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From Country of Origin Liability to Country of Origin Advantage

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Abstract

'Liability of origin' and resource constraints make it extremely challenging for firms from emerging economies to participate in advanced markets. This paper describes how firms from the Indian software and pharmaceutical industries overcame such challenges by leveraging renowned public institutions and competed successfully in advanced markets. Their success transformed India into a location of business advantage compelling global competitors in these industries to modify their business models. This research contributes to theory building about internationalization of firms from emerging economies – a relatively unexplored domain in international business research.

Keywords:

Emerging economies, Internationalization, Liability of origin, Leveraging Institutions, Pharmaceutical industry, Software Services industry

FROM COUNTRY OF ORIGIN LIABILITY TO COUNTRY OF ORIGIN ADVANTAGE

Introduction

There has been an increasing trend among firms from emerging economies like India to participate in international markets (Bartlett & Ghoshal, 2000). In many cases, this has coincided with liberalized government policies from emerging economies, that moved away from inward looking import substitution strategies towards policies that encouraged creation and growth of private enterprises, their expansion into international markets and participation of foreign enterprises in domestic markets. However, the dominant nature of international participation by firms from emerging markets has been through exports of commoditized products where they enjoyed a natural cost advantage or participating in markets of other emerging or developing economies, which in many ways, were extensions of their domestic markets in terms of complexity or competitive intensity. During the last decade or so, we have witnessed examples of Indian firms making their entry and successfully competing in advanced international markets. Such efforts of internationalization are interesting on two counts. First, advanced international markets are qualitatively more demanding and sophisticated than the domestic or 'look-alike' international markets, where the Indian firms had been competing traditionally. Second, participation in advanced markets are being witnessed in knowledge intensive industries like information technology and pharmaceuticals, rather than commoditized industries where firms from emerging economies would have had competitive advantages because of natural endowments.

In this paper, we provide an analytical description of internationalization by firms from the Indian software services and pharmaceutical industry. We argue that the degree of difficulty confronting firms from emerging nations in their internationalization efforts is significantly higher than those from developed nations because they suffer from 'liability of origin' (Cordel, 1993) and resource constraints, the combined effect of which could have created an insurmountable entry barrier. However, the software and pharmaceutical firms innovatively leveraged renowned institutions from advanced markets to overcome such entry barriers. Having entered the advanced markets, they rapidly scaled their business through a series of managerial innovations and deliberate actions, creating sustainable positions for themselves in the international markets. Their success in turn created a privileged position for India as a location compelling their competitors to modify their business models and adopt an Indian centric strategy. In effect, firms from India, by leveraging renowned institutions to overcome their 'liability of origin' and by successfully competing in international markets, transformed India from a location with liability to a location for business advantage.

Internationalization: Motives and Challenges

There are competing and complementary theories explaining why firms internationalize, i.e., undertake initiatives of increasing presence in markets beyond their domestic boundaries. Based on review of existing literature, it can be broadly generalized that firms internationalize for two reasons, to gain access to new markets, or to gain access to resources available in international markets at lower costs. International markets, apart from creating significant growth opportunities, also provide firms with

scale efficiencies that could not have been achieved if they were confined only to the domestic market. Likewise, resources, which would also include skills and competencies, might be unique because they are available only at specific international locations (Kogut, 2002; Tallman, 2001). Multinational enterprises (MNE) can discover and incorporate new capabilities and resources in foreign locations (Tallman, 2001) and access regional clusters in foreign countries (Porter, 1998; Dunning, 1997) suggesting that both exploitation of existing capabilities as well as enhancement or building new capabilities can be the motivation for international expansion of firms.

The point at which firms would internationalize in order to leverage their latent efficiencies would depend on the industry and the size of domestic market. Vernon (1976, 1979) identified rivalry in the domestic market as the primary motivation behind internationalization. As innovations diffuse in the domestic market, competition pushes firms to export and then to invest in foreign markets – a thesis that was further developed by Porter (1990) in his study of country specific advantages as foundation for international competitiveness. Later it was noted that firms from countries with small domestic markets often become multinationals earlier when compared to firms from countries that have large home markets (Tallman, 2001), irrespective of the degree of domestic competition, as suggested by Vernon (1976, 1979). Likewise, in certain technology intensive industries like software development, firms seek international customers almost from the time of their birth, leading scholars to name them as 'born global' (McDougall and Oviatt, 2000).

However, internationalization, especially doing business in a foreign country by owning physical assets is a risky proposition. The business environment in a foreign country might pose unanticipated commercial and political challenges (Kogut, 2002). As a result, business methods that had led to success in the domestic market might not lead to similar results in a foreign environment (Zahra & Garvis, 2000). Such risks would be enhanced if the target foreign market has a large 'psychic distance' from the home market of the firm (Johanson & Vahlne, 1977). Zaheer (1995) noted that firms seeking entry into foreign markets incur high costs because they suffer from 'liability of foreignness'. She enumerated that these costs arose from four different sources namely (a) spatial distance, such as costs associated with travel, transportation and coordination over time and distance (b) costs incurred due to a firm's unfamiliarity with the local environment (c) costs associated with host country environment such as lack of legitimacy of foreign firms and economic nationalism and (d) costs associated with home country environment, such as restrictions on sales of specific products to specific markets. Therefore while international markets provide firms with significant opportunities, they have their attendant risks and costs due to uncertainty. Nevertheless, experience of multinational organizations however suggest that internationalization leads to competitive advantage and wealth creation (Contractor, Kundu, & Hsu, 2003) because when firms bring unique products and competencies to international markets, they are able to gain supernormal profits that more than compensates for the risks involved in foreign operations.

Internationalization from Emerging Markets: Opportunities and Constraints

Most of the theorization on internationalization, such as that mentioned above has been made in the context of firms from developed nations entering other developed markets. Of late, there has been a growing interest about markets in emerging economies (London & Hart, 2004) leading to analysis and prescription for multinationals on how they should operate in emerging markets that are characterized by unique institutional context and purchasing patterns that differ from developed markets (Ricart, Enright, Ghemawat, Hart & Khanna, 2004; Khanna & Palepu, 1997). However, there has not been much research or theorization done on firms from emerging economies that intend to participate in the advanced markets of the world. One of the reasons for this might be that this is a relatively new phenomenon and internationalization efforts of firms from emerging economies, if at all, has been dominated by export strategies (Aulakh, Kotabe, & Teegen, 2000). But this trend has been changing and today we find firms from emerging economies like India, China and Latin America expanding in the global market through foreign direct investment and investment in physical assets.

Firms from emerging economies typically have low cost advantage in factors of production. Markets in developed economies offer them with large potential for growth and profitability. However, these markets are characterized by powerful incumbents and strong regulatory and institutional framework – creating high barriers of entry. A long history of free-market economic philosophies and the ability of resource-endowed incumbents to frequently introduce innovative products make these markets intensely competitive (Aulakh et al., 2000). Firms from emerging economies do not posses the

technological competencies necessary for product and process innovations, thereby limiting their scope of activities to mature or commoditized products (Vernon-Wortzel & Wortzel, 1988). Moreover, consumers from developed markets often have a negative perception about products from emerging economies, associating them with low price and poor quality (Cordell, 1993). Therefore firms from emerging economies need to make significant investments at multiple fronts such as brand building and technology upgradation if they intend to participate in advanced markets. However, coming from emerging economies, they are typically small in size and resource constrained. Their domestic operations are unlikely to generate enough surplus that can finance the high investment necessary for competing in advanced markets, leading to a vicious cycle of small-scale confronting high entry barriers requiring heavy investment, which is hamstrung by resource constraint. Absence of financial intermediatories in emerging markets (Khanna, Palepu & Sinha, 2005) implies that it is difficult for these firms to get access to venture or risk capital. Neither can they depend on the government for finance because contemporary international trade regimes make it difficult for states to provide any form of subsidy, unlike the case of firms internationalizing from Japan or Korea in the past (Aulakh et al, 2000). Apart from financial resources, firms from emerging economies also find it difficult to attract managerial talent with international experience because there are not many firms from the domestic market that have internationalized, nor would managers from foreign multinational be willing to work for these firms because of their unfamiliarity. Therefore, for firms from emerging economies, the task of breaking into developed markets and creating sustainable competitive advantages poses

significant challenges, which are an order of magnitude more and different from the challenges that firms from developed economies face when they internationalize.

In this paper we describe the internationalization efforts of firms from India belonging to two particular sectors, namely software services and pharmaceuticals. While advanced international markets provided them with large opportunity for growth and expansion, given their small size and their origin from an emerging economy like India made their task of gaining an entry into the international markets and consolidating their position extremely difficult. However, they were able to overcome these challenges, and succeeded in not only establishing themselves in the advanced markets of the world but also influenced, in a fundamental way, how business is conducted in these industries globally. Description and analysis of how they were able to overcome such seemingly insurmountable odds is the focus of our paper.

Internationalization of the Indian Software Services Industry

Most of the leading firms in the Indian software services industry, such as Infosys Technologies (Infosys), Wipro Technologies (Wipro) and Tata Consultancy Services (TCS) came into existence in the early eighties or even earlier. However, government of India's inward looking policy of high tariff regimes prevented widespread adoption of information technology in the domestic market just as overvalued domestic currency (Indian Rupee, INR) made exports unattractive, resulting in limited growth opportunities for these firms. A series of policy changes in the late eighties and early nineties, intended at relaxation and removal of restrictive policies especially towards 'export oriented

industries' such as information systems, transformed this scenario. This almost coincided with increased global demand for software professionals because of large-scale digitization of products and successive waves of computerization and automation as a consequence of advancements in information and communication technologies . High global demand presented the software firms a viable opportunity for growth because firms from India possessed certain country specific advantages. The exchange rate differential that existed between Indian and developed markets made India a low-cost destination for sourcing of software services. India's large pool of skilled manpower, a significant proportion of who are engineers or science graduates provided the right quantity and quality of supply necessary for meeting the increasing global demand. The fact that most among this pool of skilled labour could speak and communicate in English – the default language for software development or that of the international business community - minimized coordination and communication barriers that would have otherwise existed in sourcing a people-intensive service like software development from a foreign location.

Several Indian software firms leveraged this opportunity by providing a steady supply of software professionals to their clients in advanced markets. The export model, known as 'resource augmentation' or 'body shopping' involved augmenting projects undertaken on client premises by Indian software professionals. The clients usually deployed their own project managers, retained control of the design and overall direction of the project and enjoyed benefits of wage arbitrage by using the services of Indian software professionals supplied by the Indian firm. The upstream processes of software

development such as laying down the specifications and design of the application was done by the client, while the labour intensive down stream processes of development such as coding, testing and bug-fixing were outsourced to the software developers supplied by the Indian firms.

This business model received a major boost with the identification of the Year 2000 (Y2K) problem in mid nineties. Rectification of this problem was technologically simple, but involved a labour intensive process of examining each line of software programmes and correcting all references made to dates. Since the consequences of the problem were significant, firms, especially in the banking and insurance sectors spent billions of dollars worldwide for correction. With their supply of low cost pool of software professionals, Indian firms became the ideal destination for solving the Y2K problem, with effect that the Indian industry earned an estimated $ 2.5 billion from the business opportunity thrown up by it.

Problems of Outsourcing Software Development

Irrespective of the large volume of business that opportunities like Y2K or resource augmentation projects offered to them, Indian firms realized that the business model was vulnerable to competition from other emerging nations with comparable wage levels. There was also possibility of greater cost savings if projects were done off- shore, in India, and such savings would translate into greater cost savings for both the client and the supplier. Therefore they made conscious efforts to move their on-site engagements to

offshore locations as well as reduce their exposure to one time opportunities like the Y2K problem (Arora, Arunachalam, Asundi & Fernandes, 2001).

However, outsourcing to remote locations is a risky proposition for the client organization because outsourced tasks cannot be monitored or controlled from close quarters. Resource augmentation projects, the dominant mode of engagement of Indian firms till date were essentially conducted on-site, i.e., on the premises of the client organization where the client could continuously keep track of its progress due to its proximity. This would not be possible if the project is outsourced to a distant location, making clients vulnerable to risks of poor or non-performance by the supplier.

Usually, the client organization can hedge against risks of poor performance by drawing suitable contracts. For a physical product that can be tangibly measured, it is relatively easy to lay down the delivery parameters in terms of physical characteristics. This is inherently difficult for a knowledge intensive product like software that lacks measurable characteristics, which can be used as a proxy for its quality and functionality. Moreover, a software product, during its development phase, is prone to considerable amount of changes in its specification (Brooks, 1987). It is difficult to specify at the outset all the functionalities that the software product will need to have to address the business problem or the customer need. Therefore, performance parameters for a software product is not only difficult to measure. it is difficult even to be defined at the outset, precluding possibility of 'output control' (Govindrajan & Fisher, 1990). Even when output parameters are suitably defined and there are contractual mechanisms for

compensation in case of poor performance, the client would be reluctant to outsource if the client's internal processes are in some way, interdependent on the performance of outsourced products or processes. Since most software application are customized to the specific needs of their clients and take several months to develop, it is unlikely that clients would be comfortable with 'output control' since they would not be able to switch over to alternate sources of supply in case performance is below accepted limits.

Thus, unless the client had a strong conviction on the competence of the supplier, it is unlikely that they would outsource development of a software application to a remote location. Such conviction would not have been generated even if the client have had a favourable experience with earlier projects, because such projects would have been invariably conducted on the premises of the client organization. However, there was a deeper reason why software services firms from India were unlikely candidates to generate deep level of confidence in their clients This is because firms from emerging economies like India suffer from 'liability of origin' problems (Cordell, 1993) - a generic apprehension among the consumers in advanced markets about the quality of goods and services originating from emerging markets. This is over and above the 'liability of foreignness' (Zaheer, 1995) that any firm would suffer from when they enter international markets and a 'liability of newness' (Stinchcomb, 1965; Singh, Tucker & House, 1986) that new entrants in a market need to contend with.

India as a country has been traditionally associated with several adverse perceptions and apprehensions, especially about its political and social systems. At this

point of time, India's policy of economic liberalization was very recent and the world was not yet convinced about the government's commitment towards the same. In not so distant past, pro-nationalist Indian government had compelled multinational companies like IBM and Coke to withdraw from India. Corporate governance practices by Indian firms were non-transparent and did not conform to accepted international standards. Overall, India was perceived as a land of conflict and corruption (Nidumolu and Goodman, 1993). All of these would not have generated confidence among potential clients about outsourcing their long-duration and important software application projects to Indian firms, even if the economics of outsourcing were compelling. However, for the Indian firms, converting their on-shore engagements into offshore projects to be conducted on their premises was absolutely critical for generating customer stickiness and for assuming greater control. On shore business models are vulnerable to foreign policies of governments since it is critically dependent on granting of visas. Moreover, the economics of offshore projects were superior to those conducted on client premises, providing greater value to the customer, thereby having the potential to move the software services firms into the next phase of their evolution.

The most obvious approach for overcoming 'liability of origin' would have been making heavy investments in creating complementary assets in advanced markets, such as building brands or establishing a distribution channel. However, such activities are resource intensive involving significant commitments in terms of time and money, neither of which could be afforded by the Indian firms which, like most firms from emerging economies were resource-constrained. Therefore, firms from emerging nations,

in their efforts of internationalization, are confronted by a vicious cycle – their origin from emerging economies burden them with 'liability of origin', the only way of overcoming which is to make significant resource commitments, which in turn is an extremely difficult proposition because such firms are also resource constrained. Even though global demand for software professionals provided the Indian firms with an ideal opportunity to leverage their country specific advantage in the form of abundant supply of low-cost skilled labour, these firms would have been condemned to the resource augmentation model of software development conducted on client premises, unless they were able to break this vicious cycle. They were able to break free from this vicious cycle by an innovative leverage of renowned institutions in advanced markets – specifically the Carnegie Mellon University's (CMU) Software Engineering Institute and international stock exchanges like NASDAQ and NYSE.

Leveraging Renowned Institutions to Overcome Country of Origin Liability

The development of software started as craft form of production, dependent on the brilliance and creativity of individual programmers. However, rigorous application of software engineering principles transformed the nature of software production, converting the 'art' of writing software programmes into an engineering discipline, characterized by a high degree of process standardization (Cusumano, 1992). The Software Engineering Institute (SEI) of CMU developed a Capability Maturity Model (CMM) that laid down an evolutionary framework for improvement of software development such that an initial ad-hoc process of development can become a rigorous engineering process. By carefully managing requirements, using formal inspections on

design and codes and systematically practicing risk management, SEI-CMM programmes improved the ability of organizations to meet goals for cost, schedule, functionality and product quality (McConnell, 1999; Harter, Krishnan & Slaughter, 2000). Just as Taylorian principles of scientific management defined a 'scientific way' for carrying out activities on the shop floor, software engineering principles laid down a 'scientific method' of developing large-scale software applications and made software development more 'programmable' (Govindrajan & Fisher, 1990) than it was in the erstwhile craft mode of production.

SEICMM was largely conceptualized for a single location software development process when organizations like GE and AT&T in the USA and Hitachi, Toshiba and Fujitsu in Japan mooted the concept of 'software factories' by applying principles of large-scale engineering projects to software development (Cusumano, 1992). However, the Indian software services firms leveraged SEICMM to break the vicious cycle they confronted because of their origin and enabled outsourcing of software development to remote locations. This was done in two ways. Firstly, process standardization, as mandated by SEICMM, was used to clearly identify and modularize the different stages of software development life cycle. The upstream processes of 'requirement analysis' and 'high level design' that were less structured, iterative in nature and requiring intense interaction with the client continued to be done on client premises. However, the down stream processes could now be outsourced to remote locations because application of SEICMM not only made them very standardized and well-structured, but it also enabled rich information exchange between the client and the service provider. Standardized

process parameters made it possible to monitor every phase of software project in terms of productivity and quality as well as track its progress against accepted benchmarks. Such process control mechanisms were supplemented with weekly and monthly reviews where managers in charge of offshore projects would present detailed quality and schedule information using standardized tools. Formal management processes like 'Change Control Boards' were instituted to handle specification changes that needed to be incorporated after commencement of projects – a common phenomenon in software development (Brooks, 1987). In effect, Indian software firms were able overcome client apprehensions in outsourcing software development to remote locations by leveraging the SEICMM process framework to provide rich information to their clients such that clients could exercise 'behaviour control' (Govindrajan & Fisher, 1990), even though they were remotely located.

By itself, third party certification of internal processes to gain credibility might not be a managerial innovation in the world of business. However, in such a process, the credibility of the certifying institution is of critical importance. The possibility of remote control and thereby mitigating risks of offshore outsourcing would have been seriously undermined if the institution certifying and assessing the Indian software firms were from emerging economies, thereby lacking credibility with international clients. This is why leveraging SEICMM becomes critical and innovative. Because it was from CMU, one of the most renowned institutions of the developed world, certification from CMU's SEI gave the process a very high degree of credibility. The liability of origin that the Indian firms suffered from, which would have made it extremely difficult for them to convince

their clients about the superiority of their processes was rendered a high degree of credibility by certification from a third party institution that had a high standing in the advanced markets. The Indian firms were able to overcome the abiding weakness of emerging economies vis. a vis. advanced markets in the form of 'liability of origin' and 'institutional voids' by leveraging one of the key strength of advanced economies – their highly credible institutions.

The Indian software firms also leveraged the reputation of another institution from advanced markets – its stock exchanges – to overcome their liability of origin. In March 1999, Infosys Technologies became the first Indian company to get enlisted on NASDAQ with an offering of over $ 70 million. While the apparent reason for this listing was to raise capital for funding international acquisitions and provide international employees with stock options, the listing was an effective means of creating an international profile for the organization. NASDAQ listing enforced reporting of results as per US GAAP, which was more rigorous than Indian accounting and reporting practices, thus ensuring an international standard of information disclosure and transparency. In fact, Infosys had started disclosing their results as per US GAAP three years prior to the listing to set norms of transparency for the industry. Such proactiveness underlines the deliberate nature of its initiative to distinguish the software services industry from other traditional industries in India that did not have a stellar record in terms of transparency and corporate governance.

Infosys' action was soon followed by other large software service firms like Wipro such that as of mid 2002, software companies accounted for 5 out of 11 Indian

organizations listed either on the NASDAQ or NYSE. International listing also ensured that these organizations as well as the entire Indian software service industry came within the radar of international technology analysts like IDC and Gartner and investment bankers like Lehman Brothers and Goldman Sachs, all of whom started tracking the performance of the industry and enlisted organizations, and thereby inform existing and potential clients. These resulted in high visibility and credibility for the Indian software services industry and provided the industry with a cachet of being global and world class. We view the listing of Indian software services firms on international stock exchanges like NYSE or NASDAQ as means of gaining reputation capital in the advanced international market. While the primary function of the stock exchange is to be a market maker, quite like the SEI CMM, they catalyzed the journey of the Indian software industry towards instituting international standards of governance and financial management. If by embracing SEICMM, the industry players had opened up their software development process for external scrutiny and evaluation, enlistment with international stock exchanges opened up their corporate governance practices before the global customer and analyst community. It is interesting to note that neither SEICMM, nor the stock exchanges were mooted for the purpose to which it was put to use by the Indian software services industry. The industry, besides making use of their regular functions - quality certification and raising capital respectively - leveraged these institutions to raise the profile of the industry and in the process, overcome the hurdle posed by their liability of origin. Moreover, for the Indian organizations the journey towards high quality processes have continued beyond CMM level 5, wherein today many of them have obtained People CMM (PCMM) and CMM integrated (CMMi

certifications, ahead of software developing organizations from other parts of the globe. These new certifications extend quality standards to a host of other organizational processes, beyond software engineering. This relentless pursuit of quality certification, especially from renowned third party agencies, enabled the Indian service providers to firmly establish India's reputation in the international markets as an excellent source of high quality software services.

Internationalization of the Indian Pharmaceutical Industry

One finds similar evidence of leveraging renowned institutions to overcome liability of origin from the Indian pharmaceutical industry. We base our analysis on the internationalization efforts of two firms, Ranbaxy Laboratories Limited (Ranbaxy) and Dr. Reddy's Laboratories (DRL). In the pharmaceutical industry, India had a large domestic market characterized by intense rivalry between domestic and subsidiaries of multinational enterprises. Both Ranbaxy and DRL established themselves in the domestic market and then started exporting to unregulated international markets before they found an opportunity to compete in advanced and regulated international markets with formulation drugs. Just as the Indian software industry had benefited from certain country specific advantages mentioned earlier, the pharmaceutical industry benefited from having a low cost manufacturing base as well as a domestic policy framework that enabled them to develop specific competencies that was necessary to capitalize on the opportunity, when it got created, in the advanced markets.

The Indian Patent Act, 1970, recognized only process patents for pharmaceutical products thereby permitting firms to reproduce foreign-patented drugs provided they

were manufactured in a novel way. Therefore, like all other Indian pharmaceutical firms, Ranbaxy and DRL had focused on developing process technologies that are non-infringing and unique in order to manufacture drugs for the Indian market. Consequently, they had developed high degree of proficiency in synthetic chemistry such that even large multinational firms like Eli Lilly set up a joint venture with Ranbaxy in the early nineties for manufacturing its blockbuster antibiotic Cefaclor, which Ranbaxy had re-synthesized using an alternate process. Their skills in synthetic chemistry, developed and perfected over the years, provided them with the technical competence that was necessary for entering the US generics market. Moreover, since entry barriers were low in the domestic market, there was near perfect competition. The two ways to create competitive advantage was to bring a product to the market faster than any other competitor and to dominate distribution networks by offering a broad portfolio of products to the pharmacists. Therefore, over and above their skills in synthetic chemistry, Indian firms were adept in rapidly responding to market requirements, and had experience in production of a variety of drugs and multitude of therapies. All these factors – speed, diversity of portfolio and skills in synthetic chemistry were important prerequisites for them to make inroads into and compete successfully in the advanced markets.

Till the mid eighties, innovator pharmaceutical companies dominated the US market. Innovation and more specifically drug discovery, is a resource intensive process requiring investments in the order of billions of dollars. As a result, only large companies who are resource rich can afford it. Innovations are protected by patents in advanced markets. Innovator companies, typically large multinationals, have a stranglehold over

the market because of the exclusivity that they enjoy up to expiry of their patents. Such companies typically extend their patents by filing for additional patents before expiry of their original patents, a practice commonly known as 'evergreening'. In effect, advanced markets such as that of USA were largely inaccessible except to the innovator drug companies. This precluded the participation of firms like Ranbaxy and DRL in the advanced markets, because being resource constrained, these firms were not in a position to invest in the process of drug discovery. This however changed with the promulgation of Waxman Hatch Act in 1984.

Aimed at reducing healthcare costs in the US by increasing availability of generic drugs, this Act created a generic drug approval process called the Abbreviated New Drug Application (ANDA), which allowed generic drug manufacturers to refer to the safety and efficacy data supplied by the innovator drug company rather than proving safety and efficacy of the bio-equivalent generics themselves. This significantly reduced the time required and cost incurred for gaining access to the markets, enabling even companies with limited resources such as those from India, to manufacture and compete in the generic markets after patent expiration of blockbuster drugs. Since the Indian pharmaceutical firms possessed competencies in synthetic chemistry that was necessary to manufacture generics drugs, they were in a good position to participate in the advanced markets.

However, coming from emerging markets, these firms would have suffered from 'liability of origin' and therefore struggled to establish themselves in the advanced

markets in spite of the opportunity that was created or the skills that they possessed. Impact of such adverse perception would have been much more pronounced in case of pharmaceutical products because drugs are related to 'wellness' or life and death of human beings and consumers are likely to be intensely risk averse under such conditions, even if the Indian firms sold drugs that were cheaper than those supplied by firms from developed markets, which did not have any liability of origin. Neither was it easy for them to overcome its effects by means of brand building, because, as discussed earlier, coming from emerging economies, they were resource constrained. Therefore like the software industry, Indian firms from the pharmaceutical industry confronted a vicious cycle resulting from the twin effects of 'liability of origin' and resource constraints.

The pharmaceutical industry did not get caught into this vicious cycle because USFDA, another renowned institution from the advanced market, laid down the process for filing ANDAs and was the authority for approving whether the generics version of an off-patent drug conformed to all its standards and was therefore suitable for being sold in the US market. Ranbaxy and DRL quickly marshaled their organizational resources to meticulously follow the process guidelines laid down by the USFDA, acquired complementary legal skills that was necessary to navigate the US regulatory environment, and were able to successfully file ANDAs and receive approval from USFDA. Since the generics products that they launched got the approval of USFDA, there was no doubt in the market about the efficacy and quality of the product that they were supplying, with effect that they were rapidly able to corner market share with their generics drugs after expiry of the patent.

Firms from both software and pharmaceutical industry made use of renowned institutions to overcome their liability of origin and make an entry into the most advanced markets in the world. However, there are some differences between the two. While leveraging SEICMM was more of a conscious act by the Indian software industry, conforming to the guidelines of USFDA was a mandatory condition for the Indian pharmaceutical industry for participation in the advanced market. In that sense, the effort of the software services firms can be termed as more innovative in nature. However, we are making a different point here – neither the USFDA's process of filing ANDAs, nor the SEI's CMM were mooted for enabling firms from emerging nations to gain access to advanced markets in their respective industries. But firms from the Indian software and pharmaceutical industry leveraged their cachet of approval to overcome their liability of origin, which given that they are resource constrained, could have prevented them from participating in advanced international markets. Specifically in the case of pharmaceutical industry, it is interesting to note that an institution like the USFDA could have created high barriers for firms from emerging economies. However, Ranbaxy and DRL seems to have 'exploited the weight and strength of their opponent' (Yoffie & Cusumano, 1998), the USFDA in this case, to overcome their liability of origin and make a successful entry into the US market.

Beyond Liability: Creating Advantages of Origin

After securing their entry into the advanced international markets, the task before the software firms from India was to consolidate their position. They achieved this by rapidly scaling up their business and the challenge before them was to evolve an industry that they themselves had created and as a consequence, did not have any dominant model to emulate.

Software Industry: Innovative Organizational Forms for Scaling Service Operations

We mentioned earlier how process standardization enabled Indian software service firms to convert their 'resource augmentation' projects conducted on client premise into full-scale software development projects that were conducted on the premise of Indian firms. The next challenge for firms in the industry was to scale their business, which meant getting more projects from the same clients as well as seeking new clients. Because software development projects are human resource intensive, rapid scaling implied recruitment of large number of software professionals who would have to be provided with employment beyond the tenure of the project, or even in situations where the client decides to reduce investment in software development because of poor performance or adverse business conditions in its industry. Therefore, the challenge was at two levels. First, it was necessary to get into some kind of long-term agreement with the client that would make the client committed to providing business even beyond the tenure of specific projects. Second was to evolve some kind of mechanism that would mitigate risks associated with client firms' performance or business cycle in clients' industry.

A novel structural feature – the Offshore Development Center (ODC) – was the vehicle through which Indian software services firms secured long-term commitment from their clients. An ODC is a dedicated facility for a specific client located within the organizational boundary of the service provider. It is governed by a contractual agreement between the service provider and the client whereby the client commits to engaging the services of the supplier over a specified time horizon that substantially exceeds the duration of a single project. In return, the service provider ensures that a team of software developers and other resources are earmarked for the client and the intellectual property generated out of such projects is completely protected, even from the rest of the organization.

The ODC provides benefits at multiple levels. First, it reduces transaction costs of contracting in case of repeat orders. Secondly, it ensures 'knowledge continuity', an important and desirable feature for outsourced software projects. There are significant interdependencies across families of software products and if the same set of developers is engaged across projects involving such a family of product, there is likely to be significant productivity benefits. Moreover, dedicating a team of developers for projects of one particular client and not engaging them elsewhere for better utilization ensured that there is no 'knowledge spillover' - a reasonable apprehension in software development environment that is rich in tacit knowledge held collectively by a team of developers. In effect, the ODCs almost became a subsidiary of the client firm that was situated on the supplier premises and was jointly managed the client and the service provider. However, the client did not need to incur the organizational costs associated

with owning and managing a subsidiary, neither was it exposed to the attendant risks of investments that establishing a subsidiary would have involved.

Because the intellectual property generated from an ODC was rigorously sealed off from the rest of the organization, it also enabled the service provider to get into multiple such contracts with several client organizations, many of who might be competitors of one another. ODCs are today a dominant feature of the Indian software services industry, where large Indian software service providers like Wipro, Infosys and TCS have multiple ODC's within their organizations. Likewise, multinational organizations like Cisco, TI and Nortel have their ODC's in several of the Indian software services organizations, sometimes over and above having their fully owned subsidiaries. Estimates suggest that close to 80% of revenues earned by large software service providers are from 'repeat customers' and it is likely that 75-80% of work done for such repeat customers would be from ODC's.

In order to mitigate risks due to volatility in client industries, Indian software firms took to diversification of their client portfolio, because they viewed the volatility faced by their clients as an *unsystematic risk* (Brealey & Myers, 1981). Akin to an investor diversifying her portfolio through investments in uncorrelated securities, they started to have relationships with a large number of clients from a variety of industries. Contrary to popular wisdom of developing exclusive customer relationships and industry specialization, software services firms catered to the development needs of customers coming from a wide spectrum of industries such as telecommunication, utilities, banking

and financial services, retail and manufacturing (Arora et al, 2001). Moreover, even within the same industry such as telecommunication, they started to work with a large number of players, each of who were taking bets with different technologies (Ramamurty, 2001) like CDMA, GSM and UMTS, as well as with different generations within each of these technologies. This multiple layers of diversification allowed them to minimize the unsystematic risk that might be associated with a particular product line, e.g., one division of a telecommunication major laying its bets on 3G technology of CDMA, performance of an organization within an industry, or with an entire industry itself, such as telecommunication. Diversification also ensured that the Indian software firms were able to spread their overheads across a wider set of projects thereby gaining efficiencies of operation that was impossible to achieve for its clients who did not have the benefit of diversification.

It was hence of little surprise that the Indian software industry in general and its major players in particular were able to continue their relentless march in the software exports industry, clocking year-on-year growth rates of close to 40% over the past decade or more – a growth rate that is possibly unprecedented in any other industry of the world. Specifically in the last five years the industry has more than tripled its exports, enhanced its service offerings, diversified its geographic presence and expanded its customer base by focusing on new vertical markets. Wall Street investment firm Goldman Sachs[1] noted, " in terms of competency, availability of skilled resources, cost and business environment, no other country is as competitive as India (in software exports)."

[1] 'Trechnology:IT Services', Goldman Sachs Global Investment Research, September, 2004

Impacting Industry Business Models

Such has been the impact of success of Indian software services firms that today an India centric delivery model is becoming an integral part of any large software outsourcing deal. Traditionally, global majors like IBM, Accenture and EDS dominated large outsourcing deals, typically of values more than $ 100 million because of their capability in delivering end-to-end solutions. However, today clients are showing willingness to split such orders between global majors and Indian software service firms in order to get best-of-breed solutions. Realizing India's advantage as a geographic location in offering high quality services at competitive costs, IBM, Accenture and EDS have started to scale their operations in India. They are also emulating the Indian firms in actively adopted process certification as means to improve their service delivery capability. Even the captive offshore development centers belonging to multinational subsidiaries are being ramped up rapidly. Securities firms CLSA[2] estimates that by March 2006, the global service majors would employ over 1,40,000 people in India – almost three times the number two years ago. Thus, the evolution of Indian software services firms in the international market seems to have completed one full circle, where their entry strategy into advanced markets was focused on overcoming their country of origin liability. However because of the success that they achieved, today they have created a privileged position in the international business community where 'made in India' has become a sign of advantage and competitive excellence, creating an advantage of India as a geographical location. And the local Indian firms are in the best position to leverage this locational advantage because of their familiarity with the social, political

[2] CLSA Asia Pacific Report, February 2005

and business context, launching them into a virtuous cycle of locational advantage leading to growth and profitability, which in turn increases the advantage of location.

The India Advantage in the Pharmaceutical Industry

The broad trajectory followed by firms from the pharmaceutical industry was similar to that of those from the software industry. Both Ranbaxy and DRL rapidly capitalized on the opportunity created in the international market because of the Waxman Hatch Act and started to build complementary assets and capabilities that was necessary to create sustainable positions of competitive advantage. They started off by getting into a series of alliances as means of acquiring knowledge and minimizing risks of foreign business environment (Johanson & Vahlne, 2003).

DRL worked with Lederle Laboratories, USA to gain an understanding of regulatory affairs, entered into a marketing alliance with Par Pharmceuticals, New York and established a joint venture with Schein USA in order to gain knowledge in product selection and intellectual property management. Their joint venture with Schein was fortuitous because Schein specialized in patent challenges and helped DRL successfully challenge Eli Lilly's patent for its blockbuster anti-depressant drug Prozac in 1998. The legal proceedings ended in 2001 with the USFDA upholding DRL's challenge and granting them 180-days exclusivity for marketing the generic version of the drug Fluoxetine. In these 180 days of exclusivity, DRL earned revenues of $ 68 million as against their legal costs of $ 1 million. Likewise, Ranbaxy entered into an agreement with multinational pharmaceutical major Eli Lilly for setting up two joint ventures – one in

India for research, development and manufacturing while the other in the USA for marketing. Even though Eli Lilly pulled out of the joint venture after a year because they did not want to concentrate on generics business, they transferred the rights of eight of their generics products to Ranbaxy and liberally helped them to break into the distribution network.

Having gained an entry into the international markets, Indian firms went about aggressively scaling their operations. This they achieved by increasing the number of products in their portfolios, making acquisitions and expanding to other regulated and unregulated markets. As the generics segment in advanced markets became more competitive and commoditized, they moved up the value chain, leveraging their traditional skills in synthetic chemistry and organizational capability of rapid development and go-to-market. Ranbaxy evolved into a 'specialty generics' company, where it focused on generics that were difficult to develop and difficult to manufacture – thereby creating profitable niches in the otherwise commoditized generics market. This was complemented by their research on New Drug Delivery Systems (NDDS) where leveraging their skills in synthetic chemistry and manufacturing processes, Ranbaxy patented platform technologies and launched successful products in the area of oral controlled release systems. DRL too followed Ranbaxy's move and acquired US based Trigenesis Therapeutics Inc. that had a portfolio of platform technologies for developing differentiated drugs in the dermatology segment – a profitable niche in the US market. The acquisition marked DRL's entry into the specialty generics business, which DRL intended to scale up rapidly through other acquisitions.

By 2004, Ranbaxy emerged as the tenth largest generics pharmaceutical company of the world having product sales in more than 100 countries and operation in 34 countries. Its 16 manufacturing facilities were spread over 7 countries and its foreign employees numbered around 2500. Over three-fourth of its turnover was generated outside India with US market being the single largest. Thus, Ranbaxy was on course to attain its target of $ 5 billion by 2012. DRL, on the other hand, ended FY 2004 with revenues of about $ 500 million. While its size was still small compared to global pharmaceutical giants, it had 39 ANDAs pending for approval by the USFDA. 26 of these were patent challenges, the combined sales value of which was estimated to be about US$ 22 billion. With presence in more than 40 countries and relationships with several top tier generics players, DRL is well positioned to take advantage of large-scale patent expirations in the regulated markets scheduled from 2006, and thus emerge as a strong contender in the global pharmaceutical industry.

In the software industry Indian firms could assume a leadership position in defining the software service delivery model because process maturity and subsequent managerial innovations that enabled and scaled offshore software development was a relatively new phenomenon in the international information technology industry. Therefore, even powerful incumbents like EDS and IBM took some time in sensing and adopting the new business model that was being created. However, this was not the case in the international pharmaceutical industry, which had large multinational companies like Teva of Israel and Sandoz vying leadership position in the generics space almost at the same time or even earlier than the Indian pharmaceutical firms. Therefore success of

the Indian firms in the international market drew strong competitive responses, not only from multinational generics players but also from innovator drug companies, who were being prevented from extending their monopoly rights over the market because of successful patent challenges. The innovator drug companies retaliated with "authorized generics" wherein the innovator company who owns the patent authorizes a generic company to launch a generic drug, typically when another generic company wins a patent challenge and gets a 180-day exclusivity on the generics version of the drug. This would precipitate price competition between the authorized generics and the generics firms that won the 180-day exclusivity, leading to lower profitability for the patent challenger. By removing the exclusivity that the generics firms would have obtained after a protracted legal battle, the innovator drug companies were trying to make patent challenges unattractive.

Over and above their efforts to contain the threat posed by Indian pharmaceutical companies, they also realized the unique advantages that India as a location offered, namely providing highly skilled people in large numbers at cost competitive prices, as well as the process competencies developed by the Indian firms. Therefore, in an effort to tap India's potential as a source of talent and capabilities, multinational generics firms like Teva and Sandoz are setting up subsidiaries in India while others like GlaxoSmithKline are getting into research partnerships with Indian firms like Ranbaxy. It is still premature to say whether the success of Indian pharmaceutical firms in the international market would be as resounding as those from the software services industry. However, as in software, an India-centric strategy for leveraging India's locational

advantages is fast becoming an indispensable strategic component for serious players in the international pharmaceutical industry. As in the software industry, India's liability of origin has now become an advantage of origin!

Conclusion

In this paper, we analyzed the internationalization efforts of firms from the Indian pharmaceutical and software services industry to understand the challenges that they confronted and the actions that they undertook to overcome the challenges. We noted the higher degree of difficulty that these firms faced, because they came from emerging economies, which are typically resource constrained and evoke adverse perception about quality and capability in advanced markets. However, these firms were able to overcome such challenges by innovatively leveraging the reputation capital of renowned institutions from developed economies. Having gained an entry into the international markets, they scaled their operations through a series of managerial innovation and deliberate actions and were able to convert the opportunities that were created in international markets into sustainable positions of competitive advantage. The widespread impact of their success becomes evident from the reactions of their powerful competitors in the international market, who today are actively trying to integrate an Indian centric strategy into their international business strategy.

Emerging economies have featured in the international strategy of multinational enterprises in the past, first as a source for low cost resources and of late as a market of high potential at the 'bottom of the pyramid' (Prahalad & Hammond, 2002; Prahalad &

Hart, 2002). However, the success of the Indian software and pharmaceutical industry has made India a desired destination for knowledge intensive products and services. Certainly cost advantages did play its part in providing these industries with an access to the advanced markets. But as our analytical description of their evolution shows, they continuously changed and improved their value propositions in the international market in order to become strong contenders, as they are today. In the process, they established India's advantage as a location for providing high quality products and services in knowledge intensive industries at competitive costs.

Scholars have lamented about the dearth of new issues in international management (Buckley, 2002; Kogut, 2002). Understanding the evolution of firms internationalizing and participating in advanced markets from emerging economies has the potential to generate the next 'big research question.' The unique nature of challenges that these firms face because they originate from emerging economies and the novel strategies that they adopt in order to overcome such challenges should provide researchers in international management an interesting research agenda. We have provided the starting point for such research by enumerating one such challenge in the form of 'liability of origin' and how these firms were able to overcome the same. Understanding in greater detail how firms from emerging markets overcome problems associated with resource constraints, lack of managerial talent and experience in international markets or what are the challenges that they would face in integrating their global operations can be the agenda for future research.

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