

**PLAYING FOOTBALL IN A SOCCER FIELD:
VALUE CHAIN STRUCTURES, INSTITUTIONAL MODULARITY AND FOREIGN EXPANSION**

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Abstract

When do firms expand abroad? Theory to date suggests that global expansion happens when firm-specific competitive advantages outweigh country-specific difficulties in operating abroad. Differences in culture, in legislation, in administrative practices, and in the overall institutional structure, all of which operate at the level of the country, have been extensively studied as factors affecting global expansion. We suggest that in addition to these country-level factors, a major determinant of the prospects and potential for global expansion is the *structure of the value chain*, which is both country- and sector- specific. Value chain structure, i.e. the way that labor is divided between different types of vertical participants evolves in a path-dependent, *country-specific* way. Differences in vertical structures between countries, then, predict the extent to which firms in any segment can export their competitive advantage. Thus, for globalization to occur, firms must have an “institutionally modular” product or service; that is, a product or service which “fits” in the vertical structure of the sector of the host country. We argue that such “institutional modularity” is not easy to achieve. We illustrate with evidence of globalization efforts in mortgage banking that largely failed because of either lack of compatibility of the globalizing firms’ “vertical module”, or because of the managerial underestimation of the role of vertical co-specialization. We also note that the increasing modularization and global convergence of value chain structures (partly motivated by gains from trade and partly motivated by IT standards) may be opening up new venues for globalization, especially in the service sector.

Keywords: Competitive Advantage Transferability; Value Chain Structure; Co-specialization; Global Expansion; Vertical Scope; Institutional Modularity.

What Determines Success in Global Expansion? Background and Motivation

What determines success in global expansion? For some time we have known that a firm expanding in a foreign country faces a potentially hostile environment. Lack of access to local resources, imperfect knowledge of the local operating environment and potential difficulties in establishing a competitive position put the expanding firm at a disadvantage vis-à-vis its local competitors (Buckley and Casson, 1976, Dunning, 1979, Caves, 1981, Rugman, 1981). As Hymer (1960) observed in his seminal contribution, there *have* to exist some firm-specific advantages that outweigh any generic dis-advantages of expanding abroad, i.e. the “liability of foreignness” (Zaheer, 1995; Zaheer and Mosakowski, 1997). To put it in Hymer’s words, “there are as many kinds of advantages as there are functions in making and selling a product”, which form the basis of global expansion, because they are superior in absolute or in relative terms (Yip, 2003). Kindleberger (1969) and Dunning (1979) suggested that firms expanding abroad possess “monopolistic advantages” or “ownership-specific advantages” that account for their success; and Vernon (1975) suggested that firms expand their products as a function of their position in the life cycle. Buckley and Casson (1976) argued that comparative advantage, i.e. the superiority in terms of capabilities of firms in developed countries is what accounts for patterns of both trade and FDI activity. From the 1980’s onwards, the development of the field of strategy established the concept of competitive, firm-specific advantages (Nelson, 1995), which has recently been more fully integrated in international economics as well (cf. Markusen, 2002; Henisz, 2003). Thus, one of the major drivers of global expansion is to “export” the competitive advantage of particular firms. Such an “export” could, in principle, be achieved through either some market-based arrangement (e.g. by the licensing or franchising of a superior product or service in a foreign country); or, failing that option, through Foreign Direct Investment (FDI), either via Greenfield operations or Merger & Acquisition in a host country.¹

Global expansion, then, requires some advantage a firm should be able to leverage internationally, e.g. in terms of the product or service it produces, potentially on the basis of superior, “leveragable” knowledge (Teece, 1977, 1981; Buckley and Casson, 1976; Kogut and Zander, 1993). The structure of global corporations itself could give rise to the very competitive advantage that can be exported, through learning, creating and leveraging knowledge globally (see Kogut

¹ The choice of form of global expansion (i.e. globalization through market transactions vs globalization through internalization; and mode of foreign entry) is the central question in much global management research (see Buckley and Casson, 1976; Caves, 1996). We do not expressly address it here; our basic argument holds, whichever the form of the globalization. Still, we do return to both the question of internalization and the question of mode of global expansion, as they do with the argument in this paper, in the discussion section.

and Zander, 1993; Nohria and Ghoshal 1997; Bartlett and Ghoshal, 2000; McKeivily, Eisenhardt and Prescott, 2004). There also exist benefits from globalization *per se*, which are based on lower costs of operations through global economies of scale or scope (Dunning, 1979; Teece, 1980; Bartlett and Ghoshal, 2000). In addition to having an advantage it can leverage internationally, a firms' ability to expand globally also depends on how effective it is in the process of globalization itself, and on having the appropriate organization and processes (cf. Perlmutter, 1969; Stopford and Wells, 1972; Ghoshal, 1987; Birkinshaw, 2000; Vermeulen and Barkema, 2002).²

Yet while it has been clear that firms must have an advantage that they can leverage or transfer internationally (as well as a firm-specific capability to globalize), it has also been clear that the extent to which they manage to do so, and where they choose to expand, depends on the attributes of the host nation – not only in terms of the benefits of locating abroad due to location-specific advantages such as lower costs of labor and resources (Dunning, 1979, Rugman, 1981), but also in terms of the *drawbacks* of locating in a country which differs from that of the host (Zaheer, 1995, Zaheer and Mosakowski, 1997). Indeed, progress has been made in understanding these drawbacks, and in unpacking the “problems of going abroad” – that is, understanding the key attributes that explain if a move to a particular country is likely to be a failure or a success. The received wisdom is that firms will expand only if the costs of so doing (due to the differences in the conditions in the home and host country and the resulting strain in operating abroad) are less than the firm-specific advantage with regards to potential local competitors. Ghemawat (2001) summarizes the attributes that predict whether a firm can leverage its advantage, by considering the host country's Cultural, Administrative, Geographical and Economic attributes, and comparing them to those of the country of origin of the ambitious potential global firm.

In the literature, researchers drawing from Organizational Behavior, Strategy, Institutional Economics, Political Science, and Sociology have all worked to dimensionalize the attributes of the national environment that may hinder global expansion. This helps predict whether firms will or will not be successful in globalizing. Guillen and Suarez (2004), in their recent survey article, summarize these differences as Cross-Cultural (Hofstede, 1980, 1991); comparative authority / business system (Hamilton and Biggart, 1988; Whitley, 1992; Guillen, 1994; Djelic, 1998); political economy / MNC-friendliness (Gereffi, 1989); legal tradition (La Porta, Lopez-de-Silanes,

² A full account on the literature on how global firms operate is outside the scope of this paper, since our focus is to understand why some types of advantages can or cannot be exported *in principle*, as opposed to understanding why some firms are better able to export their competitive advantage than others, or how they should be structured to achieve that. However, we do return to the motivation of being a global company so as to leverage and create knowledge internationally later in the paper, in the discussion section.

Shleifer & Vishny 1999); and political risk-based (Henisz & Williamson 1999; Henisz 2000). In all these strands of literature, the question is how do particular *countries* differ, and as a result, how difficult it is for one firm to manage to export its advantages from its own onto another national context.

The argument, then, is that the extent to which a firms' advantage can be leveraged abroad or not depends partly on that firms' structure and ability to leverage its competencies globally; and, more important perhaps, on the distance or difference between the host nation and the nation where the firm operates. Simply put, to explain global expansion and the "exportability" of a particular firms' advantage, the firms' competencies have to be traded off against the host country's structural / institutional attributes. However, this thesis does not account for the substantial inter-industry differences in patterns of globalization, and especially the lack of global expansion in some service sectors. Pavitt (1991) and Patel (1995), for instance, identify sectors where strengths in one national market did not lead to a successful expansion abroad. So the question becomes, why is it that only *some* industries are global? Or that there would be global competition between specific industries between particular groups of countries and not others, which may be otherwise similar in terms of their institutional environment? Why would it be that *some* types of competitive advantage in *some* types of industries would be potentially "internationally leverageable" (whether through direct operations within a Multi-National Corporation, or through licensing)³ to the very same countries and others would not?

Our answer to these questions is partial at best. The question on the extent of globalization has been considered in terms of "drivers of globalization" (Yip and Coundouriotis, 1991), such as globalization of customers, markets, and support of regulators; yet the question still lingers on what drives these drivers; that is, what makes some industries have more global competitors. Our understanding of this question, of when an advantage is "transferable" or "translatable" (Yip, 2003: 66) is still limited. In a rare effort to address this issue, Hu (1995), expanding Hymer's approach, observed that not all sources of competitive advantage are transferable on the global level. Some advantages are only relevant in specific countries and economies, and some

³ Much progress has been made in terms of our understanding of the conditions under which a firm can "export" its competitive advantage through licensing its assets / types of products or services / technology / superior way of producing, or whether it has to operate in multiple countries in order to capitalize on its advantage. The consensus in the literature is that if the advantage is based on knowledge or technology that can be licensed, a firm would opt for this in order to avoid some of the downsides of the liability of foreignness. When considering the "exportability" of competitive advantage we consider the extent to which a firm can leverage its advantage *regardless* of the mode of global operation. We revisit this issue of internatization (Buckley and Casson, 1976; Teece, 1981; Caves, 1996) in the discussion, after having laid out the theoretical framework.

advantages are hardly transferable. Helpful as this observation is, it begs the question of *why* these differences exist.

This paper provides an alternative, complementary approach on the determinants of the prospects of globalizing and exporting competitive advantage. Specifically, we argue that “institutional modularity” at the level of the *sector*- that is, compatibility in terms of the nature, structure and operation of the value chain, i.e. the vertical division of labor, plays a significant role. We argue that when such value chain structures are similar between different countries, and, more to the point, when particular parts of a production structure are modular, then global expansion may occur. But, more often than not, there are substantial inter-national differences in the way that industries are organized and in the way labor is divided between them. This happens because the structure of industries is not identical between countries, simply determined by technology alone, but rather is the result of path-dependent processes, as it has been noted by the “varieties of capitalism” and “national business systems” literature (Whitley, 1992, 1999; Whitley and Kristensen, 1996; Hall and Soskice, 2001; Morgal et al, 2004). As a result, in different countries, the value chain de-composes onto different “vertical units”, i.e. different ecologies of vertically co-specialized participants; and of course, in each setting, prevailing norms of interaction between firms in general affect the vertical division of labor (cf. Nishiguchi, 1994 and Lane, 1996). Or, to put it in terms of the framework recently developed by Peteraf and Shanley (1997; Shanley and Peteraf, 2004), each industry in each country may be endowed with different, and possibly inconsistent “vertical groups”, through country-specific social generative processes.

To substantiate this argument, we first provide some evidence on the inter-national differences of the structure of the value chain and the role of vertical co-specialization; then provide a framework that explains when firms can or cannot expand their competitive advantage abroad, as a function of their sectors’ vertical structure at home and abroad; and finally turn to an extended example from the mortgage banking industry that further illustrates these dynamics.

The Division of Labor across Vertical Boundaries: Path-dependency of National Contexts

The first part of the argument, then, is that different countries have different ways of “dividing labor” between firms; that is, that the structure of the value chain and the resulting identity and scope of the participating firms is not technologically determined, but rather shaped by a co-evolutionary process which yields a substantial variety of ways to organize industries. This leads to pronounced differences in the structure of the value chain between countries, even when the final good/ services are not too different. This is particularly important as the firms’ capabilities

depend on their scope; and if scope differs between national contexts, exporting a superior capability from one setting onto the other will be a substantial challenge, as it will simply not “fit” the host system- not for lack of broad cultural fit, or compatibility with the legal system or administrative practices, but rather because the nature of the capabilities will be different.

To anchor our theoretical discussion on a specific, easy-to-understand example, let us consider the European construction sector, which, by all accounts, serves a remarkably similar purpose in all European countries, and which has only limited product / service differentiation between countries. Yet despite that, European countries *differ markedly* in how they organize labor within that sector- how the structure of their value chain is set (cf. Winch, 1996, 2000 or Cacciatori and Jacobides, 2004, for a detailed discussion). This inter-national divergence of the value chain structure is best summarized by this quote that explains that even players who, from a distance, seem to cover the same spot in the value chain, are really quite distinct species:

“Although architecte, architect, arkitekt, architetto, and Architekt appear to mean the same thing, they do so only in a limited sense. All are designers of buildings, and all share a common root in the Greek *architekton*, but the historical evolution of the contracting systems means that their social meanings are very diverse, and that even their functional meanings are not coextensive. The French *architecte* has a much more constrained and limited role in the construction process than the British *architect*; the German *Architekt* has a state-derived role in obtaining building permits which the British counterpart does not, and so on. In the case of some actors such as the German *Prufstatiker*, the British quantity surveyor, and the French *bureau de controle*, there is simply no close comparator in other systems.” (Winch, 2000: 90)

Despite the shared contractual and organisational issues involved in procuring buildings, then, different countries have different ways to break-up activities between segments. Architects, for instance, in France, are only involved in the concept and design phase, whereas they are also involved in detailing in the UK (see Winch, 1996:258). This is important not only because architects in different European countries have a different remit; but because their competencies are developed to fit that remit, and as such are only specific to their national context. Note that these differences in the vertical organization of the sector are *not* due to differences in the end-product or end-service- buildings and final customer needs are fairly similar. Likewise, needs do not differ much between these countries. Furthermore, note that the differences in scope and organization in the construction industry are not related to the factors that are most commonly investigated when international differences are examined: property rights, the nature of the labour force, and other country-level impacts did not bring about this remarkable divergence of organization in European construction. Rather, such sector / value chain structure differences reflect a path-dependent, co-evolutionary process of divvying up the value chain.

As Kristensen notes (1996: 17), “national types of firms and their institutional context change, but because the process of change happens through and by nationally patterned relations and interactions, nothing ensures convergence”. We would add that the same holds for the nature of the value chain. Even though there do exist some technological or transactional imperatives in the “construction sector” in developed countries, which will lead to particular “appropriate configurations” in an industry, much of the detail and the way in which an industry will be broken up in distinct vertical units is a function of historical and socially situated processes (Jacobides, 2005.) The extent of these differences, and the strong path-dependencies that they lead, can be seen in recent initiatives of the European Union. Frustrated by the lack of inter-EU internationalization of construction companies, the European Commission has tried to encourage harmonization that would lead to greater international activity. Yet these active efforts to *subsidize* or at least support global expansion have been stymied by the national specificities of the division of labor. Winch (2000) highlights the “stickiness” of the structure of the value chain, and the entrenchment of these national contexts:

“a very important point to emerge from this analysis is that the extensive variation in the configuration of [building conception, control, and construction] and the regulatory context across the European Union means that attempts at harmonising those configurations will be extremely difficult. Construction business systems have evolved over very long periods, and display well-rooted rigidities, with the balance between the actors in the system hard fought and hard won. Proposals emanating from Brussels that threaten to disrupt that balance are likely to be resisted.... [A careful comparative international analysis shows] the different modes and directions of evolution across Europe. It is also noticeable that... forces for change [in the institutional structure of the industry] are generated domestically and neither by directives from the European Commission, nor international competition in construction services.” (2000: 95)

The nature of this path-dependent process, more fully developed in Jacobides (2005) and Jacobides and Winter (2005), requires a brief description. In summary, the structuring of a sector generally looks as follows: First, the underlying conditions of the industry (i.e., the similarity of the knowledge bases along different parts of the value chain, and the related latent gains from trade from the emergence of vertical specialization) lead to a process of intra-organizational separation and inter-organizational learning which aims to divide the structure of the value chain. The way in which an industry is broken up, the way in which labor is tentatively divided between industry participants, is affected by the nation-wide “business system” (Whitley, 1992, 1999; Guillen, 1994; Djelic, 1998), and the patterns of interaction in the society at large (Whitley and Kristensen, 1996). Then, as the options of dividing the value chain and instituting new intermediate markets becomes clearer, as new potential roles for the set of participants in the industry are being shaped, there is substantial jockeying for the different set of actors who try to

ensure that they get an “attractive” part of the value chain. Participants try to support regulation and institutions that support, enhance and entrench a division of labor that protects them (cf. Shell, 2003: Ch 2-3), and as such tend to create a substantial inertial force. It takes either a new technology, or de novo entry of a different “system” of organizing the industry (domestically or globally) to make the industry structure shift.

The implication of this analysis is that the specific way in which an industry is divided in vertical segments, the identity of the participant firms and the nature of capabilities of the firms in each segment (and the resulting per-segment profitability) is not determined exogenously, or ex ante. Rather, it is the result of an active effort of industry participants to shape their own industry’s structure. As these “contests” for divvying up the industry happen at the level of a nation, and the supporting institutions and regulations, as well as the other participants of the business ecosystem are largely in the same country, international differences will persevere. Furthermore, after a particular way to organize the different sets of industry participants (in terms of scope, definition of their role etc) is set, the nation-wide institutional context begins to solidify, largely affected by the interests of those who stand to gain the most out of this structure, thus solidifying the structure of the industry and creating inertial forces to keep the industry structure set. In our construction example, it was the Architects who “won” the battle for the division of labor in construction in the UK (Ball, 1988); they managed to set the architect role and scope in a way that allowed them, at least until recently, to have the highest share of value added. In France, by contrast, the engineers managed to carve out a better position in the industry. The success of architects in the UK is at least partly due to their connections with the landed gentry, and their ability (through the gentry and the House of Lords) to promulgate regulations supporting their role; while in France the tradition of engineering evident from the time of the French revolution, and the prominence of the engineering-dominated *Grandes Ecoles* helped the engineers, and created the context for the institutionalization of this role. Both in the UK and in France, the outcome was not pre-ordained, but rather the result of a path-dependent process. Thus, a combination of local historical factors, and the relative success of different groups in shaping their industry’s structure led to markedly different ways of dividing the labor in an industry, to different scope, and, as a result of this different scope, to different capabilities as well (Cacciatori and Jacobides, 2004).

Thus, each country has a distinct evolutionary trajectory in each industry where capabilities, scope, and the institutional context interact and shape the nature of the participants, leading to the creation of fairly distinct “vertical groups” (Shanley and Peteraf, 2004) along the way. It is exactly these inter-national differences in the nature of these “vertical groups” in otherwise

identical industries that hamper the exportability of competitive advantage. And it is these differences at *the industry and value chain structure* which have not received any real attention to date, and which are the basis of this paper's contribution to the literature.

Capabilities, Transaction Costs and Institutional Modularity: Shaping Globalization Prospects

Let us recapitulate: So far, the argument is that the way labor is divided in national contexts is not only determined by technological imperatives. Differences in the managerial structures along different parts of the value chain do provide the basic blueprint in terms of the scope of the industry's boundaries; that is, differences or similarities along the industry's value chain, or set of activities do provide a set of likely boundaries which "make sense" in terms of effective management and effective competency development (Jacobides and Winter, 2005; also, see Shanley and Peteraf, 2004). For instance, the existence of an artistic component, a measurement component, an engineering component, and an economic study/ feasibility and follow up component suggest that the construction industry would benefit from the existence of different firms along the value chain. Yet the exact nature of these firms, the places where the "dotted lines" that will cut the industry into inter-connected pieces, are not given exogenously (cf. Baldwin and Clark, 2003). These emerge as a part of an endogenous process, which, on the basis of the local conditions, leads to the creation of particular intermediate markets and vertical segments which are vertically co-specialized (Jacobides, 2005). This process happens by trying to reduce the potential transaction costs (Williamson, 1985), through a learning process (Argyres and Liebeskind, 1999; Mayer and Argyres, 2004), in a way that supports a particular industry structure. These processes happen most often at the national level, with firms trying to co-specialize and take advantage of each others' productive capabilities (Jacobides and Hitt, 2004); they thus create templates, reinforced and sanctioned by regulators, that lead to the country-specific division of labor.

On the basis of the existing vertical segments and co-specialized participants in the industry, firms develop their own capabilities.⁴ These capabilities, though, are critically dependent on this

⁴ The structure of the value chain affects both the immediate exportability of competitive advantage (that is, the extent to which specific firms can leverage their advantages from one setting onto the next); and it drives *productive capabilities* along an industry themselves. As Jacobides and Winter (2005) recently suggested, the way labor is divided in a sector affects the processes of knowledge accumulation; the identity, references, and comparison points, as well as capability development process of the participating firms. So international differences in both the way labor is divided and in the connections between the firms along the industry's value chain affects the patterns of exportability of advantage as it also shapes the *magnitude and type* of the capability advantage over time, in addition to shaping the degree to which it is institutionally modular.

context, in two ways. First, scope prescribes organization and also the nature of capabilities. Take our architect example. In the UK, where architects are active in detailing (in addition to concept and design), their capabilities develop in different ways than those in France, where architects focus on concept and design; and it may very well be the case that UK architects cannot work well in the French system because their competencies in concept and design are inseparable from the ones in detailing. So it is not even the case that a firm with a wider scope will be able to fare well in a country where its remit will be more limited; as in the other country the demands will be *qualitatively different*⁵. So the scope of particular types of firms may make them implausible candidates for global expansion, given the strong correlation between capabilities and scope. Otherwise put, if the capabilities along the value chain are not *modular*, if they are integral, then there will be a substantial compatibility problem. Only if the capabilities in the value chain are truly modular, will an architectural practice in the UK be able to expand in France, by virtue of its mastering the relevant sub-part of the value-adding activities.

In addition to the modularity in terms of the productive capabilities along the value chain, another major issue is co-specialization along the value chain, and the fact that often the capabilities that firms have in one part of the value chain critically depends on the capabilities developed by the other, vertically co-specialized firms in the same sector and the same country. This point has received a fair share of research, albeit in the particular context of Japanese firms (mostly, automotive assemblers) expanding to the US. As Pil and MacDuffie (1999: 60) note, “suffice it to say that the capabilities of a plant reside to some degree in the strengths of its relationships with the suppliers and in the abilities of those suppliers.” Kenney and Florida (1993), who carefully documented the expansion of Japanese firms to the US, noted that successful expansion abroad

“combines the transfer of work and production organization within the plant with the simultaneous transfer of broader *interorganizational relationships* between plants and their parts suppliers. This is having a powerful effect in the broader environment and is creating a whole new and supportive environment for the Japanese system of production.”

⁵ It is obvious that French architects would find it very hard to expand in the UK, as they lack the capability of detailing. Yet, if the capabilities were modular, i.e. if the capabilities along this value chain were not intrinsically linked, then this problem might be resolved if there existed a vertical specialist capable in detailing. Likewise, if capabilities were modular, then the UK architects would be able to expand in France by selectively “exporting” *only* their capabilities in design. So if capabilities are modular, then the “fit” in terms of vertical scope can be resolved inasmuch as (a) the “exporting” company goes to a country which requires a span as large or narrower than its own scope; or (b) if the “exporting” company goes to a country which requires a broader span, which can be partly covered by itself and partly covered by another vertical specialist. Of course, case (b) (e.g. the French’s entry in UK architecture) would be more difficult, as it may be easier to drop a capability than find someone else to “cover” for a capability that does not exist. Yet if capabilities are integral, non-modular along the value chain, that is, if firms can only transfer their superiority in an “all or nothing” package, *neither* the firm with a narrower scope *nor* the firm with a broader scope will be able to expand globally with success. Thus, it is the lack modularity of capabilities that shapes prospects of global expansion, and makes the problem of “fit” in terms of scope to become binding.

Toyota, broadly hailed as the most successful example of global expansion of a Japanese firm, spent a fair amount of time training its suppliers to interact with it in the same way that the suppliers it had at home did. This, in effect, suggests that even when the division of labor in a sector does not differ that markedly between countries (as is the case in automobiles), a fair amount of the competitive advantage a firm has resides in the way in which it interfaces with other participants in a sector, and also possibly with the exact nature and capabilities of the participants in that sector. Therefore, for global expansion to be successful a firm must either occupy an *institutionally modular* position in a specific sector's value chain, i.e. it must be neatly separated from the other industry participants in easy-to-replicate relations; *or*, alternatively, it must be able to reproduce the same (or substitute) structures along the host country's value chain, inasmuch as these structures drive its advantage.

These two simple but fundamental observations constitute the heart of our argument and the value-added of this paper. Figure 1 provides a 2 x 2 matrix that examines the implications of modularity in terms of capabilities / areas along the value chain, and institutional modularity. More formally defined, modular capabilities exist whenever firms in an industry that span more than one segment can neatly separate the capabilities in each of the constituent parts of the production process. To return to our example of architects in the UK, modular capabilities would mean that the capabilities in design are separable from the capabilities of detailing, in that a firm with strong capabilities in both detailing and design can replicate its advantage even if it focuses only in design or only in retailing. This is important, as it may well need to restrict its scope to, say, expand to France, and the question is whether its superiority is dependent on its entire system, or, in contrast, if it can pick and choose a segment, and replicate its capability in a stand-alone, more focused (and appropriately calibrated) unit. Institutional modularity, on the other hand, examines the way in which a firm fits in the value chain / sector of the country where it operates. The question here becomes, can a firm expand onto a different setting, or is its success so dependent on local, non-modular, non-substitutable connections that it needs to either replicate the entire system or change the host structure to make it mirror its own home structure? As we saw in the example of the Japanese automobile assemblers, their advantage was non-modular, in that to succeed, they needed to replicate the same tight linkages with other parts of the value chain, linkages which may well not be the norm; or perhaps they require complementary inputs and services which are not available in the host country.

Include Figure 1 about here

On the basis of these two factors, then, we can examine the impacts of modularity (in terms of institutional / vertical structure of the value chain, and in terms of different capabilities along that chain). In the top right-hand corner, both capabilities and institutional structure are modular: In this case, global expansion would be most easy. For this particular quadrant, the analysis of the extant literature applies full-force: Success in global expansion is determined by the balance between the competencies / competitive advantage of the firm that wants to expand, as judged against the difficulties for adapting in the host country (in terms of the overall institutional environment.)

In the upper left hand quadrant, firms do not critically depend on their local institutional environment, but their own capabilities are systemic. This is a problem inasmuch as the scope of the activities in the firm with an advantage is broader than the relevant segment in the recipient / host country. For instance, if the design advantage of UK architects were to be dependent on their detailing skills, and if detailing is undertaken there by construction firms, there would be a problem, as this would rule out the expansion on only the design segment- if design is integrally linked to detailing. The answer might be to expand on *all* of the integrally related, non-modular parts of the sector; but this poses a fresh set of problems. For instance a UK practice might try to expand on design *and* detailing, but it would face the problems of creating a new, more integrated offering. This would not find a ready set of co-specialized construction firms that would willingly give up part of the production process, nor of buyers who would change their ascribed role for architects in the building process (cf. Cacciatori and Jacobides, 2004). This is not an insurmountable problem, but success in global expansion in that case requires the re-organization in the local industry structure and the creation of the appropriate and appropriately qualified (and willing) co-specialized partners. So in this quadrant, success in global expansion is more difficult, and critically relies on securing support from the vertically related segments, as well as educating the local firms or buyers in applying this new “business model”.

The lower right-hand quadrant represents the inverse problem- namely, the situation whereby firms do have modular structures, but where they are not modular in terms of their relationships along the value chain, or on their reliance of particular, country-specific inputs or services. This is the situation of the Japanese automobile manufacturers, who require a particular way of organizing their relationships along the value chain to succeed, and also critically rely on the capabilities of their key suppliers. This means that in order to succeed in global expansion under these constraints, a firm must work to ensure it can get the same type of interactions along the

value chain (as Toyota did), or bring in the requisite complementary goods and services;⁶ or, alternatively, a firm can try to modularize its position (Baldwin and Clark, 2000, 2003), effectively moving to the upper right hand-side quadrant, by safeguarding as much of its advantage as possible.

Finally, the lower left hand-side corner represents the difficulties of both the previous cases, and is a good example of a very tightly embedded organization of production, which will be difficult to expand – except if there can be a full, wholesale replication of the structure.

Imperfect as any simple categorization scheme might be, this 2 x 2 matrix has the benefit of shifting our attention to the structure of the industry / sector, and of how this affects the prospects of global expansion. Casual empiricism would suggest that there are substantial differences in the degree of globalization in different sectors, and the extent of modularity as well as the international consistency (or lack thereof) on the structure of these industries may well account for a big part of this. Otherwise put, whereas there are some sectors which are organized in a similar way in different countries, and sectors where both capabilities and the institutional structure is more modular, this is not the norm. And the extent to which such modularity and inter-national value chain consistency prevails may be a robust predictor of globalization. This may indeed be the reason for which services, which can be “sliced and diced” in many different country-specific ways, have been conspicuously slower to globalize than product-based industries (or even service-based but asset-intensive services like telecommunications and energy).

The last part of our argument is that managers tend to under-estimate systematically the impact of the institutional and capability modularity. It appears that compatibility and “fit” with the host country’s own value chain is hard to detect *ex ante*, and this leads to unexpected adaptation costs. We illustrate such problems caused by managerial myopia, as well as the problems caused by differing vertical / value chain structures by considering an important service industry, mortgage banking, and by examining the challenges in global expansion in this sector.

Co-Specialization, Fit and Modularity: Global Expansion of US Mortgage Finance Firms

Mortgage banking provides a convenient setting in which to study global expansion. In the context of a much broader analysis of the US mortgage banking, which focused on understanding the dynamics of value chain evolution and market creation (Jacobides, 2005), we also examined

⁶ Indeed, Japanese transplants in the US tried to maintain same type of interactions along the value chain by spending substantial amounts of time, energy and funds in the almost altruistic effort to train their suppliers in JIT and lean techniques; see MacDuffie and Helper (1999) for a detailed discussion.

the challenges that US firms faced in expanding abroad. This allowed us to engage in the in-depth qualitative research that inspired the framework discussed in this paper.

The selection of the industry was predicated upon its importance, and the recent interest in of industry participants and regulators in globalization trends. Mortgage-related instruments represent one of the most important classes of financial assets in the world. In the US, outstanding mortgage loan pools exceeded \$4.6 trillion 1997, which was almost equal to the value of all US Government debentures (i.e. Treasury Bonds and Bills – cf. MBA / OFHEO, 1998; Federal Board of Reserves, 1998). The Mortgage Banking (MB) sector has also seen significant change in the last few years, and, more importantly perhaps, international expansion of much acclaimed US-based firms has started becoming a trend (MBA, 1997, Erb, 1998).

Specifically, we entered into a two-level empirical analysis, in order to understand the particularities of global strategies and opportunities for expansion of US-based firms. The first level was a comparative international assessment of the structure of the industry, done in association with the Mortgage Bankers Association of America, which supported our work. The second level consisted of taking a sample of highly visible moves of US mortgage banking firms that were investing abroad, including EDS, HomeSide, Irwin Finance, Residential Finance Corporation (owned by GM), EDS, and Fannie Mae. We then proceeded to an in-depth investigation: To establish the challenges and problems involved in successful global expansion in that industry, three Research Assistants interviewed executives from five ventures, and collected semi-structured notes. These were then reviewed by the author, who made further contacts with executives involved in these ventures. A thorough discussion of the sector and the evidence can be found in Jacobides (2005); here we selectively use some data for illustration and not for support or proof of the theoretical argument.

So let us consider our setting- mortgage finance, as it evolved in the US, and the resulting institutional structure of the sector. To begin with, the final product / service: A mortgage is a loan collateralized by real estate. To make such a loan possible, a lender must be able to find a borrower who needs a mortgage. Roughly speaking, to make a mortgage possible, either one integrated firm or a series of vertically co-specialized firms linked though the market must ensure that the following happens: (1) lenders with excess funds are found; (2) borrowers willing to take a loan are found and steered to the appropriate loan type; (3) borrowers are analyzed for their credit-worthiness, the value of their collateral, etc., and are guided through the paperwork associated with the mortgage--ensuring titles, deeds, and all other legal requirements are taken care of; (4) the loan is closed, and the transaction consummated and recorded; (5) the loan is

serviced for the duration of its length, which means receiving payments from the borrower and managing the account until it is paid off or, alternatively, engaging in foreclosure if necessary; and (6) payments are made to the lenders or other providers of capital.

These six different functions were originally performed in integrated institutions, in particular, in retail banks, which maintained mortgage loans, or savings and loan associations (S&Ls), which focused more on mortgages. For both of these integrated types of firms, liquidity was largely provided by the short-term deposits of retail customers. On the basis of the liquidity created by deposits or through the corporate lending these institutions would engage in, the loans would be funded (Fabozzi & Modigliani, 1992; Lederman, 1985). Banks and S&Ls also sought out the mortgage loan applicants; they would prepare and process applications, and they would service the loans until they expired. This was the earlier, integrated version of the industry.

Mortgage banking, though, started vertically dis-integrating, creating new markets, from the early 1970's onwards. The same functions noted above started being performed by specialized institutions, each with a narrow vertical scope. While the functions and the basic steps in the production process of a loan did not change, the vertical structure of the industry did. With it, the types of industry participants and the nature of competition also changed. By the mid-1990's, each function could be performed by a vertical specialist: finding mortgage borrowers and steering them to the appropriate loan was done by new specialists, called mortgage brokers. Mortgage banks, in turn, would focus on closing (finalizing) loans, funding them, and then servicing them. They held no deposits, nor did they seek funding for the loans through the capital markets. Instead, they would "warehouse" the loan until they could sell the underlying asset (the mortgage loan itself) to new specialists, the "securitizers," who would then take it upon themselves to find the lenders to fund these loans. To fund the loans, mortgage banks used lines of credit, i.e. working capital that they obtained from commercial banks so as to enable them to warehouse the loans until they were sold to securitizers. Then, securitizers, having purchased individual loans from several different mortgage banks, would bundle loans together and then turn them into securities (unbeknownst to the borrowers whose loans were being securitized) and sell these Mortgage-Backed Securities to the capital markets, earning fees on the securities they produced (Fabozzi & Modigliani, 1992). Later, some specialized mortgage banks focused more on servicing, others on originating loans. This breakup of the value chain was specific to the US, and led to the creation of particular boundaries, and particular type of capabilities in the industry. Figure 2 provides a view of the US sector.

Whereas there might have been some drivers that can help explain why the industry dis-integrated (see Jacobides, 2005), it is important to note that there was no inevitability as to the shape and structure of the industry. The evolutionary process that led to the current structure through the endogenous reduction of transaction costs and the related inter-firm vertical co-specialization could have led to a different way of organizing labor in this sector. Indeed, by comparing the US structure to that of other countries in a similar level of development, it appears that this is a very particular and unusual structure of the industry. Even in the UK, which is similar to the US in many dimensions, especially in its financial system, mortgages are still provided in a much more integrated way.⁷ Finally, we should note that the structure of the sector also has a strong bearing on the capabilities that were developed in different parts of the industry; and that while the sector consisted of different vertical segments, there the sector was not institutionally modular: Rather, these vertical specialists were co-dependent and co-specialized.

One last piece of evidence of the path-dependency of the value chain structure at the national level, both with regards to firm scope and with regards to the related capabilities in the industry comes from the comparison of the US with other systems that have taken the path of securitization. While space precludes going into the technical details, we should note than in Denmark and Argentina, where secondary mortgage markets have been (more or less recently) instituted, practices, the structure of the value chain and the nature of the players do not neatly map onto those in the US (MBA, 1997). Whereas the financial products –mortgage-backed securities and collateralized mortgage obligations on the secondary market, and mortgage products on the primary market - are similar, the division of labor between different firms and the relations between them are not (Diamond and Lea, 1992; MBA, 1997; Erb, 1998).

Be that as it may, by the late 1990's it has become clear that the US mortgage system was very competitive, and that the vertically dis-integrated system has produced substantial efficiencies. More to the point, US based mortgage banks measured themselves against the equivalent integrated firms in other countries and they became convinced they were superior in several parts of the mortgage process. Mortgage executives we met echoed the industry press by noting that:

⁷ Recently (2003/4), Gordon Brown, the UK's Chancellor to the Exchequer, initiated a large-scale study to consider emulating the US model; but as the report suggested, this would not lead to much benefit to the UK right now, as its mortgage system, even with a very different and less dis-integrated structure, with minimal securitization, is also efficient. It has simply developed along different lines, yielding institutions that differ markedly from the ones in the UK. And it cannot be made more efficient by the institution of one or two innovations; it would require a more substantial re-organization that would not fit the structure of the sector. This strongly supports the thesis that industry structures are idiosyncratic, path-dependent, and not only technologically determined.

they were considerably faster; could make profits with much smaller spreads between cost of funds and interest received; had lower fees for both origination and servicing; and that even if one was to factor in the inefficiencies related to infrastructure or regulatory barriers in other countries, they did expect to be more efficient and more profitable than local firms, which they considered “inefficient”. As such, several participants in the industry predicted that global expansion would happen as soon as the regulation in potential host countries would enable the function of such types of organizations (Erb, 1998; Diamond and Lea, 1992). Simply put, industry participants as well as analysts expected that US companies would be leveraging their competence, which was developed both as a result of the highly competitive market, and the vertical breakup of the sector, on an international basis (Lasko, 1998). However, despite some expansion, no dramatic changes have been witnessed yet (Erb, 1998); more to the point, firms that have tried have largely failed. What is more intriguing is that they did not expect to fail quite as badly.

Problems in Global Expansion, Illustrated: Value Chain Fit, Modularity and Managerial Myopia

From our analysis of both some (few) relatively successful moves of US firms abroad, and of the more frequent horror stories (re-cast as stories of strategic re-deployment or bad luck from some of the managers we spoke to) a few general themes emerged, which largely support (and partly inspired) the framework developed in the previous section. In addition to showing the role of co-specialization and lack of institutional modularity, it also enabled us to refine our understanding of the challenges of expanding abroad when value chain structures do not neatly fit.

One of the most important predictors of failure in efforts to expand globally was the role of co-specialized industry participants in the host value chains; in other words, it was the fact that, despite the substantial degree of vertical specialization, the US mortgage banking industry is not institutionally modular. Rather, it consists of a tightly inter-dependent system of different types of institutions, whose advantage is dependent on the function of the system as a whole. What is even more interesting, is that managers seemed to have been surprised and taken aback by the role that this co-specialization played; it was so deeply engrained in their normal, home environment, that it generally did not occur to them to wonder in advance which of these co-specialized players would exist; and also they did not expect that their advantage could so easily be eroded by the problems in linking with other parts of the value chain. Two examples --the expansion of Irwin Mortgage in Mexico in the mid-1990’s and the acquisition of HomeSide by National Australia Bank-- illustrate these dynamics.

By the early 1990's, Irwin, a major mortgage bank, was in a solid growth path and decided to try its hand at global expansion. It also thought it had identified the major difficulty in terms of global expansion vis-à-vis its local competitors, which was the risks in identifying the credit-worthiness of the potential borrowers. Its solution was simple: It decided it would follow, as it were, the US and Canadian customers who wanted to get loans for properties in Mexico. In this way, it could operate even in an environment with strong, non-modular links between the final customers and the providers of a service.⁸ However, some additional links in assessing properties were not established; there was no firm that could provide adequate information in terms of the properties that were mortgaged. For instance, Irwin drastically limited the market as it had to accept only the customers that did not substantially under-report property value to tax authorities. Given that in the Mexican tax system, heavy taxes (as high as 10%) are levied at the time of property transfer, it has become common practice to mis-report property values during transactions. As Irwin calculates its Loan-To-Value ratio on the basis of that information, its loans become less than competitive for those engaging in value / cost misrepresentation.⁹ When Irwin asked its clients to disclose the property value in order for them to qualify for their loan, it found out that few in Mexico would state the actual transaction price for the purchase. A host of other difficulties in terms of the use of brokers also plagued Irwin, who realized that operating in a different industry structure meant that it would be very hard to reap any of the efficiencies it could reap at home. There were no other vertical specialists (e.g. appraisers) to support its operation, as there would be in the US. The co-specialized providers that might otherwise be relied on were not there, and neither could Irwin link to customers in quite the way it was used to.¹⁰ Finally, it is important to

⁸ Note that the embeddedness of service firms in networks of buyers (cf. Stuart and Podolny 1996), which cannot be transferred from one setting onto the next, is an important impediment to globalization, especially in services. This may explain why in the construction sector, the few firms that have globalized, are engineering, architectural or cost consultancies who have globalized by *following their clients*, as such ensuring they maintain some of their institutional links and embeddedness. See Baark (1999) for an extended discussion of how globalization is driven by customers who globalize, thus enabling service providers to globalize as well.

⁹ The Loan-To-Value ratio (LTV) is the ratio of the mortgage amount divided by the value of the collateralized property. Obviously, MB firms want a reasonably modest LTV (US practice is to have an LTV of roughly 80%, even though under-collateralized loans of 125% LTV do exist) whereas customers prefer high LTV's. Not being able to offer an adequately high LTV may be a significant competitive drawback.

¹⁰ Note that our findings are partly consistent with, yet clearly distinct, from recent research of Khanna and Palepu (1997, 1999, 2000). Khanna and Palepu argue that in less developed countries, the lack of institutional development in general (in terms of capital markets, or even in terms of intermediate markets) leads to greater integration. To corollary is that such integration will give way to specialization as the level of institutional infrastructure improves. This would also suggest that the expansion of a vertical specialist in a country which has only integrated providers may be fraught with problems; with this we agree. On the other hand, though, we argue that there is no "ordinal ranking" of better or worse / sophisticated vs non-sophisticated countries in terms of their vertical structure. What matters is the existence of *exact* vertical complements for a firm expanding abroad; it's a question of *fit*, rather than a question of "institutional maturity" or sophistication. So even expansion in a developed country might face the same problems of lack of vertically co-specialized providers, if that country's vertical modules do not fit those of the expanding firm. So rather than consider the problems of expansion of Irwin to Mexico as an illustration of the generic problems caused by the lack of institutional development, we would argue that it is equally plausible to suggest that

note that these were painful observations, and that experienced mortgage bankers had not fully anticipated such issues ex ante.

Another example comes from the acquisition of HomeSide, a very successful US mortgage bank, particularly capable on the servicing side of the business, by the National Australia Bank (NAB), which thus wanted to import HomeSide's capabilities and improve the efficiency of the mortgage operations of the bank. When NAB tried to leverage HomeSide's competencies, capabilities and systems in Australia, one of the key problems was that credit reporting there was vastly different from that in the US. In the US, credit rating companies have developed jointly with the users of these data; credit scoring agencies such as Fair Isaac have emerged that allow for a seamless use and evaluation of credit information. In Australia, on the other hand, credit reporting was only used for tracking down those who default; so there may be good information for potential buyers of "C" or "D" mortgage / paper, but almost nothing on the "A's", or "A+'s", "A-'s" or marginal "B's". Hence the infrastructure that US companies have come to depend on, all the specialized means they have for interpreting credit information as a key criterion for deciding their lending policies, were close to irrelevant. Thus, the plan fell prey to the co-specialization of HomeSide to the US system, and the lack of an effective local institutional substitute.

Furthermore, there were concerns with the structure of the productive capabilities of HomeSide. Ironically enough, the very dissociation of the origination / evaluation and underwriting process, so commonplace in the US, is problematic in the absence of reliable information about underlying risks, since it does not allow for the good relaying of information on customer creditworthiness on the basis of servicing experience. This also made the systems used by HomeSide hard to apply to Australia; the neat separation of the mortgage process in the US was partly predicated on the existence of good credit rating information. Thus, the US-type modular productive capabilities in servicing and in origination did not apply to the Australian market; they were not appropriate in the Australian context which was still in need of a more integrated system that could transmit information internally from servicing to origination and vice-versa. Again, management had not anticipated the problems caused by the fact that the modular capabilities of HomeSide did not map onto the integral system required in Australia, and this surprise was one of the reasons for which this very sizable acquisition was eventually deemed a failure (see Tschoegl, 2000, on why NAB eventually sold HomeSide).

the failings were due to "poor fit". The fact that US firms have faced remarkably similar problems when expanding to the UK (CountryWide CCR being the best example) lends credence to our interpretation.

Generalizing across cases, we observe that co-specialization in the value chain is important particularly *because* we take it for granted; business executives could not even conceive of the nature of the problems they encountered. They do not look at either the institutional modularity (as in the case of Irwin); nor at the nature, scope, or modularity of competencies (as in the case of HomeSide / NAB). The business model in the US runs so smoothly that executives didn't quite realize the impressive interweaving of services, infrastructure and regulations that allows the industry to be effective. Neither can they see the impact of different capability structures; they just assume that "superior capabilities" is all that matters.

This problem is further accentuated by the fact that the costs (in real terms) for under-estimating institutional or capability modularity, or lack of fit between home and host value chain structure, dramatic as they may be, are very hard to quantify, whereas the potential gains or efficiency differential between one country and another may be misleadingly easy to measure. So executives seemed to be lured by the prospects of real gains, into countries they *did* know, culturally and administratively. Yet, importantly, managers seem to underestimate the role of institutional differences, as they unwittingly carry the conceptions of their own countries and settings. And the more superficially similar the settings appear, and as such the greater the presumed benefits, the bigger the surprise of the managers who try to adapt.

In a practical sense, then, looking at the nature of the value chain takes us away from the generalist preoccupation with macro-trends. Indeed, in our discussions on global expansion, we saw a strong interest in general macro-economic and demographic trends, or perhaps product structure (Armijo et al., 1990), to the detriment of the structural, value-chain issues that often proved more important. Mexico's high demand for new housing, or its overall cultural fit with the US, or administrative habits may be less important than new regulation that allows institutional investors in Mexico to invest in securitized mortgages, for instance. This is not to downplay the role of the country-level factors that have been studied to date; rather, it is to stress that it is the more specific, institutional structures, and the degree of *fit*, *institutional* and *competence modularity* that determine the exportability and relevance of US mortgage banking skills.

Finally, some of the more successful global moves were those that explicitly took into account the importance of the value chain structure. Some, such as General Motor's finance subsidiary Residential Funding Corporation (RFC), tried to blend in the local market by identifying how to best integrate in the local value chain; this was facilitated by local M&A (in RFC's case, the purchase of Auritec SA).

Perhaps the most interesting strategy is one followed by firms such as Electronic Data Systems (EDS), or securitizers such as Fannie Mae and Freddie Mac. These companies focus on their ability to provide infrastructure to changing markets, and predicated their strategy upon ensuring that the *value chain itself* was shaped in a way that will allow them to capitalize on their efficiency. This strategy, which brings to mind strategies of important infrastructure firms such as Bechtel Corp. or Hutchinson, ensure that other national structures become increasingly like the ones in their home market, and this permits them to export their expertise. In other words, these firms, rather than adapting to their environment (as RFC did) focus on trying, often through lobbying and selective international alliances, to ensure that the environment evolves in a way that suits their interests. Firms such as EDS, Fannie Mae and Freddie Mac have consulting arms that link with regulators and governments, and whose aims are to ensure that these firms and industries evolve in a way which is beneficial to them. EDS has had an agreement with the Belgian government, for instance; and Fannie Mae has been working with the government of South Africa and Honk Kong to develop sister agencies. This suggests that an important, and very ill-understood dimension of competition is the effort to shape particular value chain structures in ways that are advantageous to domestic or global players (cf. Henisz, 2003; Cacciatori and Jacobides, 2004). Such efforts, when done with a good understanding of value chain structures, can both yield advantages for the firms undertaking them, and can also change the layout of the competitive field for all firms involved. Clearly, the battle for shaping the nature and structure of the value chain merits dedicated research, going well beyond the confines of this paper.

Discussion: Value Chain Structure and Competency Exportability in Global Expansion

This paper set out to help us understand when firms can capitalize on their competitive advantage in expanding globally, and when they cannot. Specifically, we argue that over and beyond the challenges of a country's overall cultural or institutional framework, the distance in terms of administrative practices, Human Resource policies and habits, the *comparative structure* of the value chain can play a very significant role in the potential of global expansion: Given that value chains can be decomposed in different ways, in different countries, diverse sets of co-specialized units will emerge; and this is why we need to understand the nature, structure and capabilities of the vertical modules for the same industry in different countries. To do so, we offer a simple framework that considers two key aspects in an industry: The degree of competency modularity (and the resulting fit with the potential host country's need) and the degree of institutional modularity (and the ability of linking with the host country's other co-specialized firms in a way that preserves competitive advantage).

To put this contribution in its theoretical context, it has already been established that superior practices are not immediately or even easily replicable and transferable (Szulanski, 1997, Szulanski and Winter, 1998, Gupta and Govindarajan, 2000), and that geographical distance does matter in such replication (Hansen and Lovas, 2004). It has also been established that practices can transfer more easily in one country across industries than across countries in one sector (Kogut, 1991). Recently, more empirical attention has been paid as for how specific types of HR practices (Adler, 1999) or automation and HR / OT structures (Pil and MacDuffie, 1999) can be transferred from one country to the next, as such affecting the potential success of firms expanding abroad. Through this paper, we add to our knowledge of exportability of competitive advantage by looking at some new issues and identify a new level of analysis for global management- the structure of the value chain and the modules within it. We point out that practices may not even be relevant or profit-generating in foreign environments, and that the needed adaptations may wipe out any potential efficiencies. This more realistic assessment of the potential for global expansion should prove to be of help in designing international strategies, and should help avoid costly mistakes, by uncovering hidden and important assumptions on the value chain structure, and the fit between the value chain of the “exporting” and the host country. This important, yet neglected level of analysis is broader than the practice or even the individual firm, yet narrower than the country.

Our analysis shares much in common with the recent work on national business systems, or on “varieties of capitalism” (see Whitley, 1992, 1999; Whitley and Kristensen, 1996; Djelic, 1998; Hall and Soskice, 2001, Morgal et al, 2004). Like researchers in that tradition, we would argue that structures of industries are determined not only on the basis of technological or transactional imperatives, but also on the basis of broader forces shaping the structure of a sector. To put it in the words of Kristensen,

“patterns of group formation and interaction reach into political spheres besides purely economic relations, are rooted in historical traditions and carry with them, and depend on, cultural capabilities. Narrow economic processes are embedded in this larger social process... Even Adam Smith conceived of this larger social process behind the ‘social division of labour’ which we think can be better expressed as a ‘social division of economic roles’”. (1996: 20)

We would agree. Yet our effort differs in one important respect: Our focus is on how the structure of different sectors varies inter-nationally. Rather than trying to identify commonalities throughout the economy, across sectors, that define a “national business system”, we want to identify the logic with which specific value chains / sectors evolve, and also the implications of different value chain structures for global exportability of competitive advantage, and trade.

This framework also parts with the “varieties of capitalism” tradition by considering the possibility of *multiple* structures that may be operating in one country at the same time. While this analysis focused on the stable international differences, we should also note that one of the ways in which countries differ is the extent to which particular types of value chain structure co-exist or not. In some settings, and especially in the more liberal Anglo-Saxon ones, there does seem to exist a greater variety of arrangements. For instance, in common law countries where, broadly speaking, the law permits what is not prohibited, whereas in Napoleonic / civil law countries, express provisions must exist in the law for something to be permitted. This leads to greater variety in terms of vertical structures and arrangements in the former (cf. Casper, 2001). Additionally, in countries where professions hold strong power (Whitley, 1999), it is more likely for restrictions on the vertical organization of an industry to exist. So countries not only differ with regards to the *mode* and *average type* of industry / value chain structure, but also with its *distribution*- that is, with the extent to which a industry has an iron-clad, country-specific form of organization, as opposed to a variety of different ways in which labor is divided. The extent to which a country has a unique set of industry structures, or whether it can accommodate more variety, becomes an important issue for future research.

More to the point of our analysis, the prospect of globalization can also *shape* the nature of the value chain. If a global competitor can draw on one of the existing “ecosystems” with which the global competitors’ capabilities *do* fit, then that type of vertical eco-system, linking one or more global competitors can gradually out-compete other variants; that is, the battle between different ways of organizing the value chain in the national context may be affected by global competition, as global competitors will try to ensure that their preferred structure will be supported in the host country. As such, the existence of even a limited set of potentially “vertically co-specializable” local firms may be the thin edge of the wedge that will enable successful global expansion. These competitive dynamics play out at the level of institutional / value chain structure as well as on the level of the product or service. Indeed, the way in which global firms affect the institutional layout of sectors in the countries they operate or plan to do so, remains an intriguing venue for research, especially considering the current rhetoric of firms such as Fannie Mae that try to “illuminate” other countries and guide public policy in a way that will be convenient to them (Shell, 2003: Ch 2-3). This suggests that we must be wary of blanket prescriptions on “superior” ways of organizing and setting up the value chain– “institutional monocropping” has its dangers both at the level of societal institutions (Evans, 2004) and at the level of industry structures. We should not forget that firms can be relied upon to advocate what is most beneficial for them, not for society as a whole.

Limitations

Despite these new insights offered, our analysis has several inherent limitations. For instance, we have not addressed the “internalization” issues of global expansion directly: Our argument is that if value chain structures are different, and if the production process is not compatible between two countries, then it is going to be very difficult to set a structure whereby a firm can profit from its advantage in one country, be it through a market-based arrangement (licensing or franchising the superior product or service or technology or asset) or through a global operation. This side-steps the key question of the “internalization” literature, which considers when MNC structures will be chosen over market-based global arrangements as means to leverage competitive advantage. Yet, to speculate, we could expand our framework to re-visit the internalization question: we could add one more dimension to our 2 x 2 modularity matrix, by examining the extent to which an advantage at any part of the production process can be “traded” through licensing or franchising.

The new dimension would be the “advantage tradeability”, that is, the extent to which a firm would be able to “monetize” its advantage by creating a license or trading agreement for a particular area where a firm is strong. This would allow us to consider the implications of our analysis for the debate on whether firms with superior skills should globalize via becoming a MNC or via establishing market-based agreements in host countries, by looking at the different octants of the 2x2x2 cube. To illustrate, consider how institutional or capability modularity interacts with the tradeability of advantage, by looking at a particular advantage (superior technique) which is easy to license: If capabilities and institutional structures are modular, then licensing is clearly the best (or at least easiest) choice. Yet in the absence of institutional modularity, even if an advantage could potentially be licensed for a particular superior production technique, expanding abroad through a MNC might be preferred. The reason is that overall competitive advantage depends on the interrelationships and fit with the value chain structure, and it would be comparatively more difficult for a licensee to recreate the institutional structure than it would be for the firm moving abroad as a MNC. Similarly, in the absence of capability modularity, the fact that one part of the production process superiority could be licensed or franchised will not lead to an advantage, as expansion would require a systemic transfer. This might also account for the relative difficulties of transplanting particular parts of the production process in terms of superior practices via licensing from one setting onto another (Caves, 1996). So comparative value chain structure might help decide whether some market-based agreement or internalization through fully-fledged MNC expansion is the most appropriate course of action.

Another issue we have not addressed is the mode of global expansion for firms wishing to export their competitive advantage-- in particular, the choice between Greenfield vs. Merger & Acquisition – based expansion (cf. Barkema and Vermeulen, 1999). While our analysis holds for both of these cases (inasmuch as global expansion rests on the desire to leverage some advantage abroad), we could speculate that entering through acquisition might be a way to mitigate some of the concerns with vertical co-specialization in the host country, inasmuch as there is a possibility of blending the home competitive advantage with the embeddedness in the local institutional context.¹¹ Follow-on research could consider how the mode of entry relates to comparative value chain structure and the modularity in capabilities or institutions.

Our framework also did not address another important question that relates to MNC's in particular, which consists of the benefits from global operation not in "exporting" but in "developing" competitive advantage in the first place. In the literature, there is a broad consensus that a MNC is "an international network that creates, accesses, integrates and applies knowledge in multiple locations" (Almeida, Song and Grant, 2002: 148). Consistent with this "Differentiated Network" model of the MNC (Nohria and Ghoshal, 1997), we know that the MNC's distinctive feature is that it operates in multiple countries, each of which is characterized by a distinct task environment or organizational field (Ghoshal and Nohria, 1989; Westney, 1993), and that it draws on these differences to generate and leverage new knowledge (McKevily et al, 2004; also, see Markides and Geroski, 2004). The specific question here becomes, how different should the value chain structures be, before "requisite variety" that can generate new knowledge gets lost in an inchoate medley of different and incommensurate structures? Our impression from the field is that modest differences in value chain structures might be of some help in the sense of maximizing learning and experience, but that growing differences are quick to take their toll on both the ability to leverage and the ability to learn from multiple settings. It may well be the case that such differentiated networks need to operate on the basis of a more or less similar structure of the industry so as to render learning feasible, let alone effective. The particular role of the comparative structure of the value chain in facilitating or hampering the knowledge in such "differentiated networks", then, is another promising venue for future research.

¹¹ A case in point is Royal Bank of Scotland's expansion to the US where they let Citizens Bank operate quite autonomously, without trying to graft their own, context- and value-chain dependent advantages onto their acquisition. More broadly, our framework would suggest that the mode of foreign entry may need to be predicated on the comparative structure of the value chains, as the benefit of entering from acquisition may partly consist on ensuring that an institutionally embedded firm will be able to support the process of global expansion. Furthermore, this suggests that acquisitions should be made only inasmuch as the "benefits of local embeddedness" are not incongruent with the competitive advantage of the acquirer; in other words, if RBS considered that its main advantage was in superior processing, and if it would not have grafted its processing by keeping Citizens Bank autonomous,

Extensions

These limitations (and attendant opportunities for follow-on research) aside, this angle of analysis can help explain not only firm-specific opportunities for expansion, but also aggregate patterns of globalization, by focusing on the sector level. Specifically, it gives a gauge of the degree of “compatibility” between sectors (and the extent of inter-national trade, FDI and MNC activity) in different pairs of countries. Indeed, aggregate, country-level factors would not be able to explain why some groups of similar countries have substantial global interaction in some sectors and not in others; nor would it be able to explain why in some sectors trade happens only between a few countries which may not share many macro-attributes in common. To wit, casual empiricism would suggest that differences in value chain structure such as those observed in construction may explain why some sectors are more open to others to global competition, despite the regulators’ best efforts. Thus, the analysis of the comparative value chain structure can help us unpack, contextualize and extend the concept of “liability of foreignness” (Zaheer, 1995; Zaheer and Mosakowski, 1997), as well as understand sectoral trade patterns (Markusen, 2002).

In particular, it appears that some sectors, and especially services, are more open than others to multiple ways of organizing them. Especially where governmental intervention or certification is involved, directly or indirectly, sectors can differ markedly: Health care, financial services, professional services and construction, which together amount to a third or more of the GDP in many developed countries, all have very different value chain structures in different countries. The reason is not just direct regulatory involvement- but rather, this reflects the fact that in sectors where there is no “one best way” to organize, a path-dependent process takes hold: When regulation is also involved, this path-dependency “hardens”, leading to a set of internationally inconsistent and nationally inert structures. More study of the sectors that have or have not globalized, and an analysis of their comparative value chain structure and institutional / capability modularity is clearly warranted.

In that regard, it is important to note that the growing harmonization of business practices, either mandated by national and international regulatory agencies, or brought about by the institution of actual or presumed “best institutional practices” may lead toward greater isomorphism in value chain “junctures” and structures.¹² This convergence is reinforced by global competitive

then the acquisition would have been ill-advised. So successful expansion abroad should be able to successfully combine local integration in the nation-specific value chain structure with the ability to leverage some advantage.

¹² For instance, Herrigel and Wittke (2004) in their study of automobile production systems, found that in different countries vertical dis-integration took on a different form, yet convergence was increasingly plausible, whether domestically (i.e. vertical co-specialization between different local participants being isomorphic) or internationally

dynamics: As some very effective global competitors emerge in particular parts of the value chain in one country, they may force changes in the value chains of other, host countries. Local firms in these countries, in turn, try to accommodate and capitalize on these global competitors' capabilities in their national setting, by finding more effective, modular ways to link with them. As such the structures of industries are endogenously changed, with modularization of capabilities begetting institutional modularization, begetting even more pronounced benefits from being modularized, in a process similar to that described by Jacobides and Winter (2005). Thus, through competition, a global convergence in terms of value chain structures is often self-reinforcing, and this process, when initiated, leads to increasing globalization of previously insular sectors.

Likewise, the institution of technological standards, and, most importantly perhaps, of global ways of defining and transmitting information (such as the emerging XML communication and information protocols) can lead to drastic changes in the nature of global competition. Changes in information technology might affect strategy on the global and national level, by virtue of their creating a homogenized, and decomposable value chain (Evans and Wurster, 1997). Yet the extent to which either regulation or Information Technology alone can lead to such changes in the value chain structure is unclear. Clearly, more attention to the strategic and institutional impacts of IT and standards is called for.

While the impact of Information Technology on industry structure might not be quite as pervasive as we once thought, the efforts to homogenize value chains internationally do continue apace, driven not only by regulators but also, and mainly, by the firms that expect to profit from it. Our empirical illustration suggested that firms such as Fannie Mae or Bechtel Corp. or Hutchinson Industries are trying to benefit by advocating, using heavy lobbying, structures in the value chain where they can expand, or where the US and the World Bank invests in. This provides a further strategic spin on Henisz's (2003) recent discussion on how firms succeed in global expansion through their capabilities to shape their institutional environment abroad.

On the practical level, the rapid growth of outsourcing and offshoring shows how firms such as Infosys or Capita try to develop modules that do fit in particular industries; they try to adapt or potentially change the value chain structure. This paper's angle, which combines the analysis of value chains with exportability of competitive advantage, can thus help shed some further light to the growing phenomena of outsourcing and offshoring, that surely merit more dedicated research.

(i.e. vertical specialization happening so as to accommodate particular global competitors onto the local setting); similarly, Helper and Sako (1995) also found some elements of convergence on how parts of the value chain are connected.

Concluding Note

As Meyer and Rowan (1977) noted, organizations encompass “systems of coordinated and controlled activities that arise when work is embedded in complex networks and boundary spanning relations”. This paper provided one specific, new way at looking at the evolution of these networks. It looks at the structure and the dynamics of the institutional layout of sectors; at the nature of the value chain and the relationships of actors within it. This allows us to build on several useful institutional and evolutionary economics frameworks, including the synthesis recently attempted by Jacobides (2005) and Jacobides and Winter (2005). Also, our view is also consistent with Shanley and Peteraf’s (2004) recent discussion of “vertical groups”, and extends their work by suggesting that in different national contexts, different types of groups emerge. As a result, in dissimilar circumstances, global expansion may be problematic *because* of the existence of incommensurate groups with incommensurate capabilities.

The new perspective offered in this paper helps us revisit both the rationale for global expansion, and the mode of expansion abroad; it helps explain how and why competitive advantage can be exported, and highlights a new level of analysis that could be useful in the study of global management issues for firms, sectors and countries. We thus hope that this analysis opens up the way for more research, both on the theoretical and on the empirical level. For all the limitations of early-stage research, we hope that this paper will lead to richer discussions and a better understanding of the exportability of competitive advantage- and of the structure and evolution of increasingly globalizing industries.

References

- Abegglen J.C. and G.S. Stalk, 1985, *Kaisha: The Japanese Corporation*, New York: Basic Books
- Adler, P.S. 1999. "Hybridization: Human Resource Management at two Toyota Transplants", in Liker, J.L, W.M. Fruin and P.S. Adler (Eds.), *Re-made in America: Transplanting and Transforming Japanese Management Systems*, Oxford: Oxford University Press. (75-116)
- Almeida, P., Song, J., and Grant, R. M. 2002. Are Firms Superior to Alliances and Markets? An Empirical Test of Cross-Border Knowledge Building. *Organization Science*, 13(2): 147.
- Argyres, N.S. and J. Liebeskind. 1999. "Contractual Commitments, Bargaining Power, and Governance Inseparability: Incorporating History into Transaction Cost Theory." *Academy of Management Review* 24 (1): 49-64.
- Armijo, G.A., D.W. Berson, M.H. Orbinsky and B. Valgeirsson, 1990, "Demographic and Economic Trends", *Journal of Housing Research* (1) 1: 21-42
- Baark, E. 1999, "Engineering Consultancy: An Assessment of IT-enabled International Delivery of Services, *Technology Analysis & Strategic Management*, 11 (1): 55-74.
- Bain, J.S., 1956, *Barriers to New Competition*, Cambridge, MA: Harvard University Press
- Baldwin C.Y and K.B Clark, 2000, *Modular Rules*, Boston: MIT Press
- Baldwin, C.Y. and K.B. Clark. 2003. *Where do Transactions Come From?* Working Paper, Harvard Business School, February 11.
- Ball, M., 1988, *Rebuilding Construction - Economic Change in the British Construction Industry*. London: Routledge.
- Barkema, H.G. and Vermeulen, F. 1999. "International expansion through start-up or acquisition: A learning perspective". *Academy of Management Journal*, 41: 7-26
- Barry, C.B., G. Castaneda, and J.B. Lipscomb, 1994, "The Structure of Mortgage Markets in Mexico and Prospects for their Securitization", *Journal of Housing Research*, 5 (2): 173-204.
- Bartlett, C.A., and Ghoshal, S, 2000, *Transnational Management*, New York: Irwin / McGraw Hill
- Bernstein, S.A., 1997, "The Mexican Housing Finance Sector", Mimeo
- Birkinshaw, J. 2000, *Entrepreneurship and the Global Firm*, Sage. Boleat, M., 1985, *National Housing Finance Systems: A Comparative Study*, London: Croon Helm and IUBSSA
- Cacciatori, E. and M.G. Jacobides. 2004. *The Limits of the Market: Vertical Re-integration, Explained*. Working Paper, SIM Area, London Business School. September.
- Casper, S., 2001, "The Legal Framework for Corporate Governance: The Influence of Contract Law on Company Strategies in Germany and the United States", in Hall, P and D. Soskice (eds.), *Varieties of Capitalism*, New York: Oxford University Press. Caves, R., 1996, *Multinational Enterprise and Economic Analysis*, Cambridge University Press,
- Djelic, M.-L., 1998, *Exporting the American model: The post-war transformation of European Business*, Oxford: Oxford University Press
- Diamond, D.B. and M.J. Lea, 1992, "Housing Finance in Developed Countries: An International Comparison of Efficiency", *Journal of Housing Research* (Special Issue), 3 (1): 1-271

- Dunning, J.H., 1979, "Explaining Changing Patterns of International Production: In Defense of Eclectic Theory", *Oxford Bulletin of Economics and Statistics*, 41.
- Doz, Y.L., Bartlett, C.A. and C.K. Prahalad, 1981, "Global Competitive Pressures and Host Country Demands", *California Management Review*, 23(3)
- Erb, D., 1998, "A Flowering of Opportunities", *Mortgage Banking*, January: 94-102
- Evans, P., 2004, "Development as Institutional Change: The Pitfalls of Monocropping and the Potentials of Deliberation", *Studies in Comparative International Development*, 38(4): 30-52.
- Evans J. and T. Wurster, 1997, "Strategy and the new Economics of Information" *Harvard Business Review*
- Federal Reserve System, Board of Governors, 1998, Domestic Financial Statistics, *Federal Reserve Bulletin*, July
- Follain J.R. and P.M. Zorn, 1990, "The Unbundling of Residential Mortgage Finance", *Journal of Housing Research* (1) 1: 117-137.
- Gupta, A.K., and Govindarajan, V. 2000. Knowledge flows within multinational corporations. *Strategic Management Journal*. 21: 473-496
- Gereffi, G. 1989. "Rethinking Development Theory: Insights from East Asia and Latin America." *Sociological Forum* 4(4):505-533.
- Ghemawat, P., 2001, "Distance Still Matters: The Hard Reality of Global Expansion", *Harvard Business Review*.
- Ghoshal, S., 1987, "Global Strategy: An Organizing Framework", *Strategic Management Journal*, 8: 425-440.
- Ghoshal, S. and Nohria, N., 1989, 'Internal differentiation within multinational corporations'. *Strategic Management Journal*, 10: 323-337.
- Guillén, M.F., 1994. *Models of Management: Work, Authority, and Organization in a Comparative Perspective*. Chicago: The University of Chicago Press.
- Guillén, M.F., and S. Suarez, 2004, "The Institutional Context of Multinational Activity", in S. Ghoshal and E. Westney (Eds.), *Organization Theory and the Multinational Corporation*, New York: St. Martin's Press (Forthcoming, 2nd edition)
- Hall, P and D. Soskice (eds.), 2001, *Varieties of Capitalism*, New York: Oxford University Press.
- Hamel, G., Y. Doz and C.K. Prahalad, 1993 "Cooperate with your Competitors and Win" *Harvard Business Review*
- Hamilton, G.G., and N.W. Biggart. 1988. "Market, Culture, and Authority: A Comparative Analysis of Management and Organization in the Far East." *American Journal of Sociology* 94(Supplement):S52-S94.
- Hansen, M.T. and B. Lovas, 2004, "How do multinational companies leverage technological competencies? Moving from single to interdependent explanations", *Strategic Management Journal* 25(8-9): 801-822.
- Helper, S, and M. Sako, 1995, "Supplier Relations in Japan and the United States: Are they Converging?", *California Management Review*, 36(3): 77-84.

- Henisz, W.J., 2003, "The Power of the Buckley and Casson Thesis: The Ability to Manage Institutional Idiosyncrasies", *Journal of International Business Studies*, 34: 173-184.
- Henisz, W.J., 2000, "The Institutional Environment for Multinational Investment." *Journal of Law, Economics and Organization*, 16:334-364.
- Henisz, W. J., and O.E. Williamson. 1999. "Comparative Economic Organization—Within and Between Countries." *Business and Politics*, 1(3):261-277.
- Herrigel, G. and V. Wittke, 2004, "Varieties of Vertical Dis-Integration: The Global Trend Towards Heterogeneous Supply Relations and the Reproduction of Difference in US and German Manufacturing", in Morgal, G., E. Mohen and R. Whitley (eds), *Changing Capitalisms: Internationalization, Institutional Change, and Systems of Economic Organization*, Oxford: Oxford University Press (forthcoming)
- Hofstede, G., 1980. *Culture's Consequences: International Differences in Work-Related Values*. Newbury Park, Calif.: Sage Publications.
- Hofstede, G., 1991. *Cultures and Organizations*. New York, New York: McGraw-Hill.
- Hu Y.S., 1995, "International Transferability of the Firm's Advantages", *California Management Review*, 37 (4): 73-87.
- Hymer, S.H., 1960 [1976], "The International Operations of National Firms: A Study of Foreign Direct Investment", Ph.D. Thesis, Published Posthumously, Cambridge, MA: MIT Press.
- Jacobides, M.G. 2005. Industry Change through Vertical Dis-Integration: How and Why Markets Emerged in Mortgage Banking. Forthcoming (June), *Academy of Management Journal*.
- Jacobides, M.G. and L.M. Hitt. 2004. *Losing Sight of the Forest for the Trees? Productive Capability Differences as Drivers of Vertical Scope*, London Business School, Leverhulme Working Paper, June.
- Jacobides, M.G. and S.G. Winter, 2005. "The co-evolution of Capabilities and Transaction Costs: Explaining the Institutional Structure of Production", Forthcoming, *Strategic Management Journal*.
- Jaffee, D.M. and K.D. Rosen, 1990, "Mortgage Securitization Trends", *Journal of Housing Research* 1 (1): 117-137
- Kenney, M, and R. Florida, 1993, *Beyond Mass production: The Japanese System and its Transfer to the U.S.*, Oxford: Oxford University Press.
- Khanna, T., and Palepu, K. 1997. "Why focused strategies may be wrong for emerging markets", *Harvard Business Review*, 75 (4): 41-51
- Khanna, T., and Palepu, K. 1999. "Policy shocks, market intermediaries, and corporate strategy: the evolution of business groups in Chile and India", *Journal of Economics & Management Strategy*, 8 (2) 271-310
- Khanna, T., and Palepu, K. 2000. "The future of business groups in emerging markets: Long-run evidence from Chile", *Academy of Management Journal*, 43 (3): 268-285).
- Kindleberger, C.P., 1969, *American Business Abroad*, New Haven, CT: Yale University Press.

- Klevorick, A.K., R.C. Levin, R.R. Nelson and S.G. Winter, 1995, "On the Sources and Significance of Interindustry Differences in Technological Opportunities", *Research Policy*, 24: 185-205.
- Kogut, B., 1991, "Country Capabilities and the Permeability of Borders", *Strategic Management Journal*, 12
- Kogut, B. and U. Zander, 1993, "The Evolutionary theory of the Multinational Enterprise"
- Kristensen, P.H., 1996, "Variations in the Nature of the Firm in Europe", in Whitley, R and P.H. Kristensen (Eds.), *The Changing European Firm: The Limits to Convergence*, London: Routledge (1-38).
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R.W. Vishny. 1998. "Law and Finance." *Journal of Political Economy* 106(6):1113-1155.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R.W. Vishny. 1999. "The Quality of Government." *Journal of Law, Economics, and Organization* 15:222-279.
- Lasko, W., 1998, "Doing Business Globally", *Mortgage Banker*, September: 74-80
- Lane C. 1996, "The Social Constitution of Supplier Relations in Britain and Germany", in Whitley, R and P.H. Kristensen (Eds.), *The Changing European Firm: The Limits to Convergence*, London: Routledge (271-304).
- Lea, M.J., 1990, "Sources of Funds for Mortgage Finance", *Journal of Housing Research*, 1 (1): 139-162.
- Lea, M.J., 1996, "Restarting Housing Finance in Mexico", Paper presented at the USA / Mexico Aspen Global Forum, June 1st
- Lederman, J. (ed.), 1995, *Introduction to Mortgage Banking*, Washington, DC: MBA Editions
- Levin, R., W. Cohen, and D. Mowery. (1985), "R&D Appropriability, Opportunity, and Market Structure: New Evidence On the Schumpeterian Hypothesis." *American Economic Review* 75(2): 20-24.
- Levin, R., A. Klevorick, R. Nelson, and S. Winter. (1987), "Appropriating the Returns From Industrial Research and Development." *Brookings Papers On Economic Activity* 3:783-831.
- Levitt, T., 1983, "The Globalization of Markets", *Harvard Business Review* (May/June).
- Liker, J.L, W.M. Fruin and P.S. Adler (Eds.), 1999, *Re-made in America: Transplanting and Transforming Japanese Management Systems*, Oxford: Oxford University Press.
- MacDuffie, J.P. and S. Helper, 1999, "Creating Lean Suppliers: Diffusing Lean Production through the Supply Chain", in Liker, J.L, W.M. Fruin and P.S. Adler (Eds.), *Re-made in America: Transplanting and Transforming Japanese Management Systems*, Oxford: Oxford University Press. (154-200)
- March, J. G., 1994, "The Evolution of Evolution", in J. A. C. Baum and J. V. Singh, *Evolutionary Dynamics of Organizations*, New York: Oxford University Press.
- Markides, C., and P. Geroski, 2004, *Fast Second: How Smart Companies Bypass Radical Innovation to Enter and Dominate new Markets*, Joey-Bass.

- Markusen, J.R., 2002, *Multinational Firms and the Theory of International Trade*, Cambridge: MIT Press.
- Mayer, K. and N.S. Argyres, 2004. Learning to Contract: Evidence from the Personal Computer Industry. *Organization Science*, 15 (4): 394-410.
- McKevily, S, K. Eisenhardt, and J.E. Prescott, 2004, “The global acquisition, leverage, and protection of technological competencies”, *Strategic Management Journal* 25(8-9): 713-722.
- Morgal, G., E. Mohen and R. Whitley (eds), 2004, *Changing Capitalisms: Internationalization, Institutional Change, and Systems of Economic Organization*, Oxford: Oxford University Press (forthcoming)
- Mortgage Bankers Association of America (MBA), 1995, *Mortgage Banking Terms: A Working Glossary*. Washington DC: MBA
- Mortgage Bankers Association of America (MBA), 1997, *International Real Estate Conference Proceedings*, Vancouver, September 10-12: 1-238.
- Mortgage Bankers Association of America (MBA) / Office of Federal Housing Enterprise Oversight (OFHEO), 1998, *Managing Risks in Housing Finance Markets: Perspectives from the Experiences of the United States of America and Mexico*, Washington DC: MBA/OFHEO
- Nelson, R.R., 1995, “How are Firms Different, and Why Does it Matter?”, in Schendel and Teece, eds., *Fundamental Issues in Strategy*, Boston, MA: Harvard Business School Press
- Nelson, R. R., and S. G. Winter, 1982, *An Evolutionary Theory of Economic Change*. Cambridge, Mass.: The Bellknap Press of Harvard University Press.
- North, D.C. 1990. *Institutions, Institutional Change, and Economic Performance*. New York: W. W. Norton.
- Nishiguchi, T., 1994, *Strategic Industrial Sourcing*, New York: Oxford University Press.
- Nohria, N. and Ghoshal, S., 1997, *The Differentiated Network*. San Francisco: Jossey-Bass.
- O’Reilly, J., 1992, “The Societal Construction of Labour Flexibility: Employment Strategies in Retail Banking in Britain and France”, in Whitey, R. (Ed.), 1992, *European Business Systems: Firms and Markets in their National Contexts*, London: Sage (219-240.)
- Orsenigo, L., 1989, *The Emergence of Biotechnology*, London: F. Pinter.
- Pavitt, K., 1991, “Large Firms in the Production of the World’s Technology: An Important Case of Non-Globalization”, *Journal of International Business Studies* (1)
- Patel, P., 1995, “Localized Production of Technology for Global Markets”, *Cambridge Journal of Economics* (February)
- Perlmutter, H.V., 1969, “The Tortuous Evolution of the Multinational Corporation”
- Peteraf, M. and M. Shanley. 1997. Social Learning and the ‘Fundamental Paradox’ of Transaction Cost Economics. in Walsh, J.P and A.S Huff (eds), *Advances in Strategic Management*. (14): 193-222.
- Pil, F.K. and J.P. MacDuffie, 1999, “Transferring Competitive Advantage across Borders: A Study of Japanese Auto Transplants in North America, in Liker, J.L, W.M. Fruin and P.S.

- Adler (Eds.), *Re-made in America: Transplanting and Transforming Japanese Management Systems*, Oxford: Oxford University Press. (39-74)
- Porter, M.E., 1985, *Competitive Advantage*, New York: The Free Press.
- Porter, M.E., 1991, *The Competitive Advantage of Nations*, Boston: HBS Press
- Rasanen, K. and R. Whipp, 1992, "National Business Recipes: A Sector Perspective", in Whitey, R. (Ed.), 1992, *European Business Systems: Firms and Markets in their National Contexts*, London: Sage (46-63).
- Rose, P.S. and R.L. Haney, Jr., 1990, "The Players in the Primary Mortgage Market", *Journal of Housing Research*, 1 (1): 91-116
- Shanley, M. and M. Peteraf. 2004. Vertical Group Formation: A Social Process Perspective. *Managerial and Decision Economics* 25 (6-7): 291-298.
- Shell, G.R., 2003, *Make the Rules or your Rivals Will*, New York: Crown Business
- Stopford, J.M. and Wells, L.T., 1972, *Strategy and Structure of the Multinational Enterprise*, New York: Basic Books.
- Stuart, T.S. and J. Podolny, 1996, "Local Search and the Evolution of Technical Capabilities", *Strategic Management Journal*, 17: 21-38.
- Szulanski, G., 1997, "Exploring Internal Stickiness: Impediments to the Transfer of Best Practice Within the Firm", *Strategic Management Journal*
- Szulanski, G., and S.G. Winter, 1998, "Replication as Strategy", Working Paper, Management Dept. The Wharton School.
- Teece, D.J., 1977, "Technology Transfer by Multinational Firms: The Resource Cost of Transferring Technological Know-how," *The Economic Journal*, 87 (June): 242-261.
- Teece, D.J., 1980, "Economies of Scope and the Scope of the Enterprise," *Journal of Economic Behavior and Organization*, 1(3): 223-247.
- Teece, D.J., 1981, "The Market for Know-how and the Efficient International Transfer of Technology," *The Annals of the Academy of Political and Social Science* (November): 81-96
- Vermeulen, F. and Barkema, H.G. 2002. "Pace, rhythm, and scope: Process dependence in building a profitable multinational corporation", *Strategic Management Journal*, 23: 637-653
- Vernon, R., 1975, "The Product Life Cycle Hypothesis in a New International Environment", *Oxford Bulletin of Economics & Statistics*, 41(4).
- Wachter, S., 1990, "The Limits of the Housing Finance System", *Journal of Housing Research*, 1 (1): 163-185
- Westney, D.E., 1993. Institutionalization Theory and the Multinational Corporation. In S. Ghoshal and E. Westney, eds., *Organization Theory and the Multinational Corporation*:53-76.
- Winch, G. 1996, "Contracting Systems in the European Construction Industry: A Sectoral Approach to the Dynamics of Business Systems", in Whitley, R and P.H. Kristensen (Eds.), *The Changing European Firm: The Limits to Convergence*, London: Routledge (241-270).
- Winch, G., 2000, "Construction business systems in the European Union", *Building Research and Information*, 28: 88-97

- Whitey, R. (Ed.), 1992, *European Business Systems: Firms and Markets in their National Contexts*, London: Sage.
- Whitley, R., 1999, *Divergent Capitalisms: The Social Structuring and Change of Business Systems*, Oxford: Oxford University Press.
- Whitley, R and P.H. Kristensen (Eds.), 1996, *The Changing European Firm: The Limits to Convergence*, London: Routledge.
- Womack, J.P., Jones, D. and Ross, D., 1990, *The Machine that Changed the World*, New York: Rawson Associates, MacMillan.
- Yip, G.A., 2003. *Total Global Strategy II*, New Jersey: Prentice Hall.
- Yip, G.A. and G.A. Coundouriotis, 1991, "Diagnosing Global Strategy Potential: The World Chocolate Confectionery Industry", *Planning Review*, 19(1): 4-14.
- Zaheer, S. 1995. "Overcoming the liability of foreignness", *Academy of Management Journal*, 38(2): 341-363.
- Zaheer, S. and Mosakowski, E. 1997. "The dynamics of the liability of foreignness: A global study of survival in financial services", *Strategic Management Journal*, 18(6): 439-464.

FIGURE 1

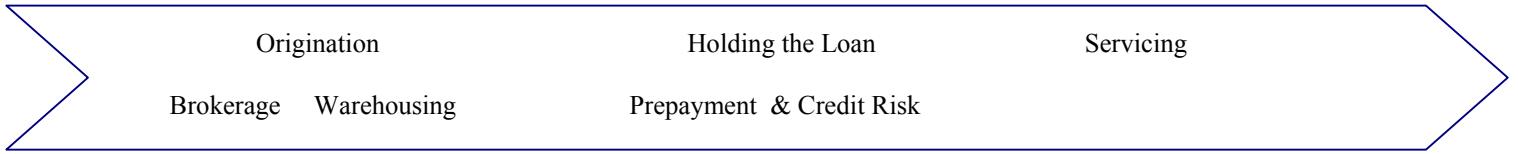
**A Simple Typology of Sectors:
Identifying Attributes that determine Exportability of Competitive Advantage**

<p>Institutionally Modular No critical non-substitutable links within the sector</p>	<p>Need to “impose” scope or change Will require adaptation of hosts</p>	<p>Exportability straightforward given firm’s module “fits”</p>
<p>Institutionally Non-Modular Dense linkages specific to the country and sector</p>	<p>Exportability problematic Calls for systemic adaptation / change</p>	<p>Need to replicate or substitute chain e.g. Japanese transplants</p>
<p>Integral Capabilities Cannot separate & choose part of sector</p>		<p>Modular Capabilities Can pick and choose where to expand</p>

FIGURE 2

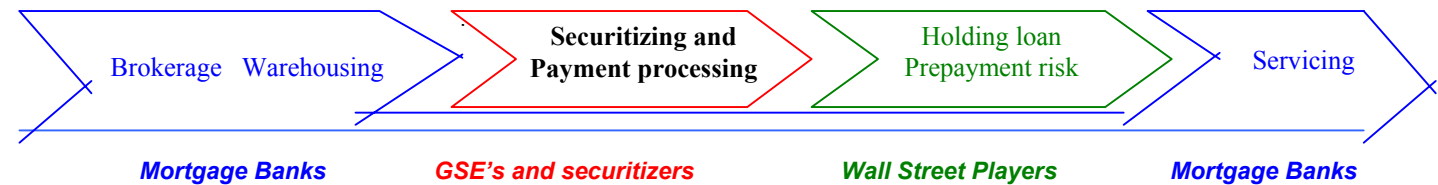
An Illustration: The Dis-integrating Mortgage Banking Sector (from Jacobides, 2005)

Original Structure: Integrated Housing Finance Provision

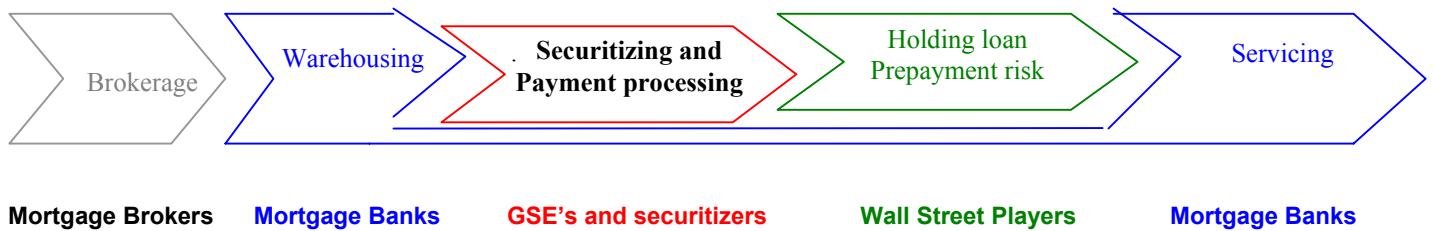


Integrated Banks and Savings & Loans

First Value Chain Change - Securitization and Secondary Market for Loans (1978=> 1988)



Second Value Chain Change: Creation of Broker Segment (1983=> 1987)



Third Value Chain Change – Creation of Market for Mortgage Servicing Rights (1989=>1993)

