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**CHANGES IN THE INDUSTRIAL AND
GEOGRAPHICAL DIVERSIFICATION OF
LEADING FIRMS IN EUROPEAN MANUFACTURING**

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INTRODUCTION

For a long period the industrial policies of national governments in Europe aimed at reinforcing the position of leading firms in the country in order to face the rapidly growing competition from US and later from Japanese firms (Cox and Watson, 1995). The privileged position of these firms offered them substantial monopoly power within their markets, which, unfortunately, also often resulted in the use of many inefficient practices. Most governments sustained the privileged position of these national champions through the erection of various kinds of non-tariff trade and investment barriers directed against foreign competitors and creating strong borders protecting national markets.

The recognition that these policies failed and were partly responsible for slow growth, high unemployment and inflation after the first oil shock in 1973 led the European Commission to formulate and implement an ambitious integration program eradicating all the various barriers to trade and investment. The Single Market Program came into effect in 1987 and was largely completed by the mid-nineties. The program concerned mainly the manufacturing industries. Services sectors have become more recently subject of integration measures. The macro-economic and sectoral consequences of the integration program have been intensively discussed in the literature. Surprisingly, the consequences for individual firms have hardly been documented.

The present paper represents an original attempt to trace the changing industrial and geographical diversification strategy of firms along the integration process. The analysis is based on a unique database covering the product and geographical scope of the leading European firms in the manufacturing sectors for three years characterising different moments in the integration process, 1987 (start), 1993 (half-way) and 1997 (near completion). Before analysing the data, the next part offers some theoretical perspectives about the consequences of the European market integration program for the international strategies and structures of European firms.

EUROPEAN MARKET INTEGRATION: THE SINGLE MARKET PROGRAM

The economic consequences

The process of European market integration involves primarily a reduction in trade and investment costs of doing business across borders of EU Member States, and a displacement of fragmented national markets by a single (EU) market. Market integration was triggered by the Single Market Program (SMP) in 1985, comprising a wide variety of measures to harmonise regulations and open up public procurement markets in the EU. The integration process has since then been systematically changing the nature of competition, and therefore the structure and performance of industries and firms. The “official EC” view (summarised in the Cecchini Report on the “Costs of Non-Europe”) anticipates four main effects from the SMP, each having implications for the structure of industries and firms:

- direct cost savings due to the elimination of non-tariff barriers, such as fewer customs delays and costs of multiple certification;
- cost savings derived from increased volumes and more efficient location of production (scale and learning economies and better exploitation of comparative advantage);
- tightening of competitive pressures, reduced prices and increased efficiency as more firms from different member states compete directly in the bigger market place;
- increased competitive pressures generating speedier innovation.

Besides the direct effects, strong industry and firm restructuring effects are expected to follow from market integration. Unfortunately the research on the latter point is rather limited (Sleuwaegen, 1995). From a macro-economic point of view, the most extensive evaluation of the SMP is that of the EC itself (1996) based on a large body of commissioned research, using mainly fairly aggregate EUROSTAT databases. Following the results of a macro-economic model it was estimated that the level of EU GDP in 1994 was about 1.1% to 1.5% above the level that would have prevailed in the absence of the single market program.

The impact of the SMP on industrial and geographical diversification of firms

The ex-ante expectations of the effects of the Single market on the product structure of individual firms mostly relied on the hypothesis of “return to core business” (Davies, Rondi and Sembenelli, 2001a and 2001b). Increased European competition involves the widening of competition to a European wide set of players in all industries which, if no strategic action taken, would lead to deterioration of the competitive position of the firm in all of its product-market combinations. The competitive threat spurs firms to reallocate resources into its core activities and related products, such that the firm’s set of distinctive competencies becomes more focused towards these businesses in which they have excelled before. As a result the firm is likely to reduce the level of industrial diversification and, also stimulated by the reduced costs of doing business across national borders, to expand geographically. Moreover, the wider European Single Market creates more possibilities to specialise and reduce the level of vertical integration in line with Adam’s Smith adagio, “Specialisation is limited by the extent of the market”. Firms will divest activities and opt for outsourcing those activities for which they find now suppliers offering better conditions within the EU. As a result industrial diversification across vertically related stages of production and distribution is expected to reduce along the market integration process.

Considering geographical diversification, further to the need to expand the core business across borders, increasing market integration makes it easier for firms to enter other EU Member States. The costs connected with entering the market of another Member State are comparatively low for established European firms. This gives rise to major cross-entries of markets within the EC (frequently through M&A). This not only applies to established firms, but also to small or new firms that are no longer interested in penetrating a national market but wish to launch themselves on the single European market. The competitive pressure caused by firms entering the market is often reinforced by firms outside the EC. These firms fear that the completion of an internal market will inexorably lead to an increase in community protectionism. With these forces at work, the level of geographical diversification of EU as well as non-EU firms across Member States is expected to rise substantially.

Market integration also improves co-ordination possibilities for larger established firms and drives firms to better exploit scale and scope economies within Europe. This improvement changes the configuration of firm activities, such that certain sub-activities will become more geographically concentrated in some Member States. The geographical

concentration process goes together with the development of more efficient logistics systems that is made possible by a further deregulation of the transportation and telecommunications sectors in Europe. Within Europe Vandermerwe (1993) discusses the formation of Euro-networks in view of the ongoing market reconfigurations on a European and global scale, with the structure and location of activities of firms no longer based on specific countries.

A recent UN Report (United Nations, 1993) identifies a similar shift in strategy of transnational firms (MNEs). As stand-alone strategies with multi-country structures become too costly due to duplications, transnational firms reorganise to a structure that allows a complex strategy. The restructuring leads to so-called new global and regional networks, where firms concentrate on their core activities and build close relationships with suppliers and distributors. In this process of organisational restructuring, the location of every part in the supply chain becomes a strategically important element. The way the development of such a network structure is expected to affect the geographical diversification of firms remains an empirical question. Among other firms' characteristics, further analysis will provide a first assessment of the possible impact of market integration on the geographical diversification of large firms.

CHANGES IN INDUSTRIAL AND GEOGRAPHICAL DIVERSIFICATION OVER THE PERIOD 1987-1997

The MSM data

The analysis uses firm level data from the Market Share Matrix¹. This matrix identifies the set of "leading firms" in European manufacturing industries and de-aggregates their turnover data, extracted from individual company accounts, according to NACE 3-digit product lines and production centers located in the EU. A firm qualifies as a "leader" if it is one of the five largest EU producers in at least one manufacturing industry. For every such firm, the matrix includes estimates of its EU turnover in each industry in which it operates (not only in those where it is a "leader"), and dis-aggregates firm turnover, according to its production across industries and across production centres in EU member states. The MSM has been constructed for the years 1987, 1993, 1997.

¹ The principles, methodology and data sources for the 1987 exercise are detailed in Davies & Lyons (1996) and for the time comparison 1987-1993-1997 in Veugelers (2001).

The matrix built on these principles provides measures of industrial diversification and intra-EU geographical diversification of the Matrix firms.

Changes in diversification patterns over the decade 1987-1997

A comparison of the basic dimensions of the time comparable matrices 1987-1993-1997 provides a quick guide to the major changes in firm diversification over this period, as reported in Table 1. The evidence suggests that EU firms have reduced their industrial diversification at the expense of industries in which they are not leaders (non-leading diversification). Reduction in diversification has particularly occurred between 1993 and 1997, after the completion of the Single Market Program, and not between 1987 and 1993 when the removal of non-tariff barriers was in progress and most expected to exert its influence over corporate restructuring. This non-linearity suggests that the de-diversification process may have continued in the years after 1997. Recent anecdotal evidence is consistent with the idea that firms are still pursuing strategies of return to the core. With all the caveats that these comparisons deserve, 1993 appears as a transition year, with firms tentatively undergoing rationalisations, first increasing and then decreasing their range of operations across industries. The analysis of firm diversification when survival, entry and exit (within the matrix) are taken into account will throw more light on this issue.

Turning to geographical diversification, we first notice that although the number of EU firms in the matrix decreased over time, the number of transnational EU firms increased in that same period. Whereas in 1987 only 61% of all EU firms in the matrix were active in more than one Member State, this percentage significantly increased to 83% in 1997. In 1987 EU firms were on average only active in 3 countries. This number continuously increased over the period to an average of 4.5 countries in 1997. The percentage of total production occurring outside the home country has also increased: from on average 19% to 30%. Although this is a remarkable increase, it indicates that more than two thirds of total production is still produced in the home country. Thus, for the average EU firm, the location strategy seems to be still very much home country oriented, but geographical diversification across EU member states is strongly increasing. Non-EU firms were much more geographically diversified before market integration, and still increased the number of countries in which they are active. The larger diversification reflects the fact that most of these firms do not have a home basis in any of the European countries and have been typically more transnational before any market integration took place.

Changes in the distribution of diversification across firms

Table 2 presents the distributions of diversification indices across firms, by comparing the quartiles and extreme deciles of the distributions of our two measures for industrial diversification (D_I): the Number Equivalent of the Entropy and the Output Share in Secondary Industries/countries (with firms ranked by diversification).

The first measure, referred hereafter as ‘Entropy’ measures the number of industries where the firms need to have equally sized operations to yield the following (entropy) inequality index of its actual operations across industries: $E = -\sum p_i \log(p_i)$, where i stands for all industries in which the firm is active and p_i for the relative share of the firm’s production belonging to industry i . Hence, the higher the entropy, the more diversified the firm’s operations are across industries. The Entropy index of geographical distribution (D_G) is defined in an analogous way except that the index i stands for country instead of industry.

The second measure is part of the Entropy measure and looks at the share of output that the firm is producing in secondary industries outside its most important industry. For geographical diversification, the output measure looks at the share of EU production outside the most important production country in the EU. For EU firms the most important country falls together with the home country where they are based.

The return to the core (industrial de-diversification) in the 1987-1997 period is only partially reflected in the reduction of the mean values of the distribution. The standard deviation of both indices has reduced, confirming a general convergence of corporate structures. However, the evidence of de-diversification is only particularly pronounced when the Entropy index for diversification is used, thus suggesting that firms prevalingly retreated from marginal industries. Throughout the period, the mean values of the index remained stable between 1987 and 1993, and then decreased between 1993 and 1997.

EU leaders appear to have, on a basis of equal size across industries, operations in 2.25 sectors in 1997, as opposed to 2.62 in 1987. Firms in the top decile of the distribution were operating in 4.74 industries in 1987 and in 4.33 ten years later. Looking through the indices in Table 2, we find that highly diversified firms decreased diversification more substantially, although the trend is non-linear, with firms displaying first an increase and then a reduction in the mean values. At this level of aggregation, these preliminary findings are

nonetheless suggestive of rationalisations that eliminated operations in unrelated or marginal industries.

A separate row in the table looks at firms that have survived in the matrix as leaders in at least one industry in the period 1987-1997. We expect that the increasing competitive pressure favoured less diversified firms more than high diversifiers. Hence, we should find that survivors are either less diversified or refocusing over the period. Overall, the empirical findings are consistent with the return to the core hypothesis. The survivors (120 firms) display relatively high diversification, which they reduced by the end of the period, albeit marginally. Surviving firms also appear to be the largest in the sample. As to the diversification changes, the fact that the mean value of the output share in secondary industries is virtually unchanged with respect to 1987 for survivors suggests that de-diversification has mainly affected marginal, secondary activities.

Summarising the results for product diversification, the comparisons across indices allow us to partially confirm and better qualify the former preliminary results. Firms have readjusted their corporate structure around a lower number of industries, but have not refocused the output share in their primary industries in any remarkable way. In other words, instead of a *return to core business*, we are documenting a *return to core businesses*.

Insert Table 2 About Here

The strong expansion outside the home country in the 1987-1997 period is strongly reflected in the increase of the mean values of the distribution of geographical diversification. This holds for the Entropy index as well as for the output measure. The standard deviation of the indices has not increased to the same degree, confirming a general tendency of wider geographical corporate structures crossing the borders of Member States. The output share in secondary countries, on average, almost doubled over the decade.

EU leaders appear to have, on the basis of equal size across countries, operations in 2.76 countries in 1997, as opposed to 1.89 in 1987. Firms in the top decile of the distribution were operating in 4.88 countries in 1987, and in 5.34 countries ten years later. The biggest changes appear to have happened at the center of the distribution, shifting the distribution

substantially over time. As to the output share in countries outside the base country, the largest shift occurs at the lower half of the distribution. The combined findings for the two measures suggest that heavily diversified firms have increased diversification by spreading their activities more equally across borders, while the less diversified firms have increased diversification by investing more outside the base country.

Firms that survived in the matrix as leaders in at least one industry in the period 1987-1997 (120 firms) display relatively high geographical diversification, which they further increased by the end of the period, consistent with the overall shift in the distribution of all leading firms, including the entrance of new leaders after 1987.

DIVERSIFICATION IN RELATION TO CHARACTERISTICS OF LEADING FIRMS

Firm size

A stylised fact in the empirical literature on diversification is the positive correlation between industrial and geographical diversification and firm size (see, among the others, Davies and Lyons, 1996, Davies, Rondi and Sembenelli, 2001a and 2001b, Sembenelli and Vannoni, 2000, Vannoni 1999a). The theoretical literature provides several motivations for this well documented evidence: scale and scope economies, intangible and proprietary assets, managerial hubris, risk diversification.² In particular, the resource theory of diversification argues that, in the growth process, firms accumulate resources which can be profitably employed to enter new markets, if transaction costs make it costly to sell the services of such resources through the market mechanism (Penrose, 1959, Rubin, 1973, Teece, 1980 and 1982).

While the empirical literature suggest that both industrial and geographical diversification are basically different growth strategies of firms exploiting firm specific assets, their exact relationship – complements or substitutes- is still largely unexplored (but see Wolf, 1981, and Davies, Sembenelli and Rondi, 2001b). The evidence on the EU leaders diversification after 1993 suggests that both diversification strategies need not to go in the same direction. In section 4 we analyse this relationship at a somewhat deeper level.

² For surveys of the theories of diversification and of the empirical evidence, see Montgomery (1994) and Vannoni (1999b).

In addition to common factors, some arguments point to a specific relationship between firm growth and either industrial or geographical diversification.

According to the agency view of diversification, managers pursue their own objectives (private benefits deriving from empire-building and risk diversification) in conflict with shareholders' interests for profit maximisation (Marris, 1964), and over-invest in growth projects that reduce the firm's value (Jensen, 1986). A side effect of the positive relationship between size and product diversification is that large corporations are most likely to exhibit a considerable amount of unrelated and industrially illogic diversification. Empirical and theoretical literatures converge in predicting that this "golf-course" diversification is eliminated as soon as competition in the core industry toughens. In table 3 we explore whether this prediction applies to EU leaders.

Insert Table 3 About Here

By comparing the mean values for the top 50, the top 100 and the remaining matrix firms, we find evidence that firm size is positively related with diversification levels at every point in time. Medium and small firms outside the top 100 display, on average, lower levels of diversification, only marginally decreasing between 1987 and 1997. Within the largest size classes, we find that the top 50 firms do reduce diversification on average, over the decade. We have counted that, from 1987 to 1997, five firms drop down from the top 50 list to a lower ranking as a result of the return to the core. But the most sizeable reduction is in the top 100 class, in which the output share of the secondary industries falls by 5 percentage points in the 1993-1997 sub-period. Necessarily, therefore, the medium-large firms ranked 51 to 100 appear to have de-diversified more substantially than the largest top 50 firms.

Looking at the timing of the return to the core, we find an interesting pattern. Changes in the mean values display a monotonicity in de-diversification only for medium-large firms. In contrast with the ex-ante expectations of the effects of SMP, the largest firms increased diversification in the run-up to 1992, and appear to have responded to the increased competitive pressures only in most recent years. Firms outside the top 100 display a similar trend, but the motivations behind the lag in the response to increased competition may differ across size classes, and is clearly a matter for further research.

The link between the process of firm growth and the transnationalisation process has been examined in several studies. In combination with the evidence pointing at the importance of intangible assets, empirical research has shown that when firms grow in their home market, the opportunities on the national market shrink and firms are pushed or pulled into international markets (Horst (1972), Caves and Pugel (1980)). When firms decide to go abroad, they must incur a fixed cost of learning how things are done abroad. Moreover, establishing a subsidiary abroad implies a considerable sunk cost, which can better be incurred by large firms. Oligopolistic reaction theories also predict that larger firms in loose-knit oligopolistic industries are also likely to follow each other in expanding abroad (Knickerbocker, 1973).

From table 3, it is clear that there is a strong difference in geographical diversification between the top 100 firms and the firms outside this top 100, and this difference becomes even stronger over time. In 1987 top 100 firms were already much more internationally active than firms outside the top 100. From the entropy measure, the firms outside the top 100 increased their geographical diversification substantially more than the firms outside top 100 firms. The latter group of firms, however, showed a more marked increase in the output share in secondary countries. Again, this evidence is consistent with the finding that larger firms have rationalised production by spreading it more equally across EU member states while the smaller leaders have focused on catching up in the trans-nationalisation of production, be it in a less balanced structure as the one observed for larger firms. All in all, the evidence suggests for geographical diversification as well as for industrial diversification a tendency toward growing convergence in geographical production structure of leading EU firms over time.

Country of origin

Of the three most “industrial diversified countries” in 1987, UK, Germany and Italy, only German firms remains appreciably more diversified by 1997. Italy has undergone the largest decrease in the first sub-period, 1987-1993 (partly due to the privatisation of several subsidiaries of the state holdings IRI and ENI), whereas British firms appear to have de-diversified more intensely between 1993 and 1997. Firms originating in Germany, on average, exhibit a different pattern as they first increase diversification quite remarkably, and they then appear to refocus in the recent years. But the overall reduction, only reflected by the entropy index for diversification, is marginal. French firms were only moderately diversified

in 1987, and they tend to remain so at the end of the period. Looking through the remaining countries reveals that the Netherlands and Sweden, with 8 and 6 leaders respectively in the 1997 matrix, are both characterised by high diversification, but the former displays an increase and the latter a decrease over the decade. The intra-EU operations by non-EU transnationals are on average quite less diversified than their European rivals, but as we do not account for their operations at home, nor in the rest of the world, we have only a partial view of the extent and trend of their diversification. Contrary to European firms, they increased their level of industrial diversification within EU manufacturing.

Overall, although there is still evidence of systematic differences and country specificity, the changing pattern of industrial diversification by country shows some indication of convergence for EU firms. For 1993, Davies et al. (2001a) found that German firms were the very significant exception to the return to the core. In recent years, Germany appears to have inverted that trend.

Insert Table 4 About Here

Firms originating from smaller countries reach their limits to grow in the home market much faster than firms originating from larger countries, and thus it is natural that they show a higher level of geographical diversification. However one caveat when interpreting the empirical data is that, within the matrix, firms originating from smaller countries are likely to be underrepresented. Therefore, any inference on the average corporate structure for those countries is distorted by a selection bias. Considering the firms originating from smaller Member States, all but Spanish firms are transnational, i.e. producing in at least one other country than the home country. Danish firms show the least and Belgian and Dutch firms show the highest level of geographical diversification.

Among the firms originating from large Member States, French firms show a high level of geographical diversification in 1997; over the period 1987-1997 French firms also increased the level of geographical diversification most drastically. Italian firms appear to be the least geographically diversified and also show the smallest increase in Entropy as well as output share in secondary countries. Some of this appears to be due to a relatively higher percentage of smaller leaders among the Italian group of Matrix firms. Non European firms,

not having a real home country basis in the EU have continued to expand more equally across Member states and show as a result a higher Entropy as well as output share in secondary countries.

Summarizing, similar to industrial diversification, the results for geographical diversification show that the tendency to expand across EU member States holds generally for all firms, irrespective of their country of origin, suggesting a growing convergence of corporate structures.

Industry type

In this section, we explore the influences of product market factors by grouping firms according to the nature of their primary industry. Table 5 reports the mean values of the usual diversification indices for two industry typologies. The first one distinguishing homogeneous product industries (Type 1) from those producing differentiated products (Type 2). Type 2 industries, in turn, may be further characterised depending on whether differentiation is prevalingly achieved via advertising expenditures (2A), investment in R&D (2R), or both (2AR). The second typology identifies the set of industries that were supposed to be most affected by the implementation of the SMP, i.e. the so-called *sensitive industries*.

Insert Table 5 About Here

In the first part of the table, the industrial diversification results for *Type 1 and Type 2 industries* clearly indicate that there has been a convergence of corporate structures. In 1987, firms originating from differentiated product industries were more diversified than those originating from homogeneous product industries were. By 1997 Type 2 firms have re-focussed to the point that they are now much less diversified than Type 1 firms. This is not exactly what we would have expected, since firms in differentiated product industries are usually thought to enjoy more market power than firms in homogeneous industries, and therefore to be more “protected” from the toughening in competition due to the enlargement of the EU market. As it appears, the competitive escalation in R&D and advertising expenditure in the larger and more integrated market has led firms to divest from secondary industries and to concentrate their efforts to strengthen their position in the core business.

Within the differentiated group, firms originating in research intensive industries were, and remain, the most diversified, but they reduced their levels of diversification quite substantially (e.g. the output share in secondary industries dropped from 35% to 28%). The return to the core has been particularly intense between 1993 and 1997. Advertising intensive firms and, to a lesser extent, 2AR firms started from lower levels of diversification, but they have also reduced their diversification, mostly in the first sub-period.

The theoretical literature predicts that research and advertising intensive firms tend to be more diversified because they have intangible assets (technological know-how, brand name, research or marketing skills) that can be used as public good and easily transferred to new (related) industries, or countries. Moreover, technological know-how and research expertise (and much less so advertising and marketing skills), can be also profitably exploited through vertical integration, which is captured, but not separately identified, by our indices of diversification. The evidence of net de-diversification we document in this section suggests that, in this period, the unlimited use of such intangible assets may have been ultimately restrained by the increasing competitive pressure within the EU, leading the firm to refocus on fewer industries where the price cost margins are higher, and to exit from marginal industries where a leading position cannot be obtained.

This interpretation is confirmed when we look at the de-diversification trend for industries classified according to their *sensitivity to the Single Market Program*. The removal of non-tariff barriers was expected to have a particularly strong effect on high-tech public procurement industries (such as computers, telecommunications, and medical instruments) and on a sub-set of traditional or regulated public procurement industries (such as pharmaceuticals, wires and cables, railways and shipbuilding, soft drinks and beer, pasta). In table 5 we find that diversification steadily reduced only in high tech industries, and much less so in traditional and regulated industries. Amongst industries where the removal of non-tariff barriers was expected to have a moderate effect, the reduction of diversification was also quite substantial. Finally, the remaining lot of non-sensitive industries displayed a weak tendency to reduce diversification.

Concerning geographical diversification, table 5 shows that, as expected from the intangible assets hypothesis, firms active in type 1 industries, i.e. homogenous goods industry, are less transnational than firms active in type 2 industries. However, while firms of all types increased their geographical diversification over time, the increase in output produced in secondary countries was most significant in type 1 industries, indicating that the relevant market for these firms has become EU-wide, with a real need to expand operations European

wide. Within type 2 industries, the firms competing jointly on the basis of R&D and advertising show a higher level of geographical diversification, and still continued to expand strongly after 1987. In contrast to Type I homogeneous industries, production is more equally spread across countries, as implied by the higher Entropy value, suggesting a greater decentralization of activities across Member States, in line with the need to be closer to customers.

Dividing the data sample into those firms active in non-SMP sensitive industries versus those firms active in SMP-sensitive industries, the table shows that the non-SMP sensitive group has strongly caught up in transnational production, especially with respect to clusters 3 & 4 of the SMP- sensitive group of industries. This observation suggests that the market integration process has provided, in general, a stimulus for all firms to internationalise. The firms that were strongly affected by market fragmentation through non-tariff barriers were already highly transnationally organised before the Single Market, especially those firms from group 1 industries, characterised by high technology and a relatively high percentage of public procurement. The latter group of firms continued to strongly increase their geographical diversification and build up strong European wide positions, at the same time specialising on core businesses, as revealed by their reduced industrial diversification. The latter observation suggests a possible trade-off between geographical expansion and industrial diversification, an issue to be explored in the next section.

Alternative corporate strategies: industrial and geographical diversification, and firm growth

In this section we extend our analysis by considering industrial diversification jointly with geographical diversification as growth strategies available to the firm³. In particular, using very simple statistical tools, we ask whether industrial diversification and geographical diversification have been alternative routes to EU leaders growth - i.e. complements or substitutes.

We start by comparing, for 1987 and 1997, the simple count of firms which are both industrially and geographically diversified against those who choose only one option (see table 6). The first things we note is that both industrial and geographical diversification have become increasingly important to achieve the status of an EU leader in this period. The number of firms that were uninationally and specialised has halved, and the number of firms

³ Davies and Lyons, (1996, Ch. 12) and Davies, Rondi and Sembenelli (2001b) made earlier attempts to investigate this issue when only the data for 1987 were available.

both transnational and industrially diversified has increased by almost 20%. The two groups represent 6.7% and 68% of the firm total in 1997, thus suggesting complementarity. Interestingly, however, while the number of unination firms that are only diversified at home dropped from 47 to 18, the number of specialised transnationals increased from 19 to 38. This, in turn, suggests that the diversification route to growth, especially when confined to the domestic market has lost appeal amongst EU leaders. Finally, the rows and columns totals of these matrices show that industrial diversification was more frequent in 1987 (175 versus 147), but that the opposite is true in 1997 (170 versus 190).

Insert Table 6 About Here

It appears from this evidence that diversification was perceived as an easier route to follow than transnationality in 1987, at the start of the implementation of the SMP, but not any more in 1997. We can only speculate that the entry barriers raised by country specificity due to cultural and institutional differences have lowered, and that the trade-off between entering a member state or a new industry has re-balanced in favour of the transnational option.

Armed with this impressionistic view of the re-balancing of corporate strategies, we turn to table 7 where we report the correlation matrix of levels and changes in industrial diversification, geographical diversification and firm size⁴. Our purpose is to provide some preliminary evidence of whether industrial and geographical diversification are complementary or substitute routes to firm growth. Correlations are calculated between the 1987 levels and the growth rates of the sub-sample of 123 leaders that survived the firms' turnover in the matrix from 1987 to 1997. Industrial and geographical diversification as of 1987 appear moderately complementary (0.15). Interestingly, however, the EU surviving leaders exhibit a strong positive correlation between output growth and diversification growth (0.41). The correlation between firm growth and growth in geographical diversification is also positive, although it is perhaps somewhat lower than we expected (0.22).

⁴ For simplicity, in this Table we use only the Entropy index to measure product and geographic diversification.

In contrast with the findings for the full sample of firms (Table 6), which suggested substitutability between the two strategies, surviving leaders appear to have pursued both industrial and geographical diversification as routes to growth. And the correlation between changes in both types of diversification, is positively signed, albeit very low (0.05). Some indication of substitutability comes from the correlation between the *levels* of geographical diversification and the *growth* of industrial diversification which is negative (-0.19), suggesting that firms that were most geographically diversified in 1987 showed a tendency to reduce industrial diversification over the 1987-1997 period. The reverse is not true, however, as the correlation between the *levels* of industrial diversification and the *growth* of geographical diversification is (weakly) positive (0.10).

Insert Table 7 About Here

To test the assertion that there has been a general convergence of corporate structures across size classes, with “smaller” firms expanding via industrial diversification and “larger”, mature firms moderately de-diversifying, we report in table 8. the average growth rates of size, industrial diversification, and geographical diversification for firms distributed in quartiles based on their initial levels of industrial diversification. Comparisons of the mean values across the quartiles show that the least industrially diversified firms are those who most increased their size and their diversification over the period, but less increased geographical diversification. In contrast, the top industrially diversified firms have grown less rapidly, but appear to have rationalised most their corporate structures, as they display the higher rate of geographical diversification and the higher rate of industrial de-diversification. Taken together, this multi-faceted evidence suggests that substitutability between industrial and geographical diversification as routes to corporate growth may be more present than accounted for by the previous findings. This is clearly an issue for future research.

Insert Table 8 About Here

CONCLUSIONS

This section has explored the diversification strategies of EU leaders. Its main purpose was to verify if, following the ex-ante expectations of the impact of the SMP as well as a variety of theoretical explanations, “return to the core” and geographical concentration in production had occurred over the decade 1987-1997.

We find indication of a tendency for firms to refocus towards the leading business. Although diversification is decreasing on average, firms who are either very large or very diversified appear to reduce their initial levels of diversification more than smaller or less diversified firms do. In a similar vein, we find also evidence of convergence of corporate structures across EU member states. Countries that in 1987 were hosting the most industrially diversified leaders, such as Germany, the UK, Italy and Sweden, have undergone a considerable reduction in diversified operations. Since the Entropy index of industrial diversification appears to contract more than the output share in secondary industries, this suggests that firms’ operation in marginal industries have reduced more than proportionally. Consistent with this pattern, we find those firms able to survive as matrix leaders display relatively high industrial diversification, but they tend to reduce it by 1997.

At the same time firms have increasingly expanded and/or rebalanced their geographical operations across Member States, thereby strongly increasing their geographical diversification of production over time. Especially French firms have substantially increased the geographical scope of their operations within the EU.

The SMP was expected to impact asymmetrically across industries. In particular, firms in the sectors defined most sensitive to EU integration were expected to react more intensively. Our analysis confirms this for industrial diversification. Among the SMP sensitive industries, leading firms in high-tech industries characterised by a high percentage of public procurement, strongly reduced their industrial diversification, while at the same time, they strongly increased their geographical diversification. Moreover, separating firms by type of product (homogeneous or differentiated), we find that industrial diversification in industries where either advertising or R&D expenditures are important strategic weapons reduced quite remarkably. This suggests that in these very sectors the competitive pressure has induced firms to refocus towards the core business and to abandon non-leading activities. Firms in homogenous industries expanded strongly outside their base country, albeit in a less balanced way as we could observe for differentiated industries.

The last issue we investigate is the potential complementarity/substitutability relationship between geographical and industrial diversification as possible routes to growth. The results highlight that the number of firms which are both industrially and geographically diversified increased (suggesting complementarity), but also that geographical diversification has become the preferred route to growth as compared to industrial diversification (suggesting substitutability). Further evidence comes from the sub-sample of surviving leaders, for which we report a positive correlation between growth in industrial and geographical diversification. However, within this sub-sample, firms who were most diversified in 1987 have reduced industrial diversification by 25% and increased geographical diversification by 65% over the period. Again, this provides some indication of substitutability.

The above patterns are not linear through time. While industrial diversification for some groupings appears to be still on the rise between 1987 and 1993, it is in the last sub-period that we find more evidence of the return to the core. This is an intriguing result, since the completion of the Single European Market was expected to lead firms to reorganise their corporate structures by 1992. The lag in the firms' responses to the EU wide shock suggests that return to the core may still be in progress in the years after 1997, and that the process of European market integration shows no sign of slowing down.

Contrary to some *ex-ante* theories of the impact of market integration on the geographical diversification of firms, this section provides no evidence for a decrease in the level of geographical diversification by leading firms in the EU over the period 1987-1997. On the contrary, both the number of transnational firms and the level of geographical diversification of the average firm have continuously increased over that period, irrespective of the country of origin or industrial sector. The latter evidence, together with a growing convergence in industrial diversification and geographical diversification of leading firms in European manufacturing industries strongly suggest that the relevant market on which firm compete has become increasingly European wide.

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TABLE 1:**Changes in the structure of leading firms' matrix between 1987, 1993 and 1997**

	1987	1993	1997
Number of industries	67	67	67
Number of firms	223	218	223
<i>Industrial diversification</i>			
Number of diversified firms	175	176	170
Number of industry entries	1079	1016	810
<i>Of which:</i>			
<i>Leading</i>	335	335	335
<i>Non-leading</i>	744	681	475
Number of industry entries per firm	4.84	4.66	3.63
<i>Of which:</i>			
<i>Leading</i>	1.50	1.54	1.50
<i>Non-leading</i>	3.34	3.12	2.13
<i>Geographical diversification</i>			
Number of EU transnational firms	117	124	138
Number of non-EU transnational firms	32	43	57
Country entries per EU firm	3.06	4.01	4.53
Country entries per non-EU firm	4.94	5.21	5.23
Average % home country production EU firms	81%	76%	70%

TABLE 2:

Distribution of industrial and geographical diversification across firms, 1987-93-97

	Number equivalent of Entropy				Output share in secondary industries/countries			
	1987	1993	1997	Change 1997-87	1987	1993	1997	Change 1997-87
Industrial diversification								
<i>Arithmetic mean values of D_I</i>								
All Matrix Firms	2.62	2.60	2.25	-0.37	0.27	0.29	0.25	-0.02
<i>Std. Dev.</i>	1.95	1.72	1.44	-0.51	0.24	0.24	0.23	-0.01
Survivors	2.68	2.76	2.46	-0.22	0.28	0.31	0.29	0.01
<i>Distribution of D_I across firms</i>								
Decile 9	4.74	4.77	4.33	-0.41	0.59	0.64	0.61	0.02
Quartile 3	3.23	3.37	2.72	-0.51	0.46	0.49	0.43	-0.03
Median	2.05	2.03	1.79	-0.26	0.25	0.30	0.22	-0.03
Quartile 1	1.20	1.26	1.13	-0.07	0.04	0.06	0.03	-0.01
Decile 1	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Geographical diversification								
<i>Arithmetic mean values of D_G</i>								
All Matrix Firms*	1.89	2.37	2.76	0.87	0.17	0.26	0.33	0.16
<i>Std. Dev.</i>	1.17	1.42	1.51	0.34	0.21	0.25	0.24	0.03
Survivors	2.23	2.73	3.00	0.77	0.23	0.32	0.35	0.12
<i>Distribution of D_G across firms</i>								
Decile 9	4.88	5.22	5.34	0.46	0.70	0.71	0.72	0.02
Quartile 3	3.51	4.37	4.88	1.37	0.60	0.63	0.65	0.05
Median	2.26	3.00	3.49	1.23	0.41	0.53	0.52	0.11
Quartile 1	1.27	1.87	2.36	1.09	0.25	0.33	0.37	0.12
Decile 1	1.00	1.00	1.40	0.40	0.13	0.19	0.25	0.12

(*): for EU firms secondary countries are all EU countries except the home country. For non-EU firms the 'EU home country' is the EU country in which they have the largest production, secondary countries are all the remaining EU countries.

TABLE 3:**Diversification by firm size, 1987-93-97**

	Number equivalent of Entropy				Output share in secondary industries/countries			
	1987	1993	1997	Change 1997-87	1987	1993	1997	Change 1997-87
<i>Industrial diversification</i>								
Arithmetic mean values of D_I								
Top 50	3.72	3.86	3.11	-0.61	0.36	0.40	0.36	0.00
Top 100	3.42	3.22	2.69	-0.73	0.37	0.37	0.32	-0.05
Firms outside top 100	1.96	2.08	1.89	-0.07	0.20	0.23	0.20	0.00
<i>Geographical diversification</i>								
Arithmetic values of D_G								
Top 50	2.56	2.97	3.47	0.91	0.27	0.31	0.39	0.12
Top 100	2.40	2.83	3.40	1.00	0.25	0.32	0.40	0.15
Firms outside top 100	1.47	1.98	2.24	0.77	0.11	0.21	0.27	0.16

TABLE 4:**Diversification by country of origin 1987-1993-1997**

	Number equivalent of Entropy			Output share in secondary industries/countries*		
	1987	1993	1997	1987	1993	1997
<i>Industrial diversification</i>						
Ger	2.85	3.32	2.77	0.29	0.37	0.33
UK	2.95	2.60	2.27	0.34	0.33	0.27
Fr	2.39	2.39	2.20	0.25	0.28	0.27
It	2.90	2.38	2.18	0.26	0.23	0.23
BL/LUX	2.16	1.42	1.91	0.40	0.09	0.21
NL	2.55	2.55	2.60	0.29	0.37	0.31
DEN	X	1.27	1.84	X	0.05	0.15
<i>EU12</i>	<i>2.71</i>	<i>2.64</i>	<i>2.33</i>	<i>0.28</i>	<i>0.30</i>	<i>0.27</i>
<i>Other countries**</i>	<i>1.34</i>	<i>1.72</i>	<i>1.96</i>	<i>0.13</i>	<i>0.19</i>	<i>0.20</i>
<i>Geographical diversification</i>						
Ger	1.40	1.63	2.15	0.08	0.11	0.21
UK	1.78	2.31	2.54	0.16	0.27	0.31
FR	1.69	2.44	3.10	0.12	0.26	0.33
IT	1.37	1.77	1.76	0.10	0.17	0.18
BL/LUX	2.04	2.63	3.67	0.15	0.32	0.47
NL	2.85	3.35	3.82	0.33	0.38	0.45
DEN	X	1.33	2.06	X	0.08	0.17
<i>EU12</i>	<i>1.64</i>	<i>2.06</i>	<i>2.44</i>	<i>0.12</i>	<i>0.20</i>	<i>0.27</i>
<i>Other countries**</i>	<i>3.37</i>	<i>3.62</i>	<i>3.75</i>	<i>0.46</i>	<i>0.50</i>	<i>0.51</i>

(*) Industries applies to industrial diversification, countries to geographical diversification

(**) Austria, Finland, Sweden, USA, Japan, Australia, Canada, Switzerland and Norway.

Note: given the low number of diversified/transnational firms in Ireland, Greece, Portugal and Spain, no entropy measure is presented for these countries.

TABLE 5:

Diversification by industry type; 1987-93-97

	Number equivalent of Entropy			Output share in secondary industries/countries		
	1987	1993	1997	1987	1993	1997
<i>Industrial diversification</i>						
All Manufacturing	2.62	2.60	2.25	0.27	0.29	0.25
BY TYPE OF PRODUCT						
Type 1 – Homogeneous Products	2.42	2.66	2.32	0.25	0.31	0.27
Type 2 – Differentiated Products	2.77	2.56	2.20	0.29	0.28	0.24
<i>2A – Advertising intensive industries</i>	2.45	2.18	2.17	0.27	0.23	0.23
<i>2R – Research intensive industries</i>	3.21	3.08	2.43	0.35	0.36	0.28
<i>2AR – Adv. & Research intensive industries</i>	2.22	2.00	1.82	0.20	0.18	0.19
BY SMP SENSITIVITY (Non-tariff barriers)						
High-tech Public Procurement	3.30	2.81	2.21	0.35	0.32	0.21
Regulated Public Procurement	2.08	1.52	1.85	0.26	0.17	0.24
Traditional Public Procurement	2.05	2.70	2.06	0.24	0.34	0.26
Moderate non-tariff barriers	2.90	2.69	2.22	0.30	0.30	0.24
Non Sensitive Industries	2.51	2.60	2.33	0.26	0.29	0.27
<i>Geographical diversification</i>						
All Manufacturing	1.79	2.08	2.46	0.21	0.28	0.34
BY TYPE OF PRODUCT						
Type 1 – Homogeneous Products	1.30	1.65	1.87	0.10	0.22	0.30
Type 2 – Differentiated Products						
<i>2A – Advertising intensive industries</i>	1.77	2.31	2.33	0.22	0.38	0.35
<i>2R – Research intensive industries</i>	1.64	1.95	2.26	0.17	0.22	0.29
<i>2AR – Adv. & Research intensive industries</i>	2.02	2.21	2.62	0.21	0.29	0.35
BY SMP SENSITIVITY (Non-tariff barriers)						
High-tech Public Procurement 1	2.02	2.25	3.11	0.19	0.25	0.42
Regulated Public Procurement 2	1.76	2.15	2.65	0.22	0.28	0.36
Traditional Public Procurement 3	1.75	2.01	2.11	0.26	0.36	0.28
Moderate non-tariff barriers 4	1.63	1.92	2.11	0.15	0.24	0.29
Non Sensitive Industries N	1.43	1.82	2.03	0.13	0.24	0.31

TABLE 6:

The incidence of diversified and transnational firms in 1987 and 1997 Simple frequencies

	Number of firms					
	1987			1997		
	Specialised	Div	Tot	Specialised	Div	Tot
Uninational	29	47	76	15	18	33
Transnational	19	128	147	38	152	190
Totals	48	175	223	53	170	223

TABLE 7:**Correlation matrix of firm industrial and geographical diversification, size, and growth**

	Δ Size	Δ Div.	Δ Mult.	Div87	Mult87	Size87
Δ Size	1					
Δ Div.	0.41	1				
Δ Mult.	0.22	0.05	1			
Div87	-0.22	-0.39	0.10	1		
Mult87	-0.05	-0.19	-0.34	0.15	1	
Size87	-0.25	-0.13	-0.13	0.29	0.17	1

TABLE 8:

Growth rates of size, industrial and geographical diversification by initial (1987) level of industrial diversification

Arithmetic mean values

	Ind Div. 87	Δ Size / Size87	Δ Ind Div / Ind Div87	Δ Geo. Div / Geo Div 87
Max Ind Div 87	10.68			
75th – 100th perc.	3.41	0.45	-0.25	0.65
50th – 75th perc.	2.15	0.59	0.03	0.54
25th – 50th perc.	1.36	0.73	0.10	0.32
1st – 25th perc.	1.00	0.86	0.13	0.36