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**INTERNATIONALIZATION TRAJECTORIES - A CROSS-
COUNTRY COMPARISON: ARE LARGE CHINESE AND
INDIAN COMPANIES DIFFERENT?**

Fabienne Fortanier and Rob van Tulder

Internationalization Trajectories – a cross country comparison: Are Large Chinese and Indian Companies different?

Fabienne Fortanier* and Rob van Tulder**

* University of Amsterdam Business School

** Rotterdam School of Management, Department of Business-Society Management

Corresponding author: Rob van Tulder,
RSM Erasmus University Rotterdam
Burgemeester Oudlaan 50, Room T7-03
3062 PA Rotterdam, The Netherlands

Email: rtulder@rsm.nl

Fax: +31-10-4089012

Tel: +31-10-4081923

Abstract

This paper explores whether the internationalization trajectories – patterns over time in the level, pace, variability and temporal concentration of international expansion – of large firms from China and India are fundamentally different from those of developed country firms. A longitudinal cross-country comparative study of 256 large firms for the 1990-2004 period shows that, although internationalization trajectories of large and leading Chinese and Indian firms are indeed different, there are also considerable similarities between established developed country firms and the new firms from emerging markets, not in the least because they often interact within the same sector

Key words: Internationalization trajectories, Transnationality Index (TNI), longitudinal research, cross-country comparison

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1. INTRODUCTION

Understanding the nature, characteristics and determinants of the internationalization strategies of large corporations is one of the key research foci within the International Business domain. So far however, only limited attention has been paid to the *dynamic change* in a firm's overall extent of internationalization, as research has concentrated either on 'one-off' foreign investment decisions (e.g. studies on the determinants of FDI, or on entry-mode choice and the role of subsidiaries), or used the degree of internationalization in a relatively static way. Most research has focused on cross-sectional comparisons of determinants (Autio *et al.*, 2000; Tihanyi *et al.*, 2000) and performance implications (see e.g. Lu and Beamish, 2004; Contractor *et al.*, 2003) rather than changes over time within a framework of long-term *corporate* strategy. Only a few recent studies (e.g. Maitland *et al.*, 2005; Vermeulen and Barkema, 2002) have explicitly and empirically addressed how, at the corporate level, firms expand (and withdraw, see Benito and Welch, 1997) their international activities over time. Or, as Maitland *et al.* (2005: 436) noted, there is still 'limited understanding of how the multinational enterprise (MNE) is created as an integrated system of strategically allocated resources, rather than a simple aggregation of discrete affiliate or country level decisions.'

Especially, the lack of systematic, integrated and time-related empirical information on MNE strategies is an important omission, as there are indications that dynamic differences in the internationalization process and the resulting balance in sales and assets over time affect the extent to which firms are able to reap the benefits from or handle the risks of international expansion (Vermeulen and Barkema, 2002; Ruigrok and Wagner, 2003). In addition, a longitudinal analysis of growth across borders can shed light on the growth of the firm in general (Jones and Khanna, 2004; Penrose, 1959), and allows for a study of the various

strategies that firms have used in driving economic globalization, hereby furthering our understanding of this prominent process (Rugman and Verbeke, 2004).

The rise of large new multinational enterprises from big emerging market countries like China and India gives further impetus to this research question, as a debate has sprung up on whether internationalization strategies of emerging market MNEs (Luo and Tung, 2007) are fundamentally different from the strategies of firms in developed country markets and the extent to which these companies and their countries pose an opportunity or a threat to developed companies and countries (Sauvant, 2008). A comparative study of the Boston Consulting Group (2006) on the ‘new global challenge’ identifies at least one hundred companies based in rapidly developing economies, that will ‘radically transform industries and markets around the world’ (BCG, 2006: 5). India (21) and China (44) alone account for 65 of these emerging global players.

Existing research on emerging market MNEs suggests that the characteristics of these firms, their motives for internationalization and the nature of their ownership advantages are fundamentally different from those of developed country MNEs (Mathews, 2004; Luo and Tung, 2007; Buckley et al., 2007; Li, 2007). The empirical basis of such comparisons can be problematic, however. The largest *established* MNEs from developed countries – which to a large extent comprise also the largest domestic firms in developed countries (cf. UNCTAD, 2007) – are compared with the *frontrunner* MNEs from developing countries – which often represent much smaller companies. Sometimes, interesting insights have been obtained by comparing the characteristics of emerging market MNEs with those of ‘yesterday’s’ developed country MNEs (Dunning et al., 2008).

Hence, to what extent the above differences in characteristics, motives and ownership advantages between developed and developing country firms really result in different paths of internationalization expansion remains yet unknown. This paper aims to address this lacuna in existing research in general and in specific regarding the ways in which large Chinese and Indian firms expand their activities across

borders over time by introducing the concept of internationalization trajectories. Building on Maitland *et al.* (2005) and Vermeulen and Barkema (2002), internationalization trajectories are defined as distinct patterns over time with respect to the level, pace, variability, and temporal concentration of international expansion. The main research question of this paper is therefore whether the internationalization trajectories of large Chinese and Indian firms are different from those of large developed country firms.

Answering this question requires more than a cross-sectional comparison of firms' degrees of internationalization: it necessitates longitudinal and cross-country comparative data. While such data are notoriously difficult to gather and compare reliably over time (Vernon, 1999), we were able to collect this data on the internationalization of sales and assets between 1990 and 2004 of a sample of 233 of the largest developed country firms from the US, Europe and Asia from published corporate sources (annual reports and SEC filings). Using factor analysis as well as hierarchical and non-hierarchical clustering techniques, we identify six different 'types', or trajectories, of internationalization of sales and assets. The trajectories of leading developed country MNEs are subsequently used as a benchmark against which the strategies of the largest and/or most international Indian and Chinese firms are compared. This comparison – still relatively qualitative in nature given that most large Indian and Chinese firms have only very recently started to internationalize at a notable (strategically relevant) scale – is done for a sample of 31 of the largest and most international Chinese and Indian firms and highlights differences but also similarities in the internationalization trajectories of Chinese and Indian firms, and those from developed country markets.

This paper is organized as follows. First in section 2, the relevance of studying internationalization trajectories is further explained and positioned in the existing academic literature on international business. In addition, the differences in the internationalization trajectories that can be expected from the existing literature between firms from China and India will be explored. Section 3 details the

methodology that leads to the basic benchmark set of internationalization trajectories among developed country firms, and the approach to comparing these to the firms from China and India. The results of the quantitative analyses are presented in section 4 which identifies six different internationalisation trajectories for assets and sales. Section 5 applies these findings to the patterns of internationalization from MNEs from India and China, while section 6 draws conclusions and presents suggestions for follow-up research.

2 INTERNATIONALIZATION STRATEGIES

2.1 Existing research

How the internationalization of firms actually comes about, and for what reasons, is a question that is central in the area of International Business. Inspired by theoretical models like Dunning's eclectic paradigm (Dunning, 1988, 2000, 2001b) or the more process-oriented perspectives of the Uppsala school (Johanson and Vahlne, 1977; Johanson and Wiedersheim-Paul, 1975), a large amount of empirical work has already been conducted to answer this question.

Examples of such studies on the internationalization of firms include the work on the determinants of FDI at the macro-level of analysis, in which for example the role of policy variables such as investment incentives, performance requirements and taxes (Loree and Guisinger, 1995; Blonigen, 2005) are highlighted. Also the role of institutional factors such as property rights and government quality (Loungani *et al.*, 2002; Biswas, 2002); geographical, cultural, administrative and economic proximity between home and host country (Ghemawat, 2001; Van Tulder with Van der Zwart, 2006; Xu and Shenkar, 2002); agglomeration effects (Porter, 1998) have received research attention, in addition to the more traditional determinants of FDI (Nunnenkamp and Spatz, 2002).

At the micro-level, substantial research has focused on explaining the way in which international expansion takes shape in studies on entry mode choice (Brouthers, 2002; Chang, 1995; Kogut and Singh,

1988; Makino and Neupert, 2000), including the identification of the determinants of such choices like markets and investment risk, firm strategic factors and ownership advantages (Kim and Hwang, 1992; Agarwal and Ramaswami, 1992), as well as their performance implications, that have been found to be dependent upon host country context, firm-specific resources and organizational control (Woodcock *et al.*, 1994; Slangen, 2006; Siripaisalpipat and Hoshino, 2000), firm strategy (Busija *et al.*, 1997) or entry sequence (Pan *et al.*, 1999).

Finally, in research on the determinants of internationalization strategies at the corporate level, country, industry, and firm specific variables such as size, R&D intensity, and experience have been found to affect the degree of internationalization of the firm (see for example Autio *et al.*, 2000; Peng and Delios, 2006; Tihanyi *et al.*, 2000; Hitt *et al.*, 2006). Especially the effect of the degree of internationalization on performance remains a much researched and fervently debated issue as theoretical explanations have proposed different balances between the costs and benefits of internationalization and hence different ‘shapes’ of the relationship between internationalization and performance (compare e.g. Zaheer, 1995; Ruigrok and Wagner, 2003; Geringer *et al.*, 1989, Gomes and Ramaswamy, 1999; Lu and Beamish, 2004; Contractor *et al.*, 2003).

However, much research on internationalization (and its performance implications) has primarily concentrated on individual or ‘one-off’ decisions (Fletcher, 2001). Though empirical studies often depart from larger overarching theoretical frameworks (e.g., the eclectic paradigm, or the Uppsala model), the actual empirical analyses centre on individual investment decisions (e.g. their entry modes and the role of subsidiaries), or use aggregated national level data (FDI) rather than information at the organizational level to analyze the determinants of internationalization. In the evaluation of the performance impact of international expansion, internationalization *is* measured as a firm-wide construct – often as the ratio of foreign to total sales or assets – but the analysis focuses primarily on the *levels* of internationalization, and on the cross-sectional dimension, whereas only limited attention is paid to the time dimension and patterns of dynamic change. An overall picture on the extent and way in which the largest firms

worldwide have recently expanded their international operations over a longer period of time is still remarkably absent (Vernon, 1999; Maitland et al., 2005; Fletcher, 2001). This has also consequences for an assessment and an understanding of the degree to which national economies as a whole participate in the process of globalization.

This paper aims to contribute to the understanding of the international expansion of firms over time, by building on the few studies that have taken a longitudinal perspective, notably Vermeulen and Barkema (2002), and Maitland et al. (2005). Both groups of authors have developed measures to capture the dynamics in the internationalization process, using information on individual investment projects by subsidiaries. Maitland et al. (2005) examined the clustered versus non-clustered growth (in time) of firms in the 1900-1975 period using a sample of 181 US-based multinationals from the HBS Multinational Enterprise database. Vermeulen and Barkema (2002) analyzed the pace and rhythm of international expansion of 22 Dutch firms between 1967 and 1992.

Combining these insights with the traditional analysis of levels (ratios) of internationalization, four main characteristics of the internationalization process can be distinguished. First, the average *level* of internationalization. This measure represents the overall extent to which a firm's assets and sales are located outside its home country. Secondly, the average *pace* of international expansion, or the growth rate with which the level of international activities increases or decreases. The third dimension is the *variability* of international expansion (and retreat), or the variability in growth rates. Finally, the fourth dimension represents the *temporal concentration* of international expansion, or the extent to which the expansion of internationalization activities is clustered in time, or occurs relatively gradually.

We define internationalization trajectories as *distinct patterns over time* with respect to these four components, i.e. with respect to the level, pace, variability, and temporal concentration of international expansion. By systematically classifying firms according to common characteristics in their patterns of internationalization, we essentially build a typology of internationalization strategies. At present, no

typologies are yet available for internationalization strategies over time, although identifying typologies is an important academic tool to enhance our understanding of these firms, to guide further research and theory development, and to provide anchors for policy makers and managers (see e.g., the work on organizational structure of Bartlett and Ghoshal, 1989).

2.2 MULTINATIONALS FROM EMERGING MARKETS

In this paper, the basic typologies or internationalization trajectories should help to assess whether the description of emerging market MNEs requires indeed additional types of internationalization strategies or whether these firms deploy (combinations of) already implemented strategies. Since the 1990s, MNEs from emerging markets are rapidly increasing in size and number (cf Child and Rodrigues, 2005). The Fortune Global 500 list of 2006 contained 57 of these companies as compared to 19 in 1990. The number of multinationals from developing countries that appear in the annual Top100 listings of the most internationalized firms in the UNCTAD World Investment Reports increased from zero in 1990 to seven in 2005 (UNCTAD, 2007). Primarily from South-east Asia (notably China, and to a lesser extent India), these ‘dragon multinationals’ (Mathews, 2002) or ‘emerging market MNEs’ (Luo and Tung, 2007) of the late 1990s are often considered to adopt substantially different internationalization strategies from either the latecomer developed country MNEs (Li, 2007), ‘Third World’ multinationals in the 1970s and 1980s (Lecraw, 1993; Wells, 1981, Lall, 1983), the Newly Industrialising Economy (NIE) multinationals from the 1990s, or the ‘born-globals’ that include smaller and medium sized corporations from developed countries (UNCTAD, 2006).

The emerging market MNEs from India and China share a series of characteristics as uncovered by recent studies. First of all, emerging market MNEs have been found to be more often family-owned. Family ties and parental networks are important as determinant of international activity (Li, 2007; Lecraw, 1977; Buckley et al., 2007; Lall, 1983; Elango and Pattnaik, 2007). Firms are also often affiliated with larger

business groups, an ownership advantage especially when internationalizing to other developing countries (Garg and Delios, 2007; Lall, 1983).

Secondly, the role of the home country government is very important in determining firm strategy, for example in regulating outward FDI from emerging markets. Government policies prohibited outward FDI until recently. Nowadays outward FDI is actively stimulated with subsidies and other FDI policies (Luo and Tung, 2007; Buckley et al., 2007), via state-owned companies (Li, 2007), and a general framework of export orientation and (modest) domestic liberalization (UNCTAD, 2006). In addition, escape motives, where firms invest abroad to avoid strict government policies in the domestic market (Wells, 1977) to e.g. acquire foreign exchange and technology or avoid capital market imperfections in general (Buckley et al., 2007), have received new attention in IB research (cf Witt, Lewin, 2007) following their role in outward FDI by emerging market MNEs.

A third characteristic of emerging market MNEs is the experience of these firms in operating in less developed markets (Wortzel and Wortzel, 1988), which gives them an ownership advantage in ‘managing institutional voids’ (Li, 2007; Khanna and Palepu, 2006; Chittoor and Ray, 2007; Luo and Tung, 2007) in other less developed countries as well. Finally, EM MNEs are often considered to suffer from late-comer competitive disadvantages (Chittoor and Ray, 2007; Luo and Tung, 2007). This is one of the reasons why recent investments (from approximately 2001 onward, see Buckley et al, 2007; Yiu et al., 2007; Li, 2007) for FDI into developed markets has been of an opportunity and asset seeking rather than asset exploiting nature.

These different characteristics have been suggested to result in internationalization strategies that are also substantially different from those of developed country firms. Described as ‘springboarding’ (Luo and Tung, 2007; Rui and Yip, 2007), the internationalization strategies of emerging market firms are characterized by their high-risk, aggressive and ‘boom and bust’ or radical nature. Firms often target developed countries in search of (strategic) assets (Li, 2007; Buckley, 2006; Luo and Tung, 2007), and

pursue many customers in many foreign markets at once in a strategy of entrepreneurial venturing (Yiu et al., 2007). As they aim to catch up with western firms, emerging market MNEs continue to be strongly home oriented; as internationalization occurs often through exports (Li, 2007; Chittoor and Ray, 2007).

Empirical research on emerging market MNEs that has resulted in the above conclusions has used a variety of methods and measures to assess internationalization by these firms. Most research, however, remains descriptive and is based on cases of a limited number of often frontrunner firms, as noted by Aulakh, 2007 and Buckley et al., 2007). With a few exceptions – e.g. Elango and Pattnaik (2007) and Buckley et al. (2007) who use quantitative analyses – studies only cover either very recent years or use macro level instead of firm-level data. While a few studies have aimed at classifying or typifying MNEs from emerging markets (e.g. Chittoor and Ray, 2007 for 40 Indian pharmaceutical firms; or Li (2007) for three major Chinese firms), no studies have as of yet made a direct comparison between the internationalization pattern over a comparable period of time of large firms from China and India with those from developed countries (for a historical comparison, see Dunning et al, 2008).

Based on this particular literature, several expectations may be expressed for the internationalization trajectories of large firms from India and China in comparison with firms from developed countries as regards level, pace, rhythm and temporal concentration.

First, we would expect that the level of internationalization of large Indian and Chinese firms is still lower than that of most developed country firms, because internationalization from emerging markets – and China and India in particular – started only relatively recently. This is reflected also in the observation by Li (2007) and Chittoor and Ray (2007) that Chinese and Indian firms are still characterized by a strong home orientation.

Secondly, the pace of growth however can be expected to be much higher than that of developed country MNEs, as a reflection of the ‘catch-up’ strategies (Li, 2007) of MNEs, the growth of entrepreneurial venturing activities in which firms pursue many foreign markets at once (Yiu et al., 2007), and the

aggressive wholly-owned acquisitions that are made abroad in recent years (Buckley et al., 2007). In case of state-owned firms, the pace of growth will be strongly influenced by government policies and their perception of geo-political interests. In particular in the extractive industries, rapid internationalization is needed to safeguard access to scarce resources for large economies like India and China.

Thirdly, the variability of expansion (rhythm) can also be expected to be higher than that of developed country MNEs. Home government backing (Luo and Tung, 2007; Buckley et al., 2007) has induced higher risk strategies, which may also fail again. The variability of expansion is also evident from Li's (2007) description of EM strategies as being of a boom and bust nature.

Finally, the fact that international activity from China and India has only seriously taken off since a few years, will probably mean that these firms will have higher scores on temporal concentration as well.

3. METHODOLOGY

In order to assess to what extent internationalization trajectories of large Chinese and Indian firms differ from those of developed country MNEs, we divide our empirical research into two components. First, we identify the internationalization trajectories used by firms from developed countries, using quantitative data. Second, we make a more qualitative assessment of the internationalization trajectories of the largest and most international Chinese and Indian firms, and identify to what extent the developed country trajectories apply.

3.1 Internationalization trajectories of firms from developed countries

For the first stage of the study, we developed a benchmark dataset on the internationalization of sales and assets between 1990 and 2004 of a sample of the largest firms worldwide. The basis of the selection of firms in the sample was the list of 300 largest non-financial firms worldwide in 1995 (based on sales, from the Fortune Global 500 list of 1995), plus the top 50 largest firms from a selection of the most important investor countries worldwide: the US and Japan (both Top 50s already included in the 300 from

Fortune), and the UK, France, Germany, and the Netherlands. These Top 50s ensured a wider coverage of in particular European firms that would otherwise have been underrepresented in the sample. Taking 1995 as a benchmark year reduced the survivors-bias in our sample. The resulting sample consisted of 444 firms in 1995. Data were collected on the internationalization of these firms, following the firms backwards in time until 1990, and forwards until 2004.

We measured firm internationalization by the foreign-to-total sales ratio (FSTS) and foreign-to-total assets ratio (FATA). While a range of other indicators of internationalization has been developed (see e.g. Letto-Gillies, 1998; Hitt *et al.*, 1997), these two measures remain the most often used ones in IB research to document the weighted corporate strategy in which the relative importance of subsidiaries is taken into account in terms of their contribution to overall sales and assets (see e.g. Sullivan, 1994; 1996; Ramaswamy *et al.*, 1996; and UNCTAD's TransNationality Index). Both variables do suffer from measurement problems that become more pronounced in longitudinal research (especially if firms change their method of reporting). For example, some assets (notably intangible assets) are not geographically specified (often noted as 'corporate' assets) for certain firms, whereas foreign sales may or may not include intra-firm sales. As a general rule, we calculate the FSTS and FATA ratio's based solely on the geographically specified sales and assets, without making assumptions on the geographical dispersion of those assets or sales that were not geographically specified by the firm. In addition, we choose to exclude intra-firm sales from our measurement of the FSTS ratio, so that the degree of internationalization of firms that belong to a conglomerate are not overestimated. However, we – like all other researchers using these types of data – remain dependent upon the figures reported by the firms themselves, which are not by definition exactly comparable across all firms. This means that while we take care in interpreting our findings, there is always a chance that measurement errors influence the results.

In gathering data on the internationalization of sales and assets, we were able to find such data for 233 firms for which at least one of the two variables (FSTS and FATA) was available for 10 or more years in the 1990-2004 period. These long periods are necessary in order to be able to study patterns over time. In

sum, our dataset consists of 3495 (15*233) firm-year observations as a maximum, of which 3252 (93 percent) are available for FSTS and 2023 observations (58 percent) are available for FATA. These data are summarized within time-series per firm, leading to a total of 231 (out of 233) time series for FSTS and 148 for FATA. The average number of observations per time-series is 14.1 and 13.7, respectively, out of a maximum of 15.

Variable construction

Based on these time-series data on FATA and FSTS, we defined a range of variables in order to measure the level and process of internationalization for the 1990-2004 period for each firm. Following our definition of internationalization trajectories, we calculated eight variables for each firm, for both sales and assets, calculated a range of variables to cover a total of four dimensions of internationalization. The following variables were constructed per firm, for both sales and assets between 1990 and 2004:

- the average value of FSTS (or FATA) (MEAN);
- the maximum value of FSTS (or FATA) (MAX);
- the minimum value of FSTS (or FATA) (MIN);
- the average annual change in the value of FSTS (or FATA) (GROWTH);
- the average annual growth rate of domestic sales (or assets) (D GROWTH);
- the average absolute change in the value of FSTS (or FATA) (ABS GROWTH);
- the standard deviation of the average annual change in sales (or assets) (GROWTH SD);
- the clustering index by Maitland *et al.*, (2005) (CLUSTER, explained below);

Of these variables in particular the variable CLUSTER requires some further explanation. In our paper, we use the Clustering Index proposed by Maitland *et al.* (2005), but apply it to the Degree of

Internationalization (DOI) of firms, instead of to the number of international investments. The Clustering Index is based on the number of ‘clustering points’ divided by the number of observations in the time-series (in our sample, max 15). Clustering points are annually attributed to a firm for above or below average (within the time-series) changes in internationalization. Additional points are awarded for serial exceptional internationalization. The resulting measure indicates for each firm, whether its internationalization in the 1990-2004 period has occurred relatively clustered in time, or was dispersed over the entire period. Higher values indicate stronger clustering.

These eight variables were subsequently factor analyzed (for both FATA and FSTS) using the principle component method with varimax rotation, to reduce the number of variables and to see if the four dimensions we identified were indeed present in our data. The results indicated that for each set of variables (assets and sales) 4 factors could be identified with Eigenvalues higher than 1. The results of the factor analyses are presented in table 1. The four factors extracted explain for a total of 91 percent of the variance in the sales variables, and for 89 percent of the variance in the assets variables. Factor 1 represents the level of internationalization, and is named *Level*. Factor 2 represents the variability in expansion, and is called *Variability*. Factor 3 represents a combination of DOI growth and domestic decline, and is called *Pace*. Finally, factor 4 solely represents the temporal clustering of internationalization, and is called *Cluster*.

[table 1 approximately here]

Analytical approach

With the factor scores as variables, the firms can be classified into distinct groups of firms that are relatively similar in their internationalization strategies by using hierarchical and non-hierarchical clustering techniques. This sequence of factor and cluster analysis is common for example in marketing research that looks to identify different segments of consumers (Kwon et al., 1999; Merrilees and Bentley,

1999). These clusters represent what we defined as ‘trajectories’: distinct patterns over time with respect to the level, pace, variability and temporal concentration of international expansion.

3.2 Trajectories of Indian and Chinese firms

More so than for developed country MNEs, reliable empirical data on internationalization for large Chinese and Indian firms remains lacking. As the OECD (2006) observed, the empirical literature on MNEs from emerging markets generally represented anecdotal evidence and “deduction and inference from the history of North-South capital flow”. Although the empirical basis for the systematic study of emerging MNEs is rapidly expanding, it continues to be extremely difficult to find more quantitative firm level data on internationalization for firms from India and China that is in any way comparable to the evidence presented in the previous section. See for instance the articles in the special 2007 issues dedicated to this topic in the *Journal of International Business Studies* and the *Journal of International Management*.

Therefore, the second stage of this empirical study involved the comparison of the internationalization trajectories of developed country firms with those of Chinese and Indian firms in a more qualitative manner. We first selected all the non-financial Chinese and Indian firms from the Fortune Global 500 in 2007, and combined these with the most international Chinese and Indian firms that were listed in the recent World Investment Report by UNCTAD (2007). Hence, we included the largest and most international Indian and Chinese firms. This resulted in an initial set of 21 firms, of which 16 are Chinese and 5 Indian. In order to add sufficient Indian firms to the sample and cover a larger number of sectors, we also used the 2007 listing of the 20 Indian firms with the highest market capitalisation (according to Forbes). This added an additional six non-financial companies to the list and broadened the sector composition of the sample to include utilities, telecommunications and materials (inc. steel). The Tata steel company is one of those firms. Next to the Tata Group as whole – representing the second largest corporation in India- Tata Steel was chosen because it figures prominently as exemplary emerging market

MNE and can give a first indication on how deconsolidated internationalization trajectories compare to the overall conglomerate. The Indian sample, finally, was completed with three companies that are generally considered to represent India's frontrunner internationalizers: Infosys, Wipro and Dr. Reddy's. They add software services and pharmaceuticals to the analysis. As a result of this selection process, each sample contains six companies that the Boston Consulting Group (2006) characterised as 'emerging global challengers' (bold companies in Table 4), The final set of Chinese and Indian firms hence exists of 31 firms (16 Chinese and 15 Indian).

We used UNCTAD data on TNI to assess the degree of internationalization of assets and sales, supplemented with data from annual reports as far as available and accessible. These data were complemented with more qualitative information from websites, company statements, and existing literature where appropriate and available, in order to provide estimates for some when quantitative data were not available.

4. EMPIRICAL RESULTS FOR DEVELOPED COUNTRIES: INTERNATIONALIZATION TRAJECTORIES 1990-2004

Using the factor scores generated in the factor analysis as input variables, we first aimed to establish clusters of developed country firms that scored in similar ways on the four factor scores. We applied a hierarchical clustering procedure in order to determine the number of clusters in the dataset, using the squared Euclidean distance as a distance measure. Based on a scree-plot of the agglomeration coefficients, six clusters were found for sales and assets. The cluster centres of the hierarchical clustering procedure were used as seeds in the non-hierarchical cluster analysis. Such a non-hierarchical cluster analysis avoids that individual cases continue to be part of a cluster due to early combinations with other cases, whereas they would fit better with other groups of firms.

The results of the cluster analysis are displayed in tables 2 and 3. Each of the tables shows the averages for each cluster of the variables (the factor scores) on which the cluster analysis is based. These values have been used to develop names for the various clusters.

Internationalization trajectories: Sales

For sales, six different strategies or trajectories could be distinguished, as displayed in table 2. First of all, 60 firms were characterized as ‘home oriented’. These firms scored very low in terms of the overall level of internationalization of sales, and also over time, only expanded their international sales very gradually (hence low variability and cluster scores), and only to a very limited extent (as indicated by the relatively low value for international expansion). A typical example of a firm in this cluster is the American retail chain Safeway. With an average 17 percent of their sales outside the USA, Safeway’s international turnover actually decreased over the 1990s, in a very gradual way with on average 1 percent per year.

[table 2 approximately here]

The second category involves firms that have seen a ‘strong expansion’ of their foreign sales in the 1990-2004 period. Although their average level of internationalization is relatively low, these 32 firms have greatly expanded their international activities, as shown by the high score on that factor. This expansion occurred relatively gradually and not clustered in time, although the speedy changes did increase overall variability. A key example of a firm that has rapidly expanded its international sales is France Télécom. From having no international sales in the early 1990s, the firm strongly expanded the share of its international revenues to a total of 40 percent in the early 2000s. With the exception of a relatively large increase in 1999, this increase was quite gradual.

A total of 18 firms in our sample showed clear ‘home reorientation’ strategies away from international markets, as indicated by the very low value on the international expansion factor. These firms had quite substantial degrees of international sales, but reduced the foreign component of their sales in one or more

relatively large steps (see the high value for 'cluster'). British American Tobacco is one of these firms. After a period in the 1990s where between 70 percent and 80 percent of BAT's sales came from non-British countries, the FSTS ratio was reduced in only a few years to 55 percent in 2004. This decline was associated with an increase in domestic sales, but not a reduction in foreign sales.

The 45 firms that were named 'clustered' are primarily characterized by the high values for the associated factor. Scoring more or less on average with respect to the overall level of internationalization; slightly higher for expansion and lower for variability, many of these firms increased their international presence with a 'bang'. An example of this category of firms is Otto Versand, which increased its foreign share of sales from around a stable 30 percent in the early 1990s, to 50 percent in the four-year period between 1997 and 2001, after which the FSTS ratio remained stable again.

15 so-called 'Stable-volatile' firms are characterized by their high variability in growth rates of international sales, although these changes occur around a relatively stable mean, as shown by the relatively low scores on expansion and cluster. These firms have average degrees of internationalization. ThyssenKrupp provides a good illustration of these types of firms: comparing the FSTS ratio at the beginning and end of the 1990-2004 period, the difference is minimal: 47 percent versus 44 percent. But the time in between is characterized by a rapid sequence of highs and lows, as the FSTS ratio oscillated from 47 percent in 1990 to a peak of 52 percent 1997, then declined to 38 percent in 1999, jumped back again to 60 percent in 2001, to end at 44 percent in 2004.

The final set of firms has 'comprehensive' international sales. This group of 61 firms has the highest levels of international sales among all firms, and has seen a slow but steady increase in the FSTS ratio in the 15 years under investigation, as indicated by the relatively low values for variability and cluster for these firms, and the slightly above average score on international expansion. Dow Chemical is a typical example of this category of firms: it gradually increased its (already above average) 52 percent of foreign

sales in 1990 to 62 percent in 2004. Figure 1 graphically displays the archetypical examples of these six internationalization trajectories in the 1990-2004 period.

[Figure 1 approximately here]

Internationalization trajectories: Assets

Similar to the six different internationalization trajectories for sales, six trajectories can be identified that characterize the expansion and retreat of firms with respect to their international assets (Table 3). Where the sales dimension is primarily market related, the asset dimension reflects the internationalization of production. Some of the trajectories that have been identified for the internationalization of sales, have parallels with the trajectories of asset internationalization (although this by no means implies that these involve also the same firms), others are slightly different.

As with the sales trajectories, a first set of 35 firms has been dubbed as having followed a ‘home-based’ trajectory between 1990 and 2004. These firms are characterized by very low levels of asset internationalization, and score also low on variability, expansion, and cluster. The Japanese construction and engineering firm Kajima exemplifies this trajectory, with the FATA ratio hovering around 10 percent throughout the period under investigation.

[table 3 approximately here]

The second cluster of firms has followed a trajectory of asset internationalization that can be called ‘strong expansion’. These 32 firms pair substantial levels of internationalization with a large increase in the share of foreign assets throughout the 1990s, as witnessed by the high value on international expansion for these firms. This expansion occurs relatively gradually, without major clusters over time. An example is Asahi Glass, the Japanese glass manufacturer, which expanded its international production from 36 to 56 percent between 1995 and 2004 in large but relatively equally sized steps.

The 36 firms that followed a ‘clustered’ internationalization trajectory with respect to assets have expanded their international production in either one or several large steps, with periods of relative stability in between. An illustration of this trajectory is Associated British Foods, which increased its FATA ratio from just over 10 percent in the early 1990s, to 44 percent in 2004, with a particular strong increase in the late 1990s.

Similar to the sales trajectories, there is also a cluster of firms that follows a comprehensive asset internationalization trajectory. A total of 31 firms can be characterized as being already very international, with relatively few changes throughout the period under investigation (as indicated by the relative low scores for the variability, expansion, and cluster factors). A good example of this fourth group of firms is Akzo Nobel, the Dutch chemicals company, which had an average of around 70 percent of its assets outside the Netherlands, growing only slightly throughout the 1990s and 2000s.

In comparison to the previous clusters, a slightly smaller set of firms can be characterized as ‘dynamic-volatile’. These 12 firms score high on variability, but are also characterized by strong expansion, hence they are dynamic rather than static as was the case for the sales trajectory. The internationalization of Rolls-Royce is illustrative for this trajectory. Increasing its share of foreign assets from 11 to 33 percent between 1990 and 2004, it did so in a very changeable path. Its FATA ratio moved from 11 percent to 16 percent in 1993, was reduced to 4 percent in 1997 to increase in two years time to 40 percent, and in 2002, to 55 percent, to rapidly decline again in the two years to 2004 (33 percent).

The final set of firms, which we called ‘contraction’ includes only 2 MNEs; Bull, the French electronics firm, and Booker, the British retailer. Bull’s is a story of restructuring, debt, government support, little if any profit, and a strong retreat from international markets since the year 2000. Booker, prior to its acquisition by the Big Food Group in 2002, also experienced several major restructuring operations in the late 1990s, and was characterized by large debt and sluggish sales. These troubles are reflected in an extremely high variability of international presence – Bull’s FATA ratio ranged between 0 percent and 56

percent in the period under investigation, Booker's between 0 percent and 42 percent. Both firms also stand out from the other firms because of their low scores on average levels of internationalization and for international expansion. Indeed, both firms have (nearly) completely retreated from producing overseas, Booker between 1997 and 1999; and Bull between 2001 and 2004.

Sector specific trajectories

It is beyond the scope of this paper to explore the determinants of internationalization in detail, but we would expect that the trajectories of sales and asset internationalization vary across industries. Given that we have a maximum of 231 firms with trajectories over fifteen broadly defined industry groups, we used simple counts to make some initial inferences (only for the industries with a minimum of 15 trajectories). First of all, in the chemicals and pharmaceuticals sectors, most firms can be characterized as following a comprehensive trajectory, both with respect to sales and assets. Oil companies are quite prominent among the firms that took a home reorientation trajectory in terms of sales, paired with a strong expansion trajectory of international assets. Computer and electronics firms are more inclined to follow a home oriented sales and asset trajectory, although a substantial number of firms also can be characterized as stable-volatile with respect to sales and clustered with respect to assets. The food, beverages and tobacco industry more or less mirrors the overall distribution of internationalization strategies, although firms in this sector seem to have a slight preference for comprehensive trajectories as regards assets. Automotive firms have shown a distinct comprehensive international sales trajectory, and a similar comprehensive, or else strongly expanding, trajectory of international production. Telecom and utilities can be characterized as home market oriented, while assets are also often home-based, or else follow a dynamic volatile international trajectory. Wholesale and retail have also been strongly home-based in the 1990s. Yet even though there appear to be 'dominant' strategies of internationalization in most sectors, examples of nearly each approach could be found in each sector. This means that although the sector of activity influences a firm's internationalization strategy and trajectory, there is still important firm-specific variation, which re-

iterates the observations of Rugman on the relevance of firm-specific advantages in internationalization strategies (Cf. Rugman and Verbeke, 2004).

5. TRAJECTORIES OF CHINESE AND INDIAN FIRMS

The quantitative analysis reported above identified a total of six asset and six sales trajectories that have been prevalent by developed country MNEs in the period since 1990. Are the ‘springboard’ strategies of emerging market MNEs fundamentally different from those of developed countries, or do they represent combinations of the various trajectories of developed country MNEs? Our expectations based on existing literature has been that the trajectories of Chinese and Indian firms are characterized by lower levels of internationalization, but that they show higher growth rates, more volatility, and more temporal concentration as compared to developed country firms.

The data that we were able to collect on the extent of internationalization of Chinese and Indian firms are displayed in table 4. From the table, several main conclusions can be drawn. First of all, the extent of quantitative information is yet very scarce: only for 16 out of our sample of 23 firms, 3 or more years of internationalization data is available. Sometimes, this hints at the late date that actual internationalization process (at any scale) started. The missing information in the table, therefore, often implies a very low level of internationalization. This is the case for the large state-owned companies in both countries, that were only allowed to internationalize relatively recently. For 13 out of 31 firms, one or both variables were not available and had to be estimated on the basis of qualitative information (figures are designated by either < (less than) or ~ (approximately) signs) from annual reports or other company information (press clippings or websites). Often, these were also firms that hardly had any international activities at all in the period we studied.

The trajectory of internationalization that we expected among Chinese and Indian firms based on existing literature, can only partly be confirmed. Importantly, with a few exceptions, the really large Chinese and

Indian firms are not multinational at all (certainly in comparison with their western counterparts). This supports our expectation that the trajectories of Chinese and Indian firms would be characterized by relatively low levels of internationalization. It is important to note that also some of the firms with quite high levels of internationalization of sales, are in fact primarily exporters and not – or to a much smaller extent – engaged in international production activity. Seven Chinese firms were not or barely internationalized, with FATA and FSTS ratio's of less than 10%, and an 8th – Lenovo – only took off in 2004 after a very specific and highly publicized international acquisition. Also, 8 out of 15 Indian firms have a very strong domestic orientation.

[table 4 approximately here]

Secondly, high growth, 'springboard' and 'catch-up' strategies were expected. Focusing on those firms that showed >10% DOI in the latest year of data available, we see that while in absolute numbers, the international activities of Chinese and Indian firms may have indeed increased substantially (as witnessed e.g. by the increased outward FDI from these countries), the growth of the relative importance of these activities in the total extent of activities of leading Chinese and Indian firms appears not necessarily equally high. For the eight Chinese firms with >10% DOI, five showed decreases in internationalization of assets (China Ocean, TCL), sales (COFCO) or both (CITIC, China MinMetals) in the past 2-3 years for which we have data. The data in any case do not seem to support the conclusion of high growth of the degree of internationalization: it is rather the high growth of firms as such – both domestically and abroad – that seems to be driving international expansion. Still, when we select those Chinese firms that did show an increase in foreign activity (sales or assets), they grew very rapidly with an average annual growth rate of 21,3%. For the 8 Indian firms with a non-domestic orientation (Reliance, Oil&Natural Gas; Tata group, Tata Steel, Sterlite Industries, Infosys, Wipro and Dr. Reddy's), the growth is 19,1%. Comparing that to the average growth of internationalization of 1% for the developed country firms, this is indeed (very) high. Interestingly, some of the frontrunner internationalizers from India and China (Sinochem, Cofco,

Infosys, Dr. Reddy's) experienced much lower growth rates in their internationalization trajectories which therefore were classified as 'comprehensive'. Strong expansion primarily appeared in sales, in many instances assets were seriously trailing behind. We can conclude that a very select set of large Chinese and Indian firms indeed shows higher growth in their internationalization strategies than firms from developed countries, as expected from the existing literature.

Thirdly, the very recent rise of international activities by Chinese and Indian firms has been expected to translate to very volatile trajectories: the 'boom and bust' strategies where high-risk investments may not necessarily pay off. The ratios of foreign-to-total sales do indicate strong volatility for e.g. China Ocean Shipping, China State Construction Engineering, Bharat Heavy and Tata Steel (in the period observed). This represents a typical pattern, however, for the heavy industries which can be found in developed countries as well. The final expectation involved stronger temporal concentration as a result of springboard and catch-up strategies, and as a result of government policy that only recently allowed Chinese and Indian firms to internationalize at a substantial scale. For a few firms, notably Lenovo, TCL, Tata, Sterlite and Wipro in an earlier phase, patterns of strong temporal concentration in international expansion could indeed be observed. For most firms, however, including many of the 'frontrunner' examples, temporal concentration seemed not to be a defining characteristic.

The last column of table 4 tries to provide a first indication of internationalization trajectories of leading Chinese and Indian firms to date. These reflect the strong home-orientation of a substantial set of Chinese and Indian firms in both sales and assets. So, internationalization is certainly not a characteristic of *all* large Chinese and Indian firms: often international expansion seems to go hand in hand with domestic expansion. Strong sales internationalization is often accompanied by solid home-based assets. Those firms that have substantial international activities do show some remarkable traits that seem to support the idea that Chinese and Indian firms are indeed different from their developed country counterparts in terms of their internationalization trajectories. Growth rates of the share of international activities are larger when compared to those of developed country MNEs, and also volatility of expansion (the 'boom and

bust' pattern) and temporal concentration are higher on average. However, some developed country firms – in particular in recently liberalized industries – show similar patterns. This indicates that regulatory factors have indeed a strong influence on internationalization trajectories, but this is true for both developing and developed country MNEs.

[table 5 approximately here]

What industry dynamics can explain for these strategies? Table 5 shows the 'dominant' trajectories amongst the basic sample of developed country firms that developed over the 1995-2004 period. Not all sectors in which the largest developed country MNEs dominate are matched by firms from India and China at any comparable size. This is for instance the case with the automotive, the food and beverages and retail industry (which are therefore not listed). The 31 Indian and Chinese firms show a considerable variance of internationalization trajectories, but it is very likely that their strategic orientation and internationalization is strongly influenced by the trajectories of the dominant (developed) players in the same sector – many of which are characterized by oligopolistic international competition. The table can therefore also be interpreted as giving an impression of the strategic responses by large Indian and Chinese companies to established developed country firms in the industry.

The largest industry among the developing country firms is the petroleum industry. This industry generally consists of home based firms, with a few rare exceptions like CNOOC, Reliance, or Oil & Natural Gas Corp. This appears to match the home reorientation strategy of some of the developed country firms, though these have on average a much higher level of internationalization. The response of the Indian and Chinese oil industry seems particularly strategic: first and foremost build up (or even defend) the home market before expanding abroad. The large oil firms – except for some smaller firms that have been appointed to acquire international assets - do not (yet) show the strong expansion of assets that developed country firms did. Most of the firms that do show degrees of internationalization that come close to those of developed country MNEs, like Infosys, Dr. Reddy's and Wipro in India, or Lenovo and

TCL in China are still much smaller in terms of size than developed country firms, and also compared to other firms in India and China. The response of the computer and software industry of India and China to the relatively stagnant internationalization strategies of developed country firms, has been aggressive, and appears to aim at seizing important international markets. The sector dynamics of the telecom and utilities sector reveal largely home-oriented activities at both ends of the equation. There were too few developed country firms in heavy industries like shipping, construction and steel to reliably identify a distinctive internationalization trajectory for this sector. The degree of volatility in the internationalization trajectories of Indian and Chinese firms hints however at sizeable barriers to internationalize. In chemicals and pharmaceutical, finally, the comprehensive internationalization strategy of the dominant players is partly mirrored by the Chinese and Indian companies, but often at a lower segment of the market (generics versus prescription medicine for instance).

6. CONCLUSION AND DISCUSSION

The debate on why and how firms invest abroad and their consequences on the globalization of national economies is central to international business studies, and has generated a wide range of theoretical and empirical contributions. However, it remains remarkably unclear how, at the corporate level, firms expand and withdraw their international activities over time, and to what extent different patterns or clusters of strategies can be distinguished among such processes and between sectors. The rise of so called 'emerging market MNEs' – especially those from China and India – further highlighted the importance of answering this question, as questions are being asked as to whether, and how, these firms differ from 'established MNEs' from developed countries.

An important reason for this deficiency in the existing literature has been the difficulty in obtaining reliable and comparable time series of internationalization strategies at the corporate level. In this paper, we aimed to address this issue by exploring to what extent the internationalization of sales and assets between 1990 and 2004 of a sample of 233 of the largest firms worldwide could be classified into distinct

trajectories - patterns over time with respect to the level, pace, variability, and temporal concentration of international expansion. Based on a total of 3252 firm-year observations for sales internationalization, and 2023 firm-year observations for asset internationalization, the various dimensions of internationalization trajectories were measured and clustered. A total of 6 different trajectories were identified for both sales and asset internationalization, ranging from home orientation to comprehensive multinationals, and from strong expansion strategies to de-internationalization (home re-orientation).

Using these trajectories as a benchmark, we also analysed the internationalization patterns of 31 of the largest and most international Chinese and Indian firms, which added 96 firm-year observations on sales internationalization and 83 firm-year observations on asset internationalization. While existing literature would point at the strong growth, volatility and temporal (recent) clustering of expansion, the empirical evidence that was presented in table 4 primarily emphasised the remarkably strong home-orientation of most Chinese and Indian firms. Only a limited number of the largest and most international Chinese and Indian firms follow the paths as predicted in the literature. For many Chinese and Indian firms, investments abroad go hand in hand with investments at home, resulting in foreign-to-total asset and sales ratio's that are not (yet) particularly high for most firms.

These findings suggest several main conclusions. First of all, it is shown that while the average trend is for firms to engage in more foreign activities, more internationalization, and hence in the end, more 'globalization', the exact form and pace of insertion in the world economy differs strongly across firms and across different types of activities within firms (sales versus assets). 'Globalization', often presented as a homogeneous or at least homogenizing process, has in fact many faces, and follows many different paths. The predicted Indian and Chinese inclusion in the world economy will not necessarily be carried by their largest firms. Since these firms have considerable influence over national policies, we can expect that the process of 'globalization' will not represent a smooth trajectory of firms from India and China emulating the strategies of their peers. It makes it also not very likely, as the BCG (2006) predicted that (frontrunner) Indian and Chinese firms in the short-run will 'radically transform industries and markets

around the world' (BCG, 2006). This finding alone is already an important result, as it calls for substantial nuances to the sometimes wide-sweeping statements and conclusions that are often made regarding 'globalization'.

Furthermore, the results call for a more nuanced discussion of the role of the home country in firm internationalization. Evidence in this paper from China and India shows that there are indeed important differences across firms from various home countries, but also important similarities. The disparities between Chinese and Indian firms on the one hand, and developed country firms on the other hand, seem to be differences of degree and not of kind. While home country regulation and institutions clearly influence firms' internationalization trajectories, they do not fully determine them. An interesting question for further research would be to what extent these home country influences change over time, resulting in convergence or divergence in firm strategy across geographical regions. The exploration of sector patterns in internationalization trajectories in this article provided a first basis for understanding the global dynamics in a number of sectors, interpreted as the outcome of the interaction between large established MNEs from developed and large firms from developing countries. This dimension deserves more research.

The implications of these for theory building of MNEs are also substantial: rather than treating Chinese and Indian firms as an entire new species of firms that requires new theory, existing theories may be modified and forgotten dimensions of these theories that were introduced in the 1950s and 1960s (such as Vernon's obsolescing bargain model applied to the home country, country-of-origin effects, Hymer's market power, and escape models (Cf. Witt and Lewin, 2007)) may receive new attention, not only to explain for the internationalization of Chinese and Indian firms, but also to gain further understanding in the internationalization of developed country MNEs.

Further research in this area is necessary however. This paper has addressed internationalization primarily as a matter of degree, and has not dealt with the geographical scope or spread of international expansion.

While we choose to focus on identifying the process dimensions (trajectories) in what has become the key measure of international expansion in IB research, the FATA and FSTS ratios, other dimensions of internationalization are important as well and analysing trends and trajectories in such dimensions over time would be a good way to take this point further.

More research is also necessary to check the robustness of the cluster analysis that identified the six trajectories in our sample. While the fact that we find nearly identical clusters in both sales and asset internationalization would be an indication of the robustness of the classification, there may be additional trajectories of firms not in our sample. The relative lack of data for Chinese and Indian firms may have obscured the existence of alternative trajectories for firms from these two countries.

Finally, the exact determinants of the various trajectories, and into their performance implications – for both the firms themselves, and for the countries from which these firms originate and in which they invest, are a key area of further study. An in-depth analysis of such determinants and performance implications was beyond the scope of this paper, but the findings of this study form a basis for further research on the determinants and effects of firm specific trajectories, that may have important managerial and policy implications. For example, exploring differences in internationalization trajectories between firms with different characteristics (for example R&D intensity, size, but perhaps also top management team composition and international orientation) can yield information on the role of ownership or firm-specific advantages that influence firm strategy. Furthermore, by analysing profitability differences – or any other type of performance measure – among firms that started internationalization relatively early, we can derive recommendations for managers that find themselves in a similar situation at present. As a final example, an in-depth understanding of internationalization trajectories and past path dependencies could also help predict the direction of future internationalization. All such studies would help our understanding of the international strategies of the largest firms worldwide, and hence of the nature and direction of globalization in general.

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Table 1 Factor analysis results (Matrix of factor loadings)

	Sales (FSTS)				Assets (FATA)			
	Level	Variability	Pace	Cluster	Level	Variability	Pace	Cluster
Mean	0.996				0.990			
Min	0.977				0.970			
Max	0.948				0.939			
Growth			0.783				0.807	
abs growth		0.975				0.981		
growth sd		0.958				0.980		
Cluster				0.949				0.992
D growth			-0.812				-0.716	
% expl.var	35.67	26.51	16.08	13.06	35.88	25.79	14.78	12.50
Eigenvalue	2.85	2.12	1.29	1.05	2.87	2.06	1.18	1.01

Table 2 Cluster analysis results: the internationalization of sales

	Home-oriented	Strong expansion	Home-reorientation	Clustered	Stable-volatile	Comprehensive
<i>Level</i>	-1.000	-.258	.469	-.006	.008	.983
<i>Variability</i>	-.478	.727	.268	-.311	2.560	-.391
<i>Pace</i>	-.227	1.459	-1.958	.116	-.583	.093
<i>Cluster</i>	-.464	-.085	.479	1.359	-.295	-.571
N	60	32	18	45	15	61

Table 3 Cluster analysis results: the internationalization of assets

	Home-based	Strong Expansion	Clustered	Compre- hensive	Dynamic Volatile	Contraction
<i>Level</i>	-.941	.360	-.236	1.139	-.248	-1.213
<i>Variability</i>	-.481	-.007	-.329	-.149	2.217	3.059
<i>Pace</i>	-.228	.724	-.018	-.307	.576	-1.913
<i>Cluster</i>	-.616	-.716	1.330	-.144	.125	-.229
N	35	32	36	31	12	2

Table 4 Internationalization Trajectories of Chinese and Indian firms

	Sales (2005)		Percentage of foreign to total assets or sales								Trajectory
			2005	2004	2003	2002	2001	2000	1997	1996	
<i>China (16)</i>											
Sinopec	98,784	FATA	<5	..	..	..	..	..	..	..	Home based
		FSTS	<5	..	..	..	..	..	..	..	Home oriented
Stategrid	86,984	FATA	<5	..	..	..	..	..	..	..	Home based
		FSTS	<5	..	..	..	..	..	..	..	Home oriented
China National Petroleum Co.	83,556	FATA	3.0	3.7	4.2	<5	..	..	..	..	Home based
		FSTS	7.6	7.6	9.1	<5	..	..	..	..	Home oriented
China Mobile Comm.*	28,778	FATA	<5	..	..	..	..	..	..	..	Home based
		FSTS	<5	..	..	..	..	..	..	..	Home oriented
China Southern Power Grid	23,105	FATA	<5	..	..	..	..	..	..	..	Home based
		FSTS	<5	..	..	..	..	..	..	..	Home oriented
Sinochem*	22,646	FATA	57.6	54.1	..	56.6	55.4	..	..	..	Comprehensive
		FSTS	82.6	66.9	..	56.6	59.6	..	..	..	Strong expansion
China Telecommunications	22,537	FATA	<5	..	..	..	..	..	..	..	Home based
		FSTS	<5	..	..	..	..	..	..	..	Home oriented
Baosteel	21,501	FATA	<5	..	..	..	..	..	..	..	Home based
		FSTS	..	..	..	..	..	..	..	..	..
China Ocean Shipping	15,229	FATA	58.9	60.2	47.0	..	..	..	..	..	Strong expansion
		FSTS	55.6	42.7	66.3	..	..	..	..	..	Volatile
China MinMetals*	14,540	FATA	16.4	23.6	21.5	..	..	27.2	..	..	Volatile
		FSTS	17.3	18.8	..	..	..	59.2	..	..	Volatile
China State Construc. Eng.	14,338	FATA	42.6	39.1	35.3	..	..	..	51.6	49.0	Strong expansion
		FSTS	23.6	22.4	29.7	..	..	..	28.2	31.3	Home reorientation
Lenovo Group*	13,357	FATA	62.1	<5	..	..	..	..	..	..	Strong expansion
		FSTS	63.3	<5	..	..	..	..	..	..	Strong expansion
CNOOC*	8,606	FATA	19.1	12.3	10.1	17.1	..	..	..	..	Home oriented
		FSTS	43.9	34.9	28.8	13.6	..	..	..	..	Strong expansion
CITIC group	8,042	FATA	15.0	17.1	..	..	..	..	..	..	Home reorientation
		FSTS	26.2	27.2	..	..	..	..	..	..	Home reorientation
TCL*	6,402	FATA	57.8	72.3	..	..	..	..	..	..	Home reorientation
		FSTS	66.9	49.4	..	..	..	..	..	..	Strong expansion
Cofco	2,179	FATA	98.0	83.3	..	..	..	..	..	..	Strong expansion
		FSTS	92.0	93.2	..	..	..	..	..	..	Comprehensive
<i>India (15)</i>											
Indian Oil	36,537	FATA	<5	<5	..	..	..	..	..	..	Home based
		FSTS	5.4	3.9	..	..	..	..	..	..	Home oriented
Tata group	~22,000	FATA	..	..	<5	..	..	..	..	..	Home based
		FSTS	~30	..	~20	..	..	..	..	..	Strong expansion
Reliance Industries*	18,773	FATA	5.0	3.6	1.7	2.1	2.3	<5	..	..	Home based
		FSTS	36.5	33.7	21.8	21.7	23.6	~10	~8	..	Strong expansion
Bharat Petroleum	17,613	FATA	<5	..	..	..	..	..	..	..	Home based
		FSTS	<5	..	..	..	..	..	..	..	Home oriented
Hindustan Petroleum	17,106	FATA	<5	..	..	..	..	..	..	..	Home based
		FSTS	4.5	4.1	..	..	..	..	..	..	Home oriented
Oil and Natural Gas Corp.*	16,609	FATA	26.4	21.6	15.3	..	..	..	..	..	Strong expansion
		FSTS	9.7	8.7	6.9	..	..	..	..	..	Home oriented
NTPC	7,893	FATA	<5 [^]	Home based
		FSTS	<5	..	..	..	..	..	..	..	Home oriented
Steel Authority of India/SAIL	7,881	FATA	<10	<10	<10	0	0	0	0	0	Home based
		FSTS	3.3	4.2	1.3	1.8	2.6	..	..	..	Home oriented
Tata Steel *	5,829	FATA	2	5	0.5	0	0	0	..	..	Home based
		FSTS	13	15.0	15.7	15.3	9.6	<5	..	..	Volatile
Bharti Airtel	4,262	FATA	2.8	1.6	1.7	1.7	..	..	..	..	Home based
		FSTS	9.1	9.4	9.7	8.8	..	..	..	..	Home oriented
Sterlite Industries	5,643	FATA	2.1	..	..	..	..	..	..	..	Home based
		FSTS	43.9	33.7	26.0	..	..	..	..	..	Strong expansion
Bharat Heavy Electricals	3,196	FATA	2.1	4.5	1.9	2.3	0.1	..	..	..	Home based
		FSTS	4.8	7.6	5.3	5.9	13.0	..	..	..	Volatile
Infosys*	~3,100	FATA	..	..	..	..	..	..	..	..	..
		FSTS	98.1	98.1	98.6	97.8	98.0	95.7	..	..	Comprehensive
Wipro*	3,471	FATA	..	..	..	..	..	..	..	..	..
		FSTS	79.5	76.2	74.8	71.8	67.1	59.8	30.6	..	Strong expansion
Dr. Reddy's Laboratories*	1,500	FATA	23	4.8	5.3	5.3	2	1.4	0.7 [^]	..	Late expansion
		FSTS	66	65.6	64	65	63	49	44.3 [^]	..	Comprehensive

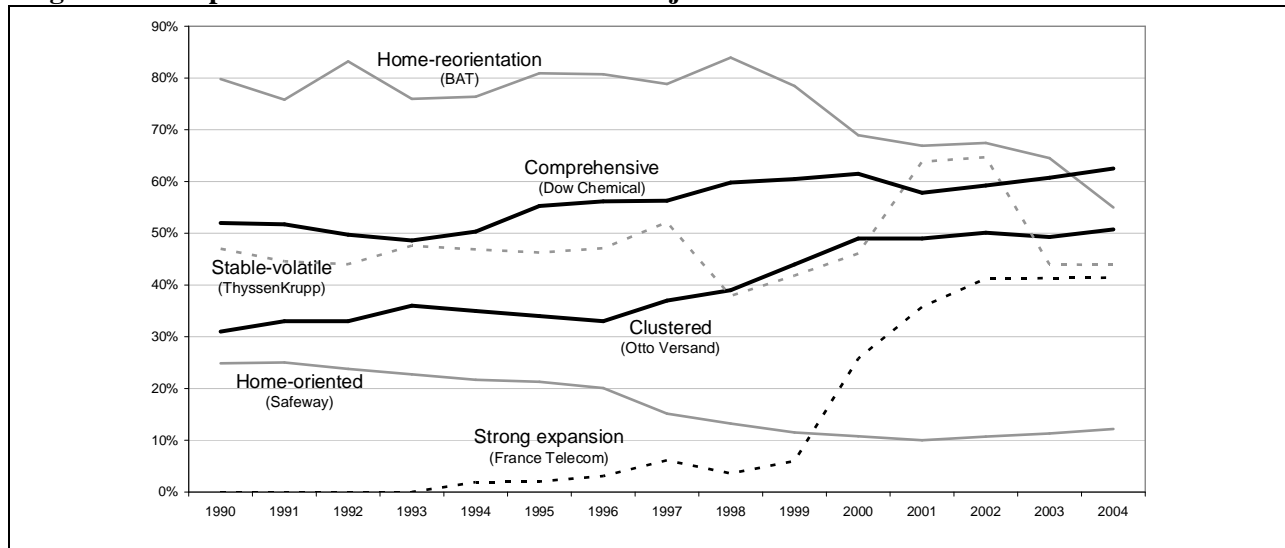
Sources: Sales data are in US\$, from Fortune, annual reports and UNCTAD. “..” indicates missing information.

FATA and FSTS data from UNCTAD or company annual reports. FATA and FSTS data preceded by ~ or < are author estimates based on qualitative information/statements on internationalization in annual reports.
* Company is included in the BCG list of 100 'new global challengers'.

Table 5 Global sector dynamics: the clash of two internationalization models?

Industrial sector	Developed country firms internationalization trajectories	Chinese and Indian internationalization response
Chemicals and Pharmaceuticals	Sales: Comprehensive Assets: comprehensive	Sales: comprehensive/expansion Assets: strong expansion
Oil/Petroleum	Sales: home reorientation Assets: strong expansion	Sales: home oriented Assets: home based
Computer and electronics, software	Sales: home oriented/st-volatile Assets: home oriented/clustered	Sales: strong expansion Assets: home based
Telecom and utilities	Sales: home oriented Assets: home-based/volatile	Sales: home oriented Assets: home based
Steel and materials	-	Sales: home oriented/volatile Assets: volatile
Shipping and construction	-	Sales: volatile Assets: expansion

Figure 1 Examples of FSTS Internationalization trajectories



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