



CENTRE FOR **I**NTERNATIONAL **B**USINESS **S**TUDIES

**LOCATION OF AFFILIATES AND
DEGREE OF INTERNATIONALISATION:
AN ANALYSIS OF THE WORLD'S
LARGEST TNC's**

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Abstract

This paper analyses the profile of the world largest 664 transnational companies, in terms of the locational structure of their foreign affiliates. Two basic indices are used: (a) a Network Spread index which assesses the extent to which companies spread their activities in various countries of the world; (b) an Internationalisation index which assesses the foreign projection of the company by the percentage of affiliates located abroad in relation to the total number of company's affiliates. When possible and suitable, the results on these indices are compared to data on the macroeconomy. The analysis considers the locational profile in relation to: size of the firm, country of origin of the transnational and industry in which the companies operate.

I Introduction

The last few decades have seen an acceleration in the internationalisation process in all its manifestations from trade to foreign direct investment (FDI) to cross-border acquisitions (UNCTAD, DTCI 1996 and 1997) to cross border strategic partnerships (Hagerdoon, 1996) to the globalisation of financial markets.

The role of information and communication technologies in making this possible and indeed in driving the process has been emphasised (Dicken, 1998, Freeman, 1992). Direct production abroad by transnational companies (TNCs) has attracted particular attention. There is a large body of literature trying to explain why companies invest abroad and what patterns are they likely to follow (Dunning 1977 and 1981, Vernon 1966, Buckley and Casson 1976, Knickerbocker, 1973, UNCTAD, 1998). More recent explanations have been developed within the theoretical framework of the “New trade theories “ (Markusen, 1995; Krugman, 1985; Helpman, 1984).

The possible tensions between globalisation and regional integration are also attracting attention (Oman, 1996; Thomsen and Woolcock, 1993; Chesnais, Ietto-Gillies and Simonetti, 1999).

There have been very few empirical studies of the location pattern of the foreign affiliates of TNCs. The Commission of the European Communities (1976) gives some details for all the OECD countries. Vernon, 1979 analyses the network spread pattern of the largest US and European TNCs using data from the Harvard Multinational Project. Ietto-Gillies, (1996) analyses the trend in the network spread of the largest UK TNCs in manufacturing and mining. The UNCTAD-DTCI

(1995) and following years consider the pattern of location away from the home country of the largest 100 world TNCs by employment, assets and sales.

The location strategies of TNCs must be seen in the context of their wider strategic options in relation to other players in the economic system, that is in relation to rival companies, labour, governments and consumers.

The strategic options in relation to consumers and markets include production at home and export, licensing, direct production via greenfield investment or via the acquisition of local productive capacity. In relation to rivals the options include product diversification as well as locational diversification and strategic partnerships. In relation to labour, the strategic options range from choice of location according to costs and according to labour and skills availability, to choice of technology and related labour intensity of the production process. Any choice has repercussions in all the players from rivals to labour to consumers to governments.

The location of affiliates world-wide can also be seen in the context of diversification strategies by country because it gives scope for alternative sources of supply and/or it allows companies to utilise specific locational advantages. Such a strategy may also turn out to be a good bargaining strategy towards governments as the existence of alternative locations - whether actual or potential - will strengthen the company's bargaining power in asking for favourable conditions from host countries' governments. However it is also a strategy that impacts on labour and the bargaining power towards it as well as rivals. A wide network of production locations lowers the risks of disruptions through industrial action. Moreover, and most important, it also fragments the labour force employed by the

same company as labour is, on the whole, unable to organise across different countries. Such strategies may, therefore, diminish the bargaining power of labour compared to a situation in which all or most of the company's production is located within one or few countries (Ietto-Gillies, 1992, Ch. 14). Any strengthening of the company's bargaining power towards labour is likely to have also positive effects on its power towards rivals. However, there are also costs associated with a strategy of locational spread in terms of diseconomies of production as well as higher managerial costs.

This paper presents a study of the location of affiliates of the largest 664 world TNCs analysed by size, industry and country of origin. The paper is developed as follows. Section two and three illustrate the data and methodology used. Sections four, five and six analyse the results by size of the company, country of origin and industries respectively. Section seven summarises and concludes.

II The data

Two data set were used for this analysis: (a) the list of the world's 1000 largest companies by market capitalisation published in *Business Week* (BW), July 1997; and (b) the information on the affiliates network by country, from Dun and Bradstreet *Who owns Whom*, 1997. The BW list also provides information on the home country of the company, the industry classification within which it operates and, for some of the companies, the sales figures. We proceeded in the following way.

The companies on the BW list were checked against Dun and Bradstreet's

database, and a profile of the affiliates obtained. These profiles provided a list of the affiliates split into four categories: dormant companies, which were discarded from the analysis, trade partners, associates and subsidiaries. The sum of the associates, trade partners¹ and subsidiaries formed the total number of affiliates for each parent company on the Business Week list. An Excel macro was then used to sort the affiliates by country of location. Three pieces of information were retained for the analysis: the total number of affiliates, the number of countries in which the affiliates are located and the number of affiliates located in the parent company's home country. These were used to produce the two key indices, the network spread and the index of internationalisation discussed in the next section.

The process of producing these indices meant that some arbitrary decisions had to be made in cases where the Dun and Bradstreet database was not clear about the location of affiliates. This was most notably the case where affiliates were located in some part of former Yugoslavia or former Czechoslovakia. Difficulties in assigning legal location meant that some affiliates had to be discarded from the analysis in cases where Dun and Bradstreet did not assign the affiliate to a given country. As a result, there is a very small amount of under reporting of both the number of affiliates and the number of countries in which they operate. A second issue was the use of "haven" countries by companies. In producing a figure for the network spread of companies, we attempted to match the location of affiliates with the countries receiving inward investment according to UNCTAD. As a result we discarded some affiliates whose locations were not on the UNCTAD list. Examples of these locations were Micronesia and La Reunion. All the issues discussed in this paragraph are very minor in relation to the number of companies and or affiliates involved.

¹ The number of trade partners is very small

Two problems were encountered in producing our results. The first is the non-accordance of the Business Week sample and the Dun and Bradstreet sample. There were two principal reasons for this. The first reason is that whilst the Dun and Bradstreet survey contains a large list of parent companies, the Business Week report does not discriminate between parent companies and subsidiaries. As a result some companies in the Business Week survey either did not appear in the database or duplicated the profile of the parent companies. In these cases the company was discarded from the final sample. The second reason is a combination of the following elements: not all the companies in the BW list are listed in the Dun and Bradstreet database, and the Dun and Bradstreet sample is biased in its orientation towards holding data on British companies. For instance, US companies constituted nearly 40 percent of the sample of 664 companies extracted from Business Week, yet only 10 percent of Dun and Bradstreet entries were for US parents. Similarly, UK registered companies constituted 26 percent of the Dun and Bradstreet total, but only 13 percent of the Business Week sample. The final result may be a slight overrepresentation of UK companies in the total sample.

The second problem was due to our focus on *transnational* companies. The Business Week survey makes no attempt to distinguish between transnational (TNCs) and uninational companies (UNCs). As a result, several companies, which are very large but operate directly only in the home country - mostly in the energy utility industries but with some examples in other industries - were discarded from the survey. The final sample extracted consisted of 664², of which 28 have affiliates in one foreign country only. The TNCs originate from 20 countries; five

² Although all 664 companies in our sample are drawn from the Business Week survey of the top 1000 companies, they are not necessarily the largest 664 companies in the survey, for the reasons given above. The list of 664 companies is not reported here for reasons of space; it is available from the authors on request.

of them have ‘homes’ in two different countries. They are: Shell, Reed and Unilever with headquarters in the Netherlands and the UK, ABB (Switzerland and Sweden) and RTZ/CRA (UK and Australia)

III Methodology: The Indices

The aim of the research is to assess the degree to which the largest transnational companies in the world operate directly abroad and the extent to which their affiliates are spread around the countries of the world. One first point to make is that our data refers to the number of affiliates not to the value of their investment, sales, or profits or employment. An affiliate can be a business unit with a considerable amount of investment and activity within it or it can be a very small affair. Moreover it can be used for production or simply as a sales point. We do not have information on relevant foreign variables expressing value/quantum of activities abroad and at home for the companies in the sample. However, we do have their network of affiliates and this is what we have used. Whenever possible and suitable, we try to compare our data, ratios, indices, to other relevant statistical information drawn from the macroeconomy.

In order to achieve our aim, two indices were developed. The first one assesses the foreign projection of the company and is constructed as the percentage of affiliates abroad in relation to the total number of affiliates (domestic and foreign).

$$I_i = FA/TA \quad \text{where } I_i = \text{Internationalisation index}$$

FA = foreign affiliates and
TA = Total affiliates

This index assesses the propensity of the company to operate away from the home country. For any random affiliate of a company, the index assesses the probability that it is located abroad.

There have been several attempts to measure the degree of direct foreign projection by companies (Dunning and Pearce, 1985, Sullivan, 1994 and most notably UNCTAD, 1995). They all use variables related to some aspect or other of the level of activity such as sales, assets, profits or employment. Some of the indices developed in the works mentioned above are unidimensional, (i.e. one variable is used in the index) such as in Dunning and Pearce, others are multidimensional and they use several variables combined together as in the case of the other two works cited above. The UNCTAD index is tridimensional and is constructed as a simple average of the ratios of foreign to total activities in which the activities are represented by the following variables: assets, sales and employment.

The emphasis of these indices - including the Internationalisation index developed here - is on the dichotomy of location home *versus* foreign countries. Thus internationalisation is identified as the degree of “foreignness” of the direct activities, independently of the number of foreign countries in which the activities of the TNC take place.

The second index we use, the Network Spread index (NSi) is designed to take account of whether the company operates abroad in few or many countries and thus to assess the spread of activities among the various countries of the world. There have not been many attempts at such an assessment. Vernon (1966) and Letto-Gillies (1996) assess it by giving the number and percentage of affiliates within set bands of countries in which the TNCs operate (less than 6, between 6

and 20 and over 20). Ietto-Gillies, 1998 develops an index which can be calculated as a percentage and is, therefore, similar to other indices including the internationalisation index above. This very index is used here and is arrived at as follows. Let:

n = the number of foreign countries in which the TNC has affiliates

n^* = the number of foreign countries in which, potentially, the company could have located affiliates

Theoretically n^* could include all the countries of the world; in practice we have taken it to be the number of countries, world-wide, which have been in receipt of foreign direct investment. This is, in fact, taken as a willingness on the part of the home country to accept inward FDI and therefore as a real possibility for the companies to invest there. We have, therefore, taken n^* to be the number of countries in which there is inward stock of FDI minus one, in order to exclude the home country of the TNC. From the data in UNCTAD, DTIC, 1997, Annex, table B.3 we have calculated n^* to be 178. The actual value of n^* is not very relevant because the analysis which we shall be making is based on comparison of the index within countries or industries and the actual scale of the index is not significant. We shall also give the actual number of foreign countries in which the companies have affiliates.

The Network Spread index is thus arrived at: $NS_i = n/n^* = n/178$. Like the Internationalisation index it is expressed in percentage terms.

This index measures the percentage of foreign countries in which the TNC has

affiliates in relation to the total number of foreign countries in which, potentially, it could have located affiliates. Given any randomly selected country - other than the home country - the index assesses the probability that the TNC under consideration may have located activities in it. The Network Spread index focus on the spread of activities into many countries and not on the “foreignness” only, as in the Internationalisation index.

The Internationalisation index can be useful in assessing the effectiveness of industrial policies at home, or the possible trade effects due to direct foreign activities of the TNCs and in general in assessing the degree of foreign projection of companies based in the country. The Network Spread index is useful in assessing the diversification strategies of companies with possible impact on rivals, labour and governments. A high Network Spread of a country’s TNCs may also be a signal of possible low effectiveness of industrial policies at home.

In both indices the activities are measured in terms of number of affiliates rather than in terms of values and “quantum” of those activities. Does this mean that we are in danger of commenting on indices that are very remote from the values and quantum of TNCs’ activities? In order to attempt to test whether this is the case, we have compared our I_i - based on number of affiliates - with a set of indices which are constructed along the same conceptual framework, the degree of “foreign” direct projection of the company but use values/quantum data. This set of indices is taken from UNCTAD (1998) and relate to percentage of foreign assets, foreign sales and foreign employment in the total of those elements for the company. We have also considered the composite index of these three developed in this work as mean of the above three indices. The values of these four indices are available for 86 of the 100 companies listed in UNCTAD (1998), the only

companies for which we have the necessary data to carry on the following exercise. We have calculated rank correlation coefficient between our Ii and these four indices which are built from values/quanta. The results give the following values for the coefficients: 0.51, 0.57, 0.60 and 0.58 respectively for the above four elements. This means, that, on the whole, the indices based on number of affiliates may be reasonably consistent with value/quantum indices.

IV Location of Affiliates and Size of the Company

The transnational companies we are dealing with are the largest world-wide. Their market capitalisation ranges from \$3.5bn to \$198 bn. Table 1 gives details by size bands. It shows that almost 43 percent of companies are on the 10+bn dollars range in terms of size (column. 2 and chart 1). The percentage in each size-band increases with the decrease in the size of the average company by market capitalisation.

However, as expected, the largest companies are the ones with the largest average number of affiliates abroad (column.4, table 1). Moreover, the largest companies have affiliates in the largest number of foreign countries (column. 5, and chart 2). Consequently the Network Spread index declines as the size of the companies decreases (column. 6 and chart 3), within the bands shown in the table. Similarly the Internationalisation index, which gives the percentage of affiliates abroad, decreases as the band size becomes smaller (column. 7 and chart 4).

There are a total of 33 companies (five percent of the total sample) with an average market capital of over 50bn dollars. They have, on average, 297 foreign affiliates

compared to an average of 159 for the whole sample. The same 33 companies operate, on average, in almost 42 countries and have a Network Spread index of almost 23 percent compared to 12.5 percent for the whole sample. They also have an average Internationalisation index of 65.4 percent compared to an average of almost 53 percent for the whole sample.

Does company size matter in the number and distribution of foreign affiliates? *A priori* we would expect the very large companies to be operating abroad to a larger degree than the average company. This is, indeed corroborated by the empirical results. The TNCs in the sample have, on average, 159.4 foreign affiliates each. The corresponding figure for the total world TNCs is 6.22³. Therefore, as regards foreign affiliates, the companies in our sample are of a totally different order of magnitude compared to the average world TNC.

One point to note is that the average size of the TNCs may be declining as an increasing number of smaller companies branch out their production into foreign countries. There are many factors pushing in this direction. The lower relative costs and better technologies of transportation and communications are a major factor. Moreover, countries with a long tradition of foreign direct investment, have developed structures - such as governmental and non-governmental agencies, educational environment, cultural elements - that help to further international production by the smaller as well as the very large companies. It is as if the activities of the very large companies generate some spillover effects on to the

³ Calculations for this last ratio are based on the data in UNCTAD, DTIC, 1998, table I.2 page 6.

smaller ones. The overall business culture has become more and more one of branching out into new countries.

Our sample shows declining values for Network Spread index and the Internationalisation index for the four size bands (table 1 and charts 3 and 4). For the sample as a whole, the two main indices (Internationalisation and Network Spread) have a rank correlation coefficient of 0.6 which means that, on the whole, the companies that have a high foreign projection of direct activities, tend also to spread those foreign activities in many countries.

Within each band we could not find a very clear pattern. As mentioned in section one, the location strategies cannot be assessed independently of other company's strategies. Once a very high level of affiliates spread by foreign country is reached, it may be that companies resort to other strategies such as product diversification or strategic partnering. This means that, once a presence in a country is established, further involvement in it does not necessarily require the opening of further affiliates it can be developed via further investment in the existing affiliates, or via strategic alliances with other firms.

We can conclude with the following. The very large companies have an average number of affiliates abroad well above the total number of world TNCs. Within our sample, it appears that the largest companies have a higher propensity to operate abroad and they also have a higher propensity to spread their wings wide in foreign countries.

V Locational Profile by Country of Origin of the Companies

The largest world TNCs in the sample originate from twenty countries. Approximately 38⁴ percent of the total number of foreign affiliates in the world are attributable to these 664 TNCs. Within the twenty countries the distribution is uneven. Table 2 shows that thirty nine percent of these companies originate in the USA. The next country with a high share is Japan with 18.4 percent, followed by the UK with 13.3 per cent. These three countries together command over 70 percent of the world largest 664 companies. Well below these countries come Germany and France with 5.7 and 4.4 respectively.

Column four in table 2 gives the distribution of outward stock of FDI for the twenty countries in the sample. This allows us to analyse the extent to which there is a consistency between the percent of large TNCs located in the country and the percentage of its total outward stock of investment. Indeed, the pattern in column four is very similar to the one in column three though a few countries have a higher percentage of outward FDI stock than might have been warranted by their share of the largest TNCs: namely the Netherlands, Switzerland, Hong Kong and Italy.

It is interesting to compare the results for the largest companies with those for the total world TNCs and of total FDI stock. Column five in table 2 gives the percentage shares of total world TNCs for which the 20 listed countries are responsible. All together the countries which are home to the largest 664 TNCs account for 94.6 per cent of the total FDI stock and for 77.1 per cent of the total world TNCs.

⁴ Calculated as a ratio of the total foreign affiliates of the TNCs in our sample (105851 in table 1) divided by the number of foreign affiliates of the total world TNCs (from UNCTAD, 1998, table I.2, page 6) which is 276659.

The data in table two, column five give the percentage of world TNCs that originate from the 20 listed countries. The distribution is quite different from the one related to the top 664 TNCs (column 3) and from the one of the stock of FDI (column 4). Germany has the highest share of TNCs with 16.4 percent, followed by Japan, (8.9 percent), Sweden (8.2 percent) and US (7.8 percent).

The discrepancies in distribution between columns 3, 4 and 5 show the impact of companies not in the largest league. Germany's highest percentage of world TNCs combined with a relatively low percentage of the largest TNCs, means that its high share of outward FDI stock (9.1 percent in column. 4) is attributable to many companies that are not so large.

At the other end of the spectrum, the UK's outward FDI stock (11.2 per cent of world total) appears to be mainly originating with very large companies. There is, in fact, a considerable discrepancy in the UK rankings on the largest 664 (column 3) and on all the TNCs (column 5) in the opposite direction to the one we saw for Germany.

Columns six and seven in table 2 give the values for the two indices based on the location of foreign affiliates of the companies. With the exception of Australia, all countries with a double-digit index of Network Spread (NSi) are located in the USA or Europe.

The following factors seem relevant in the country specificity of the results. (1) The size of the home country; a large home country gives more scope to the company for growth at home. Thus - *ceteris paribus* - we might expect a lower degree of internationalisation and spread for companies originating from large

countries compared with those from smaller ones. (2) The country's history of foreign direct investment; a long history of FDI increases the probability of wider spread because the companies and the home country will have more opportunities for links in other countries. Moreover, the home country is more likely to have developed an infrastructure and business culture congenial to operating in foreign countries. *Ceteris paribus*, the marginal cost of operating in an additional country may decline with the longer history of foreign involvement and with the higher number of country in which the company already has operations. (3) Some countries may be chosen as home country of companies for convenience reasons linked to financial and regulatory regimes.

Switzerland, with the second highest spread of activities (NSi equal to 22.4 per cent) and a very high percentage of foreign to total affiliates (the highest in the sample at 79.3 percent) may fall into the last category. There is also likely to be a size effect as the country's economy is too small to provide scope for market growth at home.

The US is the largest economy in the sample. Though, as already noted, it is home to the largest number of the companies in our sample (259), its indices of Network Spread and Internationalisation are slightly below the average (at 11.8 and 50.7 per cent respectively). The large size of the country provides scope for domestic growth of the companies and this explains why the very large companies located in the US appear to be less spread than one might expect.

The UK results are particularly interesting. A relatively small economy with a very long history of international production and with the added advantage of colonial links from the past as well as experience of operating in foreign countries. This

helps to explain the large share of TNCs from the sample located in the UK and also the very high value for the Network Spread index (17.0 percent). In similar position may be the Netherlands, Sweden and Belgium all three of which show very high spread for the affiliates of their companies (with NSi of 23.6, 13.7 and 12.6 respectively), though a much lower share of number of companies (2.0, 2.9 and 0.9 percent respectively) than the UK.

Japan with the second highest share of companies, has a relatively low Network Spread index though a higher than average Internationalisation index. This indicates the effect of a large economy, combined with TNCs' strategies of targeted locational concentration of their direct foreign activities. Moreover, the relatively recent involvement in foreign operations - compared to other countries in our list - does not give Japan the "historical connection" advantage in the locational spread.

VI Locational Profile by Industries

The majority of the largest 664 TNCs operate within manufacturing and mining (407 or 61 percent) with 257 (39 percent) in services (table 3). The average company size within the two sub-samples is the same at 15.8 bn dollars. However, services companies have, on the whole, a lower foreign projection and a lower propensity for spreading affiliates in many countries. The average value for the Internationalisation index is 43.9 percent for services and 58.4 for manufacturing and mining. For the Network Spread index we have: 9.6 and 14.3 percent in services and manufacturing/mining respectively.

The results at such aggregate level must be looked at with caution. There is a fundamental problem in the sectoral breakdown which has to do with issues of recording. The companies are classified according to their main activities. However, many companies, particularly large ones, which started as manufacturing have been diversifying, to a smaller or larger extent, into services. As they are still recorded under manufacturing, this leads to an under-recording of services activities in all their manifestations.

The sample companies pertain to 38 two-digit industries which we have aggregated into industries in 20 groups. The grouping has been done with attention to the values of the two indices; therefore only industries which have similarities of activities and show similar values for the indices have been grouped together. The results are in table 4 where the industries are ranked by average size of the companies.

On the whole the locational spread of activities appear to be more industry- than size-specific. The ranking of the two indices by industry appear to be very similar. A high Internationalisation index combined with a low or relatively low Network Spread index shows that the activities of the industries are based abroad to a large extent, though they are concentrated in few - or relatively few - foreign countries. This is the case of capital equipment, business and public services, mining and forestry and housing and construction materials.

The industries that have a high percentage of affiliates abroad as well as a high spread of the network of affiliates in foreign countries are: automobiles, electrical, electronics and data processing, consumer products, household durables/appliances, chemicals and wholesale/international trade.

The industries with low - or relatively low - values for both indices, and therefore the industries for which the home country is still the main - or very substantial - location are the following: telecommunications, aerospace and military, real estate, merchandising, utilities/transportation and tourism. We should, however, note that in some cases this may be an indication of genuinely high production facilities at home which act as spearhead for the foreign ones (utilities, telecommunications, real estate). In other industries the activities abroad are important or crucial but the industry operates through other foreign channels and modes than the establishment of direct affiliates. This may be the case of the tourism industry.

VII Summary and Conclusions

The paper analyses the profile of the world largest 664 TNCs in terms of their locational structure and in terms of the number of affiliates of the company. Following a discussion on the dataset, two indices are developed to analyse their locational profile. The Network Spread index which assesses the extent to which the company's affiliates are located in many countries of the world; the Internationalisation index which assesses the degree of "foreignness" of the company's direct activities and is constructed as the percentage of affiliates which are located in foreign countries in relation to the total number of affiliates. Other indicators of the company's locational strategies in relation to macroeconomic data are used whenever suitable.

The research analyses the locational profile in relation to: the size of the company; the country of origin of the TNC and the industry to which the company belongs.

As regards locational structure and size we have the following conclusions. The companies in our sample have, on average, 159.4 foreign affiliates against and average for all the world-wide TNCs, big and small, of 6.22. Within the sample the largest companies exhibit a higher propensity to operate abroad and a wider locational profile compared to the smaller ones. We must, however, remember that even the smaller companies in the sample are pretty large, as the smallest company has a market value of \$3.5 bn. These conclusions are in accordance with expectations.

The largest TNCs originate from 20 developed countries, which altogether are responsible for 77 percent of the total world TNCs, and for almost 95 percent of the world stock of outward FDI. The distribution of the sample TNCs by country of origin is similar to the distribution of the stock of outward FDI for the country as a whole. There are, however, some discrepancies with the distribution of total world TNCs; this is due to the effect of the very large number - probably increasing - of smaller TNCs operating world-wide.

The results corroborate the *a priori* hypothesis that the locational profile of the companies in terms of the country of origin is affected by the following elements. The size of the country; the history of FDI in the country with related links with other countries and, in a minority of cases, the fact that the choice of home country may be linked to issues of regulatory regimes.

The locational profile of the companies according to the industries in which they operate shows the following pattern. In our sample more companies were listed within manufacturing and mining than within services (61 and 39 percent respectively). The two sectors have different results in relation to the two indices

presented in this paper. The services sector shows lower values for both the Network Spread and Internationalisation indices.

We have also aggregated the results in 20 industries and they show that the industries with high Network and Internationalisation indices are automobiles, electrics, electronics and data processing, household durables/appliances, chemicals and wholesale/international trade. In the following industries both indices appear rather low, denoting the relevance of the home country as a base for the companies' activities: telecommunications, aerospace and military, real estate, merchandising, utilities/transportation and tourism.

On the whole the spread of activities appear to be size and industry specific. The specificity with respect to the country of origin is linked to wider elements such as the size of the home country and the history of foreign direct involvement of the country' TNCs.

There are strategic and policy implications from these results. At the company's level a high degree of Network Spread may denote a strategy of locational diversification which should be looked at in the context of other diversification strategies and constraints (such as product diversification). It may also have implication for costs and efficiency issues as a wide geographical spread may involve higher managerial costs and organisational diseconomies.

The strategies ought to be looked at in relation to the impact on various players in the economic system: rivals, labour, governments and consumers. A strategy of high locational diversification may give the company advantages towards some or all of these other players. In particular it may give advantages towards labour as it

fragments the total labour force employed by the company and thus lowers its ability to organise.

As regards implications for policies, a high foreign projection combined with a high network spread may put constraints on industrial policies by governments in the home countries. Here the industry specificity of the results on the Network Spread may be of relevance in developing concrete industrial strategies.

**Table 1 World's Largest 664 TNCs 1997:
Breakdown by band size. Various indicators.**

Band	Companies		Mean No. of affiliates	Mean No. of countries	Mean NSi	Mean Ii
	No.	%				
> \$ 50 Bn	33	5.0%	296.8	41.8	22.9%	65.4%
\$20 Bn - \$ 50 Bn	99	14.9%	252.4	33.0	18.0%	57.4%
\$10 Bn- \$20 Bn	155	23.3%	170.6	24.1	13.0%	53.9%
< \$ 10 Bn	377	56.8%	118.4	18.7	9.9%	50.0%
Whole sample Mean	664	100%	105851 159.4	23.2	12.5%	52.8%

Source: *Business Week*, 7th July 1997.

Dun and Bradstreet: Who Owns Whom CD ROM, 1997

Chart 1 World's largest TNCs: Distribution of Companies by Size Band by Market Capitalisation in \$Bn.

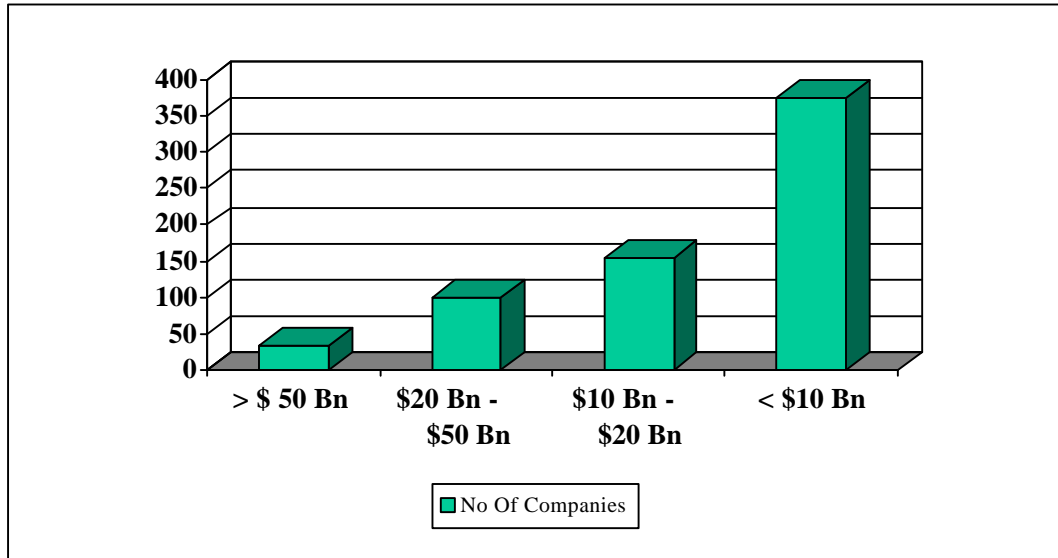


Chart 2 World's largest TNCs: Average Number of Foreign Affiliates by Size Band of Company's Market Capitalisation in \$Bn. Averages.

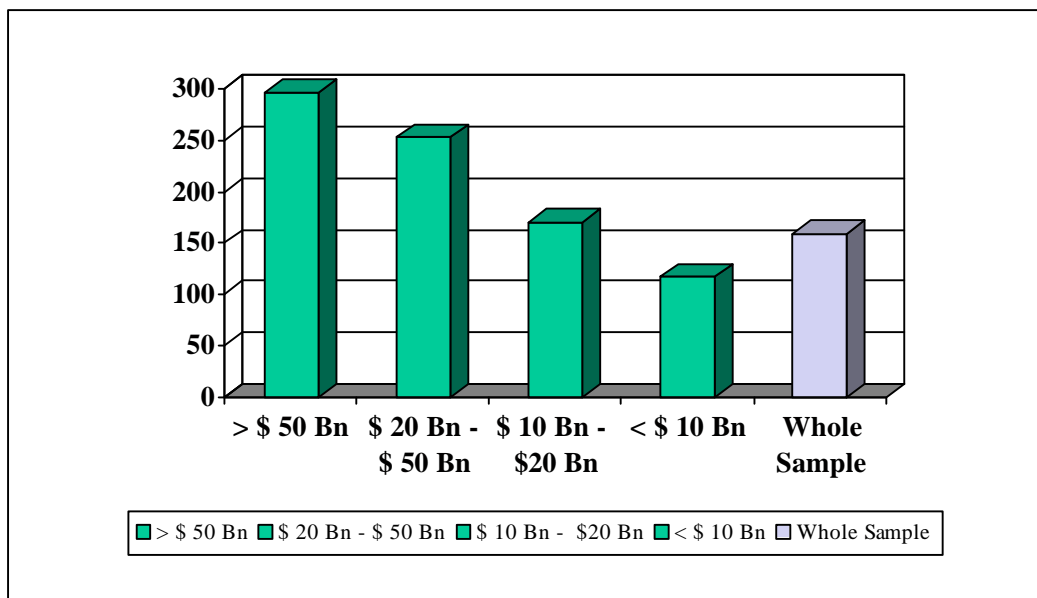


Chart 3 World's largest TNCs: Network Spread Index by Size Band of Companies by Average Market Capitalisation. \$Bn. Averages.

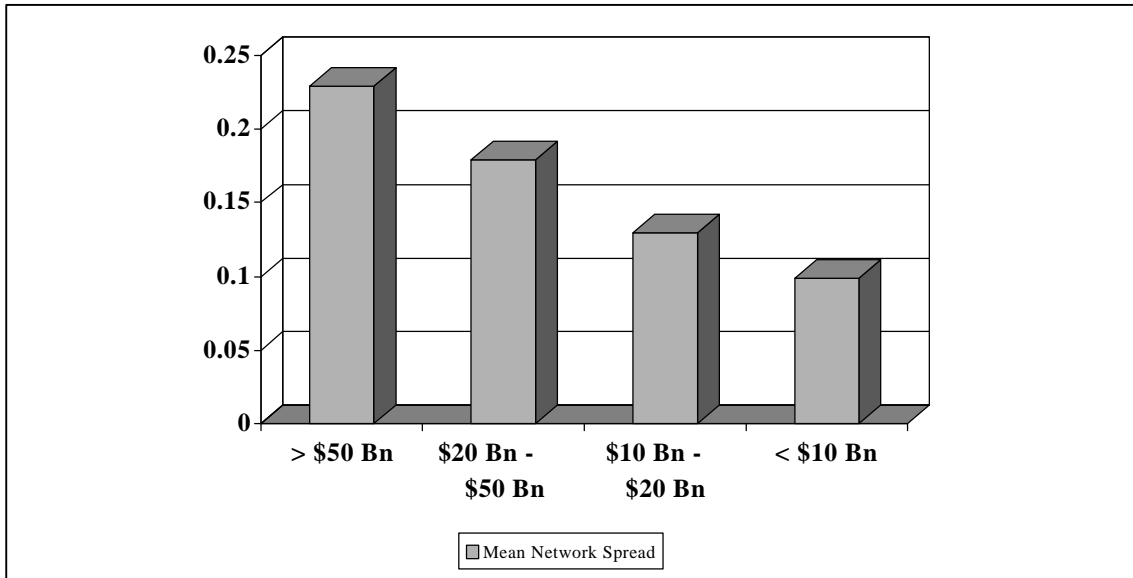


Chart 4 World's Largest TNCs: Internationalisation Index by Size Band of Companies by Average Market Capitalisation. \$Bn. Averages.

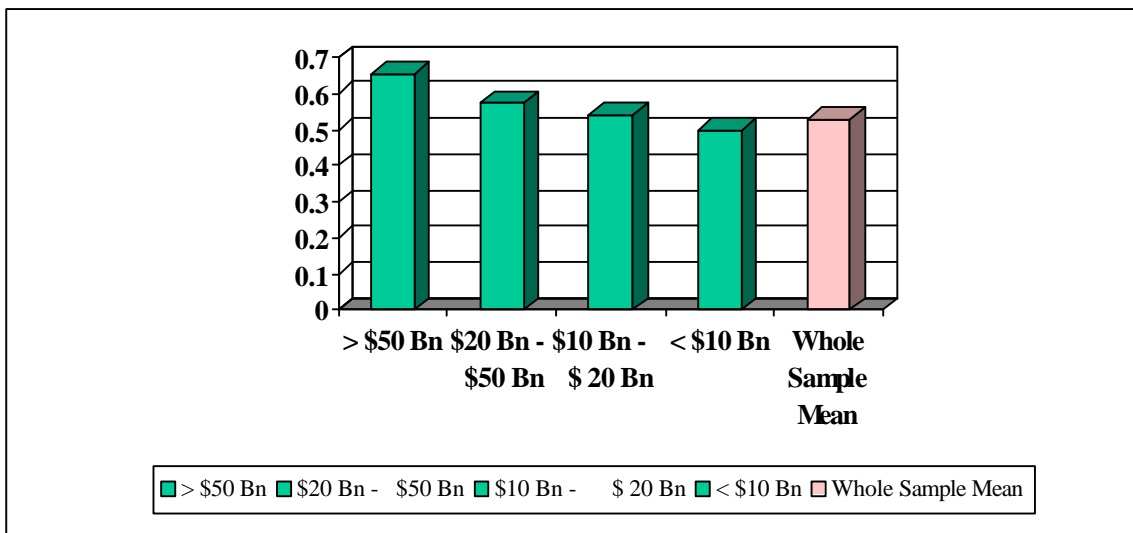


Table 2 World's Largest 664 TNCs by country of origin. Various Indicators. 1997.

Country	Number of Companies *	Percentage of Sample	Percentage of World FDI Stock **	Percentage of World TNCs ***	Network spread (mean) NSi	Internationalisation Index (mean) Ii
(1)	(2)	(3)	(4)	(5)	(6)	(7)
United States	259	39.0	25.0%	7.8%	11.8%	50.7%
Japan	122	18.4	10.4%	8.9%	8.6%	57.2%
United Kingdom	88	13.3	11.2%	3.3%	17.0%	51.5%
Germany	38	5.7	9.1%	16.4%	18.5%	54.3%
France	29	4.4	6.5%	4.8%	18.8%	53.3%
Canada	22	3.3	3.5%	3.8%	8.7%	63.3%
Sweden	19	2.9	2.4%	8.2%	13.7%	51.3%
Australia	13	2.0	1.4%	2.0%	11.4%	53.7%
Netherlands	13	2.0	5.8%	3.6%	23.6%	61.6%
Switzerland	12	1.8	4.8%	6.7%	22.4%	79.3%
Hong Kong	10	1.5	3.5%	1.1%	5.1%	27.1%
Spain	9	1.4	1.2%	0.5%	7.3%	22.3%
Denmark	7	1.1	0.7%	1.8%	8.5%	60.6%
Italy	7	1.1	3.7%	2.2%	13.6%	43.1%
Belgium	6	0.9	2.3%	0.3%	12.6%	66.1%
Singapore	6	0.9	1.2%	..	7.0%	49.9%
Ireland	3	0.5	0.1%	0.2%	5.4%	53.6%
Finland	2	0.3	0.6%	2.7%	17.4%	73.9%
New Zealand	2	0.3	0.3%	0.5%	3.4%	33.3%
Norway	2	0.3	0.9%	2.2%	14.3%	49.1%
Total	669	100	94.6%	77.1%		
Mean figures	33.5		4.7%		12.5%	52.8%

* Companies having headquarters in more than one country are counted as nationals of both countries. These companies include:

ABB (Switzerland/Sweden); RTZ/CRA (UK/Australia) and Shell, Reed and Unilever (all UK/Netherlands). This accounts for a total of 669 instead of 664.

** Source: UNCTAD/DTCI 1997, World Investment Report, Annex table B4 page 319

*** Source: UNCTAD/ DTCI 1997, World Investment Report, table I.2, page 6-7

Table 3 World's Largest 664 TNCs, 1997. Number, Size and Indices by Sector. Averages.

Sector	Companies		Average Size	Mean Network Spread Index	Mean Internationalisation Index
	No	%	(\$ Bn)	NSi	Ii
Manufacturing & Mining	407	61%	15.8	14.3%	58.4%
Services	257	39%	15.8	9.6%	43.9%

Table 4 The World's Largest TNCs: Number, Market Size and Indices. Industry Breakdown. 1997.

Industry *	No of Companies		Average Market Size (\$ Bn)	Mean Network Spread NSi	Mean Index of Internationalisation Ii	Network Spread Rank	Index of Internationalisation Rank
	No	%					
1 Telecommunications	21	3.2%	33.3	7.9%	29.7%	17	18
2 Automobiles	15	2.3%	25.9	16.1%	55.9%	5	7
3 Energy Sources	33	5.0%	22.3	14.6%	42.3%	7	13
4 Multi Industry	26	3.9%	20.3	15.7%	55.1%	6	9
5 Electrical, electronics and data processing	60	9.0%	17.7	14.1%	71.5%	8	1
6 Consumer Products	93	14.0%	22.8	17.8%	66.9%	3	3
8 Financial Services	126	19.0%	15.9	10.3%	48.3%	13	12
7 Business and Public Services	30	4.5%	15.2	11.0%	55.2%	11	8
9 Aerospace/ Military	9	1.4%	13.8	9.9%	31.4%	14	17
10 Household durables	10	1.5%	13.7	16.3%	68.4%	4	2
11 Real Estate	10	1.5%	13.6	4.4%	27.8%	19	20
12 Leisure and Tourism	12	1.8%	13.3	8.7%	35.9%	16	15
13 Chemicals	30	4.5%	11.7	19.9%	65.0%	1	4
14 Merchandising	22	3.3%	10.9	4.4%	28.7%	20	19
15 Wholesale/International Trade	6	0.9%	10.2	18.7%	59.0%	2	6
16 Broadcasting and Publishing	15	2.3%	9.7	10.6%	39.8%	12	14
17 Utilities and Transportation	42	6.3%	10.0	7.1%	33.1%	18	16
18 Capital Equipment	44	6.6%	7.4	12.6%	61.8%	9	5
19 Mining and forestry	41	6.2%	6.6	11.4%	53.0%	10	11
20 Housing and Construction Materials	19	2.9%	5.4	8.9%	53.6%	15	10
Total	664	100.0%					
Whole Sample Mean			15.0	12.0%	49.1%		

* The list of industries used here are derived by aggregation from the 38 categories compiled by Morgan Stanley for the Business Week article. The aggregated categories are:
 Electrical, electronics and data processing (Data processing & reproduction, electrical & electronics, electronic components)
 Consumer Products (Beverages and tobacco, food & household products, health & personal care, recreation & other goods, textiles and apparel)
 Financial Services (Banking, financial services and insurance)
 Utilities and Transportation (Utilities, airlines, road & rail, shipping)
 Capital Equipment (Energy equipment, industrial components, machinery & engineering)
 Mining and forestry (Gold mines, forest products & paper, nonferrous metals, steel, misc. materials)
 Housing and Construction Materials (Building materials and components, construction and housing)

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