. This most likely reflects their involvement in sourcing and distributing intermediate products that require little modification. Property and business services were the most *autonomous* of the industry groups, consistent with the industry's need for understanding of and responsiveness to the idiosyncrasies of the local environment. Similar

Table 3. Strategy Types by Industry.

Industry	Active (%)	Receptive (%)	Autonomous (%)	Quiescent (%)
Manufacturing	12.6	40.7	32.6	14.1
Wholesale trade	6.3	40.6	9.4	43.8
Property and business services	14.3	23.8	52.4	9.5
Other	15.6	31.1	42.2	11.1
Total	12.4	37.3	33.0	17.2

tests on the incidence of strategies by parent's triad membership – that is, whether they were European, Asian, or American – were not found to be significant.

This classification of subsidiary types is a static view of sets of value-adding activities. *A priori*, the evolution of these subsidiaries would appear to be moving toward an unwinding of commitments. However, a straightforward classification does not tell us anything about the decision matrix facing parent and subsidiary managers. In the following section, we present a preliminary attempt to analyze the scale of the legacy effects exerted by existing commitments and the degree of flexibility the firms faced in realigning these assets with parent corporate strategies. As discussed in the conceptual framework section, parents and subsidiaries face three generic strategic options, each shaped by the flexibility-specificity of committed assets along three dimensions – use, location, and firm.

MEASURING THE SPECIFICITY-FLEXIBILITY OF COMMITTED ASSETS

Location Specificity

The survey responses allowed us to construct an exploratory series of measures of the extent to which these MNEs may be encumbered with locally specific assets. Such location specificity will impact on the likely value of the next-best use of these assets. Our assumption was that any productive resources tailored to the Australian environment would have substantially lower value to the firm if transferred offshore.

Local Production measures the extent to which the production capacity developed in Australia had been adapted to the idiosyncrasies of the

Australian market. The variable multiplies the amount of product modification for the local market (three-point scale) and the importance of that market (five-point scale). A score of 8 or more is denoted as location specific. While almost half of the sample (46.3%) falls into this category, this threshold ensures only the following are classified as location specific:

- (1) Firms making minor modifications (2 on the 3 point scale) and reporting importance scores of 4 or 5 for production for the local market.
- (2) Firms making major modifications (3) and reporting importance scores of 3 to 5 for production for the local market.

Similar logic is adopted for all subsequent scale-based multiplicative measures.

Firms may also make relationship-specific investments that are location bound. Attempting to transfer the productive capacity to an offshore location may render such investments worthless. We calculated two *Local Supplier* measures. The first multiplies the percentage of inputs provided by long-term local suppliers (the raw number was divided by 50) and the frequency of the sample firm investing in equipment specific to these long-term suppliers (4 point scale). The second measure considers human capital investment specific to the suppliers. We deemed a score of 3 or more indicative of location specificity as dividing the input percentages by 50 produced a number between 0 and 2 (this reduced the scaling effect of this side of the multiplicative equation). Firms eventually scoring 3 or more on *Local Supplier* thus had to have at least 50% of their inputs sourced locally and to have made supplier-specific investments at least sometimes (3) or alternatively to have at least 66.6% of their inputs sourced locally and usually to have made supplier-specific investments (4). Between 12% and 15% of the firms reached these thresholds.

Our fourth measure of locationspecific investments looks at the managerial assets held by the subsidiary, which the sunk costs literature identifies as representing potentially significant sunk costs and sources of corporate inertia. We asked the respondents to indicate whether their overall management practice within the subsidiary would best be described as mainly Australian (1), mixed Australian–foreign parent(0.5), or mainly foreign parent (0). We multiplied this by the percentage of Australian senior managers in the subsidiary. Any firm scoring over 50% was determined to possess considerable localized managerial assets that may not transfer easily to alternative environments.

Table 4 reports the location specificity measures. For each, we used a simple binary estimation of specificity versus flexibility, allowing us to

Table 4. Incidence of Location Specificity.

	Total (%)
Local production specificity	46.3
Local supplier-equipment specificity	15.6
Local supplier-human capital specificity	12.2
Local managerial specificity	27.0
LS count = 0	35.6
LS count = 1	38.9
LS count = 2	15.9
LS count = 3	8.1
LS count = 4	1.5
Average LS count	1.01

Note: LS, Location specificity.

generate a count measure of specificity. On this measure, 35.6% of the firms were unfettered by location specific investments; that is, they had a count of zero, and were thus flexible. A further 38.9% of the firms experienced specificity along only one dimension, with most (25.2%) reporting local production or managerial specificity (11.1%). We deemed firms with two or more dimensions of specificity on the count variable to have substantial exit cost concerns. This captured 25.5% of the firms, and only five firms (1.9%) with a count of 2 reported the local supplier-equipment and -human capital specificity combination. As such, we are confident that there is little risk of double counting. There were no significant differences in the incidence of location specificity between the early and later arrivals.

Measuring Firm Specificity

For the second axis, we identified five measures of firm specificity. Subsidiaries engaging in production may be highly reliant on technology from the parent, and if this production is then exported through the MNE's subsidiary network, buyers of the subsidiary's production facilities may discount the value of the assets, as ongoing technology transfers are unlikely and exporting relationships more hands off. Our *Export Technology* measure multiplies the importance of production for export markets by the higher of the importance scores reported for transfers of process or product technology competencies from the parent (all 5-point scales). A score of 15 or more was deemed to be firm specific. Just less than a third of the sample (30.4%) fell into this category.

Subsidiaries may also be highly reliant on the cachet of their parent's brand name. If the subsidiary is heavily committed to export activity that uses the brand, then again Australian production facilities may be of lesser value to buyers unable to offer the branded products to overseas markets. Our *Export Branding* variable multiplies the importance of export market production by the importance of transfers of parent brand name reputation competencies. The threshold score for firm specificity (15) was reached by 28.9% of the sample.

Similarly, a subsidiary may be focused on distributing imports within Australia. If the competencies involved in advertising and marketing these imports are principally derived from the parent relationship, then severing such a tie would render these assets less valuable. As such, we calculated an *Import Marketing* variable: the importance of distribution for import markets is multiplied by the importance of transfers of parent advertising and marketing competencies (all 5-point scales). Again, a score of 15 or more was the firm specific benchmark, and 27% of the sample firms fell into this category.

An alternative role for a subsidiary is as a regional headquarters (HQ). A priori we might deem such a role to be somewhat firm specific. The general managerial capacity of the subsidiary might be quite transferable across firms however. As such, we identified transfers of managerial competencies from the parent as amplifying the firm specificity. Our *Regional HQ* measure multiplies the importance of the subsidiary's regional HQ role by the higher of the importance scores reported for transfers of parent strategic management skills *or* HR expertise (all 5-point scales). The threshold score for firm specificity (15) was reached by 25.2% of the sample.

Subsidiaries may also be active participants in their parent's broader regional or global subsidiary network. Developing and leveraging such network ties may be firm-specific dimensions from which any acquiring firm would reap considerably lower benefits. Lacking a direct measure of competency-transfer measures on this front, we employ the stated importance of network integration. The measure *Subsidiary Network* takes the higher of the responses to the importance of being integrated into the regional *or* global subsidiary network (5-point scale). A firm-specific score of 4 or more was reported by 35.2% of firms.

Table 5 reports the firm specificity measures. On the count measure, 30.4% of the firms apparently were unencumbered by any firm-specific investments. A further 27.0% of the firms experienced specificity along only one dimension, most typically regional HQ specificity (9.6%) and import marketing specificity (8.5%). We deemed firms with two or more dimensions

Table 5. Incidence of Firm Specificity.

	%
Export technology specificity	30.4
Export branding specificity	28.9
Import marketing specificity	27.0
Regional headquarter specificity	25.2
Subsidiary network specificity	35.2
FS count = 0	30.4
FS count = 1	27.0
FS count = 2	20.0
FS count = 3	13.0
FS count = 4	7.4
FS count = 5	2.2
Average FS count	1.47

Note: FS, Firm specificity.

of specificity on the count variable to have substantial exit cost concerns, capturing 42.6% of the sample.

Measuring Use Specificity

A further consideration for subsidiaries when assessing the ease or cost of exit is the extent to which their assets would be suitable for alternative uses. An aspect of this may be the appeal of these assets to other firms. Our *Potential Buyers* binary variable was triggered for any firm reporting moderately high to high levels of competition from Australian-owned competitors, subsidiaries of either of the parent's competitors, or other overseas companies. This was 87.8% of the sample, leaving only 12.2% of the sample with this proxy of use-specificity concerns. We acknowledge that this is a rather clumsy and inexact proxy for use specificity versus flexibility. The existence of competitors might just as easily indicate a market for firm-flexible assets. A better measure would be a direct item on the *adaptability* of assets. We are constrained considerably by the items in the 2001 survey.

Aggregating the Specificity-Flexibility Measure

This produces three dimensions along which we can assess the firm's levels of specificity-flexibility – location, firm, and use. As noted above, we have

used relatively crude cutoffs beyond which a firm may be considered to be in possession of specific assets. Assuming all nonspecific assets are flexible, we can categorize each firm along the three dimensions. This results in a $2 \times 2 \times 2$ matrix, ill suited to presentation in table form. Table 6 reports the overall findings as simply as possible. More than a third of the sample (38.1%) could be described as completely flexible, while only two firms (0.7%) were constrained along all three dimensions. Almost a fifth (17.1%) of the firms had specific assets along two dimensions, while the largest proportion (44.2%) had specific assets along one dimension. Table 7 shows the various combinations of specificity and flexibility measures.

Returning to our earlier classification of assets, we were now able to provide some insight into the scope for the MNEs to reconfigure their

Table 6. Overall Specificity–Flexibility Measure ($2 \times 2 \times 2$).

	%	%
Complete flexibility		38.1
One specificity dimension		
Firm	26.7	
Location	11.9	
Use	5.6	44.2
Two specificity dimensions	11.1	
Firm, Location		
Firm, Use	4.1	
Location, Use	1.9	17.1
Complete specificity		0.7
Total		100

Table 7. Combinations of Specificity–Flexibility Measures.

	%
Location flexible and Firm specific and Use flexible	26.7
Location flexible and Firm specific and Use specific	4.1
Location flexible and Firm flexible and Use flexible	38.1
Location flexible and Firm flexible and Use specific	5.6
Location specific and Firm specific and Use flexible	11.1
Location specific and Firm flexible and Use flexible	11.9
Location specific and Firm flexible and Use specific	1.9
Location specific and Firm specific and Use specific	0.7
Total	100

Australian operations. Utilizing the data from Table 7, we categorized the sample firms as predominantly possessing

- (1) Assets that can be redeployed offshore (i.e., are location flexible).
 - (a) Assets redeployed offshore within the MNE (firm specific).
 - (b) Assets sold offshore (firm flexible).
- (2) Assets that can only be redeployed in Australia (location specific).
 - (a) Within the firm (firm specific, use flexible).
 - (b) Sold (firm flexible).
- (3) Assets that can only be used in their current application.

A large majority of the firms (74.5%) were found to be in category 1, in that they had considerable scope to redeploy or sell assets offshore (Table 8). A further 24.9% of firms were in category 2, with scope to redeploy or sell within Australia. A paltry 0.7% of firms were constrained to retaining assets in house and in Australia.

Breaking the sample by industry revealed considerable differences in the redeployment opportunities. Subsidiaries engaged in wholesale trade were much more likely to have locational flexibility, with almost all (94.4%) deemed to have assets that could be redeployed offshore. The assets of these subsidiaries were not overly firm specific either, with 58.3% able to be sold to other firms globally. The property and business firms were also relatively footloose and similarly unconstrained by firm specificity. These findings appear consistent with the use of standard physical assets in these domains, highlighting the apparent mobility of human resource and knowledge-based assets. Manufacturing firms were less mobile, as more firms

Table 8. Asset Redeployment Classification.

	Redeployment Options	%	%
1	Assets that can be redeployed offshore (LF)		74.5
	a. Within the MNE (LF; FS; UF or US)	30.8	
	b. Sold (LF; FF; UF or US)	43.7	
2	Assets that can only be redeployed in Australia (LS)		24.9
	a. Within the MNE (LS; FS; UF)	11.1	
	b. Sold (LS; FF; UF or US)	13.8	
3	Assets that can only be used in current application (LS; FS; US)		0.7
Total		100	100

Note: LF, Location flexible; FF, firm flexible; FS, firm specific; UF, use flexible; US, use specific.

(30.9%) had assets tying them to Australia. The manufacturers were quite evenly split with regard to their scope to sell assets in the market (Table 9).

We also returned to our earlier IR classifications to explore the differences in redeployment opportunities. Consistent with the theory, subsidiaries with higher levels of engagement in Australia (i.e., the *active* and *autonomous* subsidiaries) were also those facing asset mobility constraints (Table 10). Over half (51.7%) of the *active* firms could only redeploy assets within Australia, and 39% of the *autonomous* firms were similarly locked in.

Table 9. Asset Redeployment Classification by Industry.

Redeployment Options	Manufacturing (%)	Wholesale Trade (%)	Property and Business (%)	Other (%)
1 Assets that can be redeployed offshore	68.4	94.4	79.6	64.4
a. Within the MNE	31.6	36.1	25.9	30.7
b. Sold	36.8	58.3	53.7	43.7
2 Assets that can only be redeployed in Australia	30.9	5.6	18.6	24.8
a. Within the MNE	14.5	5.6	9.3	11.1
b. Sold	16.4	0.0	9.3	13.7
3 Assets that can only be used in current application	0.7	0.0	1.9	0.7
Total	100	100	100	100

Table 10. Asset Redeployment Classification by IR Category.

Redeployment Options	Active (%)	Autonomous (%)	Receptive (%)	Quiescent (%)
1 Assets that can be redeployed offshore	48.3	59.8	86.2	100
a. Within the MNE	34.5	14.3	50.6	22.5
b. Sold	13.8	45.5	35.6	77.5
2 Assets that can only be redeployed in Australia	51.7	39.0	12.6	0.0
a. Within the MNE	31.0	14.3	8.0	0.0
b. Sold	20.7	24.7	4.6	0.0
3 Assets that can only be used in current application	0.0	1.3	1.1	0.0
Total	100	100	100	100

The *active* firms were also more likely to have developed firm-specific assets (mobile or otherwise). This would reflect their high levels of integration with the MNE parent and broader MNE networks. In contrast, few (12.6%) of the *receptive* and none of the *quiescent* firms had assets tying them to Australia. The big distinction between these two strategic types was that the *receptive* firms were much more likely to have firm-specific assets. It should be noted there are some crossovers in the variables and items used to create the IR strategy classifications and the specificity-flexibility measures, so we do advise some caution in interpreting these results.

ASSESSING TRANSFORMATION INTENTIONS

One of the key rationales for examining the sample firms' specificity-flexibility was to assess the capacity of the parent to alter the subsidiary's role. Our survey asked the subsidiaries how important they perceived the various activities mentioned in Table 4 would be in 5 years time. Comparing their responses to their now answers allows us to gauge the amount of organizational transformation they foresaw. Some responses were more difficult to interpret, those being distribution of imports, production for Australian market, and integration into the regional or global subsidiary network. Ergo, we focused on two areas where the direction of the transformation appeared unequivocally positive or negative: production for export and acting as a regional HQ. We would hope that firms have a clear idea about the likelihood of a shift in the importance of these activities in the coming 5 years. Also, we would expect there to be some relationship between the nature of the firms' assets – that is, their transformability – and their expectations. Table 11 shows that the relationship was not strong, however. In terms of the percentage of firms predicting a lesser role in export production, which would presumably involve the redeployment of assets, having assets that were mobile (redeployment category 1) made no real difference to the firm's view on such action being likely. If the assets were location specific, however, then firms showed an appreciation for the impact of firm specificity. Only 13.8% of firms with location-specific, firm-specific, use-flexible assets (category 2a) saw a reduced export production role on the horizon. In comparison, 51.5% of firms with location-specific, firm-flexible assets (category 2b) foresaw a reduced export production responsibility. The findings with respect to regional HQ were less distinctive.

Table 11. Transformation Expectations by Asset Redeployment Classification.

Redeployment Options		Export Production Transformation			Regional HQ Transformation		
		Less %	Same %	More %	Less %	Same %	More %
1	Assets that can be redeployed offshore	27.2	67.3	5.6	29.6	64.8	5.6
	a. Within the MNE	23.0	70.3	6.8	22.9	71.4	5.7
	b. Sold	30.7	64.8	4.5	27.6	69.0	3.4
2	Assets that can only be redeployed in Australia	32.8	59.3	4.7	25.5	70.0	4.5
	a. Within the MNE	13.8	75.9	10.3	22.2	70.4	7.4
	b. Sold	51.5	48.5	0.0	37.0	59.3	3.7
3	Assets that can only be used in current application	0.0	100.0	0.0	0.0	100.0	0.0
All firms		28.8	65.9	5.3	26.4	68.9	4.7

DISCUSSION

For the sample firms, the investment committedness measures reveal very high rates of flexibility in the assets committed to Australia in 2001. From Table 7, nearly 38% of the sample firms' assets could be exhibited flexibility along all three dimensions. A further 36.4% of assets could be sold offshore or domestically, and 26.7% were firm specific but flexible with respect to location and use (or at least neutral on one or more of these dimensions). Only a quarter exhibited location specificity; but of this total, only 11.8% were specific to the firm, entailing that they could only be maintained in house or written off. This was a somewhat surprising result and suggests greater strategic flexibility than we expected within the Australian context. It may be that our aggregation of assets up to a firm level is disguising the impact of certain assets' specificities on the firms' strategies.

Given these fairly high rates of flexibility, particularly with respect to location, it was also surprising how few subsidiaries expected to be engaged in different types of value-adding activities or roles 5 years from the date of survey. In response to direct questions on whether they were part of integrated subsidiary networks, most sample firms indicated that they were. Yet, the structure of their activities at the date of survey and 5 years out revealed that

most were not participating in the form of producing products for distribution through the subsidiary network, nor were they actively contributing R&D-derived knowledge. Of the information collected, just under two-thirds of the firms provided data on subsidiary R&D. Of these over a fifth of the firms employed no R&D staff and exactly half employed fewer than 10 R&D personnel, with later arrivals exhibiting a greater tendency to having no R&D commitments. The Australian subsidiaries were typically recipients of knowledge and product flows within their respective MNEs

Despite low subsidiary and host economy rates of innovation and preliminary estimates of significant flexibility in the redeployability of committed assets both within the host location and offshore, subsidiary managers expected few changes to their value-adding profiles and contribution to the parent networks. Given most subsidiaries indicated sound financial performance, one possible conclusion is that parent MNEs were content to leave assets in Australia, maintaining a fairly isolated focus on serving the domestic market but without clear mandates to produce for the broader MNE network.

Australian subsidiary managers may also have been ignorant of parent plans for the assets, or parent managers may not have recognized the degree of flexibility embedded in their Australian operations. Assets may well be flexible, but the MNE must also possess the dynamic capabilities to recognize new opportunities and applications for its assets. The tasks underpinning these dynamic capabilities include knowledge management routines that create strong parent knowledge of subsidiary assets or subsidiary-level knowledge of the profile of the wider MNE network. This knowledge encompasses product portfolios (underlying technologies, product lines, brands, and market positioning), value-adding activities undertaken at different locations, competitors, and institutional differences and distances between the subsidiary location and alternative sites for exploitation. For example, to assess the next-best alternative uses for subsidiary-located brands and marketing capabilities, decision makers need to be able to determine the willingness of local competitors or new entrants to buy or license the assets, the adaptability of the brands to different product and geographic markets, and the redeployability of the marketing team to new products or locations.

CONCLUSION

Entry form and mode decisions have formed the backbone of IB research since its inception. The flipside of these decisions – to decrease the intensity

of a firm's commitment to a particular foreign market – has been the subject of just a handful of theoretical and empirical studies. We know little about how, or even if, the nature of existing commitments affects parents' determination of future roles and forms of engagement. A subsidiary's administrative heritage and committed assets may create sufficiently large legacy effects to swamp any attempts to bid for new mandates or for the parent to simply walk away from sunk investments. While the literature on subsidiary roles and network configurations presents largely stylized types (e.g., Bartlett & Ghoshal, 1989; Jarillo & Martinez, 1990; Taggart, 1997), the experiences and processes of adaptation for individual subsidiaries are clearly different within and across MNEs. The investment committedness measure is one step toward understanding reallocation and divestment decisions within MNEs.

NOTE

1. A chi-square test ($\chi^2 = 23.76$, 6 degrees of freedom) and Fisher's exact test (21.59, 6 degrees of freedom) on the three industries (ANZSIC 1-digit level) with 10 or more firms – manufacturing, wholesale trade, and property and business services – were significant at the 1% level.

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