FOREIGN DIRECT INVESTMENT AND PROCESSED FOOD TRADE

Edited By

Shida Rastegari Henneberry

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FIRM AND LOCATION-SPECIFIC DETERMINANTS IN INVESTMENT AND TRADE STRATEGIES OF MAJOR MULTINATIONALS IN THE FOOD INDUSTRY IN EUROPE

G. Anastassopoulos, M. Papanastassiou, R.D. Pearce and W.B. Traill

The early sections of the paper review evidence on aspects of the technological performance of food industry multinational enterprises (MNEs). This evidence suggests that MNEs in the food industry demonstrate approaches to global technological competitiveness that resemble those of MNEs in industries that are usually accepted as likely to be more technologically dynamic and ambitious. The analytical framework and strategic perspectives derived in the earlier sections are then applied to an empirical investigation of food industry MNEs' subsidiaries operating in Greece. It is hypothesized that pursuit of technology is an important motivation in such subsidiaries, in an attempt to build on (rather than substitute for) the strong and distinctive established product base of Greek food industry companies. By assimilating Greek food technology alongside their own, the MNEs may develop notable export potential into their subsidiaries in Greece.

Introduction

The food industry constitutes a particularly interesting case in the manufacturing sector as it is an industry which experiences the co-existence of smaller national firms and large diversified MNEs (Fortune, 1993). These MNEs have an extensive network of 'globalized' activities (Dunning, 1994) and their competitive strategies are comparable to those of established and sophisticated MNEs in other manufacturing sectors such as electronics, pharmaceuticals, etc. The aim of this paper is to investigate the changing roles of food MNEs' subsidiaries in Greece, a country with a strong presence of indigenous food firms. To understand the evolution of food MNE subsidiaries' operations in Greece we need

to investigate the changing role of the food sector in a global and European context and in relation to other industrial sectors.

1.1 New Environment in Foreign Direct Investment (FDI)- Some Evidence

As the scope and aims of globally-competing firms in the manufacturing sector have evolved and widened, the nature and position of individual subsidiaries within such MNE groups have also undergone important changes. The background to the emergence of new roles for overseas subsidiaries lies in changes in the international competitive environment and in the position of MNEs within it.

A significant element in these changes has been the progressive lowering of tariff protection through the series of GATT negotiation rounds. This improvement in the conditions for international trade removes much of the motivation and support for the traditional import-substituting types of market-seeking FDI. Though tariffs have often been replaced by the more ad hoc trade barriers of the new protectionism, it can be argued[1] that these rarely promise the level of stability that would provide reliable support for new, or continued, local-market-focused import-substituting market-seeking investments. The trade environment that incorporates the new protectionism as one element requires new strategic approaches by MNEs. For instance, whilst actual or anticipated protection has stimulated much of the surge of recent Japanese manufacturing investment in Europe, it is also clear that these operations usually then develop an efficiency-seeking mode of behavior, using the freedom of trade within the EU to implement a network of rationalized subsidiaries in order to optimize the supply of products throughout the integrated regional market.

Indeed the emergence of Japanese firms as major MNEs, followed increasingly by additional competitors from the newly industrializing countries, represents a second significant change in the environment of global competition. The ability of these firms to bring to their international production the assets that had already made them formidably competitive through international trade, and

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[1] See Pearce (1992, p. 40).

their willingness to implement their overseas production through strategies that immediately emphasize efficiency-seeking approaches, force the established traditional MNEs to recognize more fully the pressures on their often inefficient long-standing market-seeking production facilities and also to pursue new strategic approaches to restore the globally-competitive viability of their operations.

A third new element adding to the intensity of global competition, and influencing the strategic approaches of old and new MNEs, is the increased international dispersion of technological capability. Through the 1950s, and into the early 1960s, US and European MNEs had something approaching a monopoly of competitive technology, often derived from the commercial application of knowledge created for military needs in the Second World War and the early years of the Cold War. Also, in those years, these established MNEs were the most systematically oriented to the use of R & D facilities and scientific personnel in order to create new technology and enhance the competitive scope of their existing technology. This then constituted a major ownership advantage which enabled them to sustain competitiveness in many markets, even though their market-seeking strategies did not always permit or require individual production facilities to operate in an optimally efficient manner. However, during the 1960s, and increasingly in more recent years, Japanese and other firms became, first of all increasingly effective users of existing technology, and subsequently implemented the independent capability to allow them to develop their own distinctive technology. Thus a dominance of technology quickly receded as a unique source of competitive strength that could compensate for other inefficiencies in the operations of the longer-established MNEs.

Recovery from this new vulnerability has involved two main responses in the behavior of these MNEs. Firstly, the restructuring of their production operations to employ more thoroughly and systematically the potentials of subsidiaries that carry out specialized roles that embody inputs that reflect particular asset strengths of their host-country. Secondly, revitalization of their technology, and the renewal of its position in their strategy, by

adopting a global approach to the acquisition and application of key elements of knowledge. This brings technology and knowledge into focus amongst the resource-seeking priorities of FDI and also underpins the emergence of increasingly strategic-asset-seeking modes of organization. The growing momentum behind these developments in global competition are central to the analysis of this paper and to the types of subsidiary roles and behavior analyzed throughout this study.

1.2 New Subsidiaries and Global Innovation Strategies

In response to all these changes not all MNE subsidiaries perform identical roles and as this has different effects on the industrial development of their host countries, a typology of types of subsidiaries is briefly introduced here (Ghoshal and Nohria, 1989).

(i) *Truncated miniature replica*

A truncated miniature replica (TMR) is an import-substituting subsidiary which supplies its local host-country market (often protected by tariffs or other trade barriers) with a substantial part of its MNE group's established product range.[2] It is thus considered, at least in terms of its production and marketing activity, to function as a miniature replica of the parent and other leading subsidiaries in the MNE group.

The changes in the international competitive environment of the past 30 years can be seen as having greatly exposed the inefficiencies of TMR subsidiaries.[3] Thus new roles for these operations have been sought. The typology discerns two such possibilities.

(ii) *Rationalized product subsidiary*

One possible reorientation of subsidiary roles has been towards rationalized operations, in which individual subsidiaries take up specialized positions in a broadly defined global or regional strategy.

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2 TMRs are thus part of traditional horizontally-integrated MNEs, and play a role in what Porter (1986) terms a multidomestic strategy.

3 See Pearce (1992, 39-42).

An individual rationalized product (RP) subsidiary might, for example, produce only a very limited part of the MNE's product line. What it produces will be determined by its capabilities,[4] rather than by the particular needs of its host-country market.[5] In all cases the aim is to achieve efficient production, by making optimum use of the distinctive productive capabilities of different locations accessible to the MNE.[6]

By performing a specialized role at optimal efficiency a RP subsidiary escapes from the deficiencies of a miniature replica. It is likely, however, to remain severely functionally truncated, including with respect to technological creativity.[7]

(iii) *World (regional) product mandate subsidiary*

The second possible direction of evolution for outmoded TMRs is, therefore, into world (or regional) product mandate (WPM/RPM) subsidiaries, which make an integrated creative use of a wider range of talented local inputs. As defined by Bonin and Perron (1986, 161) a WPM is "an agreement between a multinational enterprise's parent company and one of its subsidiaries to grant the subsidiary exclusive rights to produce and market a product and, if circumstances warrant, to pursue the necessary research and development activity". The mandated subsidiary thus becomes the international (or regional)[8] center for a product, with responsibility for all the key inputs relating to its creation, including R&D, production and marketing.[9]

As a hypothesis related to the food industry it will be clearly expected that TMRs will have played a strong traditional role in the food sector. However, by comparison with *e.g.*, electronics,

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4 These capabilities will predominantly reflect distinctive aspects of the host-country producing conditions, since the subsidiary is expected to have equal access to all firm-level capabilities (technology, management, know-how, etc.) so that it is unlikely to differ greatly from other RP subsidiaries in those respects.

5 The RP subsidiary's strong local producing presence will be expected to create the goodwill that makes its imports acceptable to local consumers, in a way that might not have existed if such imports had replaced the output of a TMR that had been closed down.

6 A particular case where the use of RP subsidiaries may have emerged in MNEs is at the cost-competitive, standardized product, stage of the original product cycle.

7 It will have little scope for independence in management or marketing.

8 See Pearce (1992, 48-51) for illustrative examples.

9 See Pearce (1989, 122-30) for more detailed analysis of R & D in WPMs.

automotive, we would sometimes expect evolution to proceed through RPS in food but nevertheless in countries with strong and distinctive indigenous sector, *e.g.*, Greece, progress might be straight to the more creative RPM/WPM type of operation.

When eventually subsidiaries make the 'creative transition' (Papanastassiou, 1995; Papanastassiou and Pearce, 1994) from TMR to RPM/WPM operations, this will reflect not only demand-side influences (the need to respond quickly and distinctively to local demand tastes) but also local supply-side influences (the availability of high-quality personnel and other knowledge inputs). These diverse forces then lead to various possibilities in contemporary overseas R&D-laboratory types in MNEs to support creative decentralized operations.

In another typology therefore three types of overseas R & D laboratories are distinguished that can exist in MNEs, in order to support different elements in global-innovation strategies.[10] Figure 1 provides a schematic summary of the ways in which these types of laboratories relate to other components of the MNE's operations and the nature of the R & D they do. In table 1 evidence from a survey (Pearce and Singh, 1992) of overseas R & D, is presented to show the relative prevalence of these types of laboratories in the food and other sectors.

Figure 1. Overseas R & D Facilities, Types of R & D Linkages

Type of laboratory	Linkages	Types of R & D
Support laboratory	Export marketing	Adaptive development (product).
	TMR subsidiaries	Adaptive development (product and/or process).
	RP subsidiaries	Adaptive development (process)[1]/ adaptive development (product and/or process).[2]
Locally integrated laboratory	TMR subsidiaries[3]	Applied research/innovation development (product and/or process).
	WPM/RPM subsidiaries	Applied research/innovation development (product and/or process).
Internationally interdependent Group R & D		Basic research/applied research/ laboratory innovation development (product and/or process).

1. if supporting one RP subsidiary directly.
2. if supporting a whole RP network.
3. if ambitious to upgrade status to WPM/RPM.

10 See Hood and Young (1982, 14-5); Haug, Hood and Young (1983, 385-6); Pearce (1989, 11-2) for the origins of this classification system. Ronstadt (1977,1978) pioneered a similar system.

Table 1. Prevalence of Particular Types of Overseas R & D Subsidiaries

	Average response[1]		
	SL	LIL	IIL
Industry			
Food, drink and tobacco	1.91	2.73	1.64
Petroleum	2.20	2.00	2.40
Metal manufacture and products	1.73	2.30	1.46
Industrial and agricultural chemicals	2.06	2.06	2.11
Pharmaceuticals and consumer chemicals	1.46	1.62	2.69
Motor vehicles and components	1.25	2.50	1.75
Industrial and farm equipment	2.25	2.67	1.50
Electronics and electrical appliances	2.08	2.17	1.75
Office equipment (including computers)	1.25	1.63	2.38
Other manufacturing	1.75	2.20	1.80
Average[4]	1.80	2.05	2.10

1. Respondents were asked to grade their facilities in terms of each type of unit as
   1: Predominantly this type of laboratory.
   2: Partially this type of laboratory.
   3: Not this type of laboratory
   4: It includes subsidiaries from the US, UK, Other Europe, Japan and Other Countries.

The average response was then derived by allocating values of 1 for 'not', 2 for 'partially', 3 for 'predominantly'.
Source: Pearce and Singh (1992a; table 5.1).

(i) *Support laboratories.*

Support laboratories (SLs), as the traditional type of decentralized R&D laboratory, assist a MNE's production and marketing facilities overseas to make effective use of the group's existing technology. Thus SLs deal with problems experienced in implementing established products and processes efficiently in new locations, perhaps some considerable time after the original innovation has been completed.

A SL can be in support of exporting to a particular country. To do this a SL would implement product adaptation. Next they could support TMRs in making the best use of existing technology in their markets, this time possibly doing both product and process adaptation. Finally SLs can play roles in relation to RP subsidiaries. When supporting one such RP unit directly their work, should be limited to process adaptation.

(ii) *Locally integrated laboratories.*

Locally integrated laboratories (LILs) involve themselves in much more fundamental development activity than the SLs. By working closely and creatively with other functions in the same local subsidiary (*i.e.*, marketing, engineering, management) LILs seek to determine all the details of a product that they develop in the light of the characteristics of their target market and production environments. This clearly goes far beyond the adjustment of any particular problematical aspect which emerges in an established product/process, that would be addressed by a SL.

A LIL may supersede a SL in a particular country if an ambitious TMR subsidiary management there perceives its local market to be sufficiently distinctive and fast growing to merit the development of products which are more than marginal adaptations of parts of the MNE's existing lines. This could then lead to the subsidiary becoming (as may always have been the ambition of its managers) a WPM or RPM.

Thus a LIL may support a TMR, but provide it with the wider support (compared with a SL) that is hoped to induce its upgrading. This may include applied research (probably at least access to central group applied research output) and certainly innovation development for products and processes. LILs will, however, have a more clearly defined role in supporting WPM/RPM operations, providing the same types of work in assisting the development of their distinctive products.

(iii) *Internationally interdependent laboratories.*

The internationally interdependent laboratory (IIL), though located in a particular country, has its main orientation much more towards that precompetitive part of the MNE's global R & D activity which aims to supply mainly basic and applied work to an internationally-co-ordinated program seeking to provide the technological basis for a new generation of products. Thus IILs are by definition linked with other similar laboratories.

As it is shown in table 1, the least prevalent type of R&D laboratory is SLs. Industries like metal manufacture, pharmaceuticals

and motor vehicles show a below average use of this type of lab, whilst food and drink, petroleum, industrial chemicals, and electronics reveal an above average inclination towards the existence in their operations of SLs. This could be indicative that TMR types of operations are still relevant strategic options in these sectors. However, the more powerful functions of the subsidiaries, including marketing, require the assistance of local R&D activity which is mainly directed towards adaptive development (Papanastassiou, 1995) that extends beyond the expectations of the traditional product cycle (Vernon, 1966). The food sector opts for this type of multidomestic strategy as well, but to a lesser extent than the other sectors (with above average response rates) implying that the respondents to this survey view this type of MNE subsidiary as transitional. Therefore major food companies seem to reconsider their multidomestic strategies towards more dynamic targets and integrate them into a global competitive framework which permits flexibility in their production orientation and cost efficiency.

The fact that the majority of the industries rely strongly on LILs endorses our arguments on diversified roles of subsidiaries with dynamic and original tasks. The food sector is the industry that relies heavily on this type of laboratory more than any other, including high-technology industries like electronics, motor vehicles, etc., possibly embodying the need to assimilate distinctive indigenous food technology that is already operative in the operations of local firms. As these labs are involved in product development, and support RPM or/WPM type of subsidiaries, the food sector experiences the strong presence of this type of operation, which reflects a genuine approach to the globalization of production where responsiveness to distinct market needs is only accomplished by the use of distinct local supply factors. Therefore in this sector applied scientific work seems to be more decentralized, implying the production of heterogeneous products for heterogeneous markets. By contrast with its decentralized approach to the commercial development of technology (SL/LIL), food sector firms seem to opt for a more centralized strategy towards basic research (IIL).

The use of patent data provides additional evidence which underlines this evolution of the food sector towards more sophisticated decentralized technological activities and measures the weight of foreign subsidiaries in this process.

As we can see in table 2 the share of total and foreign patents in the food sector is very small in the aggregate. Food, as most of the rest of the sectors, experienced a decline in its share of technological activity since 1969. However, with the exception of chemicals and electrical equipment, there seems to be narrow differences in the technological activities in the rest of the sectors. Table 3 shows that the share of foreign patents in the food sector in 1987/90 represents almost a quarter of its innovative activity and this share is much stronger than any other industry covered. Also indicative is the dynamic growth of this share in comparison to other industries which experience either stagnation or decline. This evidence reinforces our assumptions regarding the progression of food subsidiaries from TMRs towards RPMs/WPMs and also complements the data presented in table 1.

Table 2. Shares of Foreign Patents and Total Patents Granted to the World's Largest Firms in the US, by Industry of Firm

	Shares of Foreign Patents (%)					Shares of Total Patents (%)				
	1969/ 72	1973/ 77	1978/ 82	1983/ 86	1987/ 90	1969/ 72	1973/ 77	1978/ 82	1982/ 86	1987/ 90
Food	2.6	2.9	2.9	2.8	2.5	1.8	1.8	1.4	1.3	1.1
Chemicals	20.8	22.1	22.6	19.4	20.7	17.4	17.9	17.8	15.7	16.2
Pharmaceuticals	9.8	14.2	12.9	8.8	9.1	6.0	8.1	8.0	5.9	5.6
Metals	6.0	5.1	5.8	4.7	4.6	5.7	6.1	5.6	5.3	4.5
Mechanical engineering	7.1	6.0	7.0	7.5	5.2	6.6	6.4	6.3	5.7	4.0
Electrical equipment	21.8	19.1	18.0	21.6	24.5	22.0	21.1	21.9	24.7	28.1
Office equipment	3.1	4.7	5.4	7.1	6.5	6.3	6.0	5.6	6.5	6.5
Motor vehicles	3.3	3.7	4.4	6.1	6.1	7.0	7.7	8.1	9.6	9.8
Aircraft	1.1	0.9	1.0	1.3	1.1	5.7	4.7	4.7	4.9	5.0
Paper products	0.3	0.5	0.5	0.8	0.9	1.1	1.0	1.1	1.1	1.0
Rubber/plastic products	1.1	1.1	0.8	0.6	0.8	1.6	1.6	1.3	1.1	1.0
Non-metallic minerals	1.7	1.6	1.9	1.8	1.6	1.6	1.4	1.4	1.3	1.1
Petroleum/coal	16.2	13.0	11.4	12.0	13.0	10.1	9.4	8.9	8.8	7.0
Professional and scientific instruments	2.0	1.1	1.1	1.1	1.0	3.3	3.1	4.1	4.6	6.1
Other	3.2	3.9	4.3	4.5	3.8	4.0	3.6	3.6	3.5	3.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: US patent database held at the University of Reading with the support of the Patent and Trademark Office, US Department of Commerce.

Table 3. Share of Total US Patents Granted to the World's Largest Firms Accounted for by Their Overseas R&D, by Industry of Firm

	1969/ 72	1973/ 77	1978/ 82	1983/ 86	1987/ 90
Food	15.1	18.1	22.2	23.3	25.6
Chemicals	12.4	13.5	13.5	13.8	14.4
Pharmaceuticals	16.9	19.1	17.3	16.4	18.2
Metals	10.9	9.2	10.9	9.8	11.5
Mechanical engineering	11.0	10.2	11.8	14.5	14.5
Electrical equipment	10.3	9.8	8.7	9.7	9.8
Office equipment	5.1	8.5	10.1	12.0	11.2
Motor vehicles	4.9	5.3	5.7	7.1	7.0
Aircraft	2.0	2.0	2.3	2.9	2.5
Paper products	3.2	5.1	4.3	8.1	9.5
Rubber and plastic products	7.0	7.4	6.7	6.0	8.5
Non-metallic minerals	11.5	12.2	14.2	15.4	16.6
Petroleum and coal	16.5	15.2	13.6	15.1	18.4
Professional/scientific instrument	6.2	4.0	2.9	2.7	1.9
Other	8.3	11.6	12.5	14.3	14.2
TOTAL	10.3	10.9	10.6	11.1	11.2

Source: As table 2.

Finally as we can see in table 4 food seems to provide a particularly strong case of dichotomous behavior with 60% of firms reporting no patenting from foreign subsidiaries (more than any of the other industries except textiles) but with also an above average 10.9% reporting that over half their patents derived from such operations.

Table 4. Foreign Patents as a Percentage of Total Patents, 1987-90 Frequency Distribution of Firms, by Industry of Firm

	0	0.1-5.0	5.1-15.0	15.1-30.0	30.1-50.0	Over 50	Total
Food	60.0	7.3	9.1	7.3	5.5	10.9	100.0
Chemicals	25.4	38.1	14.3	6.3	11.1	4.8	100.0
Pharmaceuticals	17.0	22.0	19.5	26.8	4.9	9.7	100.0
Metals	42.3	16.5	15.5	10.3	5.2	10.3	100.0
Mechanical engineering	20.6	28.6	19.0	11.1	4.8	15.9	100.0
Electrical equipment	15.6	42.2	17.2	10.9	6.3	7.8	100.0
Office equipment	19.0	33.3	28.6	14.3	0	4.8	100.0
Motor vehicles	40.8	28.6	16.3	8.2	2.0	4.1	100.0
Aircraft	36.0	44.0	12.0	8.0	0	0	100.0
Textiles and clothing	76.2	9.5	4.8	0	0	9.5	100.0
Paper products	54.1	5.4	13.5	8.1	5.4	13.5	100.0
Non-metallic minerals	45.8	16.7	8.3	4.2	12.5	12.5	100.0
Petroleum and coal	49.1	18.2	12.7	7.3	1.8	10.9	100.0
Other	37.5	27.3	10.2	6.8	4.5	13.6	100.0
TOTAL	37.0	24.5	14.4	9.4	5.0	9.8	100.0

Source: As table 2.

This latter figure could reflect the absorption of knowledge from indigenous food industries, which may have emerged as the result of a long evolutionary process and which the major food industry MNEs now seek to turn into patentable concepts.

1.3 Food Subsidiaries in Europe

The evidence presented in the previous section give us an indication of the evolution of the roles of food MNE subsidiaries in the global context, as seen through the evolution of the transfer and creation of technology by these subsidiaries. This section narrows down to the European context and provides evidence about the operations of food subsidiaries in four European countries. The data presented in this part come from a questionnaire survey of 145 manufacturing subsidiaries (carried out in 1992/93) located in the UK, Greece, Belgium and Portugal.

Data on the dates of establishment of subsidiaries in various industrial sectors in table 5 show that the majority of food subsidiaries were equally established in the periods before 1950s, from 1960 to 1979 and after 1980. Additional information on the means of establishment of these subsidiaries shows that the food subsidiaries had an above average tendency to establish via takeovers and joint ventures as the importance of brands and the existence of established distribution networks facilitates the activity of the food industry which operates in multiple markets segments (table 6). This could well show the urge for responsiveness to local demand and also the existence of strong national companies which could assist in the capture of larger market shares. Food companies had a well-below-average rate of establishment through the set up of new operations, whilst less traditional industries like electronics and pharmaceuticals tend to rely on their own means when it comes to outward investment. This evidence could be related with the strong role of foreign patents in innovative activity of leading food MNE groups (section 1.2).

Table 5. Dates of Establishment of Subsidiaries

	Year of establishment (percentage)				
	Before 1950	1950 to 1960	1961 to 1979	1980 onward	Total
Industry					
Food and drink	30.0		40.0	30.0	100.0
Industrial and agricultural chemicals	30.0	15.0	25.0	30.0	100.0
Pharmaceuticals and consumer chemicals	27.8	16.7	55.5		100.0
Electronics and electrical appliances[1]	11.8	2.9	23.5	61.8	100.0
Mechanical engineering	9.9		90.1		100.0
Metal manufacture and products	40.0		60.0		100.0
Petroleum	14.3		28.6	57.1	100.0
Automobiles (incl. components)	35.7	21.4	14.3	28.6	100.0
Other manufacturing[2]	40.0	15.0	40.0	5.0	100.0
Total[3]	25.2	9.3	37.4	28.1	100.0

1. Includes computers and telecommunications.
2. Includes building materials, instruments, rubber, miscellaneous.
3. Covers subsidiaries in UK, Belgium, Greece and Portugal.

Table 6. Means of Establishment of Subsidiaries

	Means of Establishment[1] (percentage)			
	Take-over	New company	Joint venture	Total
Industry				
Food and drink	40.0	30.0	30.0	100.0
Industrial and agricultural chemicals	30.4	43.5	26.1	100.0
Pharmaceuticals and consumer chemicals	25.0	65.0	10.0	100.0
Electronics and electrical appliances[2]	20.6	70.6	8.8	100.0
Mechanical engineering	25.0	75.0		100.0
Metal manufacture and products	20.0	80.0		100.0
Petroleum	25.0	50.0	25.0	100.0
Automobiles (incl. components)	33.3	60.0	6.7	100.0
Other manufacturing[3]	15.8	63.1	21.0	100.0
Total[4]	25.3	60.3	14.4	100.0

1. Respondents were asked if the subsidiary was established, (i) by take-over of an existing local company, (ii) by creation of a new company with its own production facilities, (iii) as a joint venture with an existing company.
2. Includes computers and telecommunications.
3. Includes building materials, instruments, rubber, miscellaneous.
4. Covers subsidiaries in UK, Belgium, Greece and Portugal.

Another question in the survey investigated the roles of the subsidiaries according to the approaches we have already explained. It is possible and reasonable that subsidiaries can do all the above, or more than one task anyway (for a survey see Haug, Hood, and

Young, 1983; Hood, Young and Lal, 1994). The prevalence of these roles is shown in table 7.

Table 7. Roles of Subsidiaries

	Roles (percentage)[1]			
	A	B	C	Total
Industry				
Food and drink	61.5	30.8	7.7	100.0
Industrial and agricultural chemicals	78.6	14.3	7.1	100.0
Pharmaceuticals and consumer chemicals	77.3	9.1	13.6	100.0
Electronics and electrical appliances[2]	67.6	18.9	13.5	100.0
Mechanical engineering	100.0			100.0
Metal manufacture and products	100.0			100.0
Petroleum	66.7	22.2	11.1	100.0
Automobiles (incl. components)	73.3	20.0	6.7	100.0
Other manufacturing[3]	66.7	25.9	7.4	100.0
Total[4]	74.1	17.1	8.8	100.0

Roles of subsidiary
A - supply an established product.
B - create and supply a new product in the MNE group.
C - supply intermediate or final products to others of the MNE group.
1. Percentage of respondents who specified a role as primary one.
2. Includes computers and telecommunications.
3. Includes building materials, instruments, rubber, miscellaneous.
4. Covers subsidiaries in UK, Belgium, Greece and Portugal.

Although the most prevalent role food subsidiaries perform is the production of established goods (61.5% of respondents), this is still well below the total average. In addition to that, food companies are more strongly oriented to the production of new products than any other industry in the sample, including electronics and motor vehicles. Finally the production of inputs seems to be the least important role in this sector in line with our hypothesis in section 1.2. The perspectives on contemporary MNE operations can be investigated further through an analysis of 190 replies to a questionnaire survey sent to manufacturing subsidiaries of foreign companies operating in the UK.[11] Here evidence is provided on the relative prevalence of four different types of subsidiary roles (see table 8). Again in this survey the food companies that responded

[11] The survey was carried out in 1993/94 as part of a project financed by the Economic and Social Research Council. The questionnaire was sent to 812 UK-based manufacturing subsidiaries.

showed that they are more oriented towards the production of new products for their UK and /or European market.

Table 8. Relative Importance of Roles Played by MNE Subsidiaries in the UK by Industry

	Importance of roles[1] (average response)[2]			
	A	B	C	D
By industry				
Food	2.56	2.33	1.11	2.67
Automobiles	2.24	2.33	1.65	2.35
Aerospace	2.33	2.17	1.33	2.17
Electronics and electrical appliances	2.33	2.53	1.41	1.96
Mechanical engineering	2.08	2.27	1.33	2.36
Instruments	2.33	2.10	1.33	2.36
Industrial and agricultural chemicals	2.14	2.03	1.48	2.17
Pharmaceuticals and consumer chemicals	2.27	2.55	1.45	1.91
Metal manufacture and products	2.09	1.90	1.22	2.20
Other manufacturing	2.44	1.73	1.20	1.80
Total	2.26	2.24	1.38	2.15

Role of subsidiaries.

A - to produce for the UK market products that are already established in our MNE group's product range.

B - to play a role in the MNE group's European supply network by specializing in the production and export of part of the established product range.

C - to play a role in the MNE group's European supply network by producing and exporting component parts for assembly elsewhere.

D - to develop, produce and market for the UK and/or European (or wider) markets, new products additional to the MNE group's existing range.

1. Respondents were asked to evaluate each role as (i) our only role, (ii) our predominant role, (iii) a secondary role, (iv) not a part of our role.
2. The average response is calculated by allocating a value of 4 to 'our only role', 3 to 'our predominant role', 2 to 'a secondary role' and 1 to 'not a part of our role'.

With the role of creative operations within subsidiaries becoming increasingly central to their position in their MNE group, another question looks at the sources of their in-house technological work. Food and drink companies rely on the existence of a properly constituted R&D laboratory more than electronics and only slightly less than pharmaceuticals (table 9).

Therefore the above data painted a dynamic portrait of the subsidiaries in the food sector. These subsidiaries are involved in product development, they use sophisticated supply factors in properly constituted R&D laboratories, and as table 10 shows the main market for these companies is the local market, therefore

allocating a more dynamic interpretation to import substituting production.[12]

Table 9. Sources of Technological Work Carried out for MNE Subsidiaries

	Source[1] (percentage)		
	A	B	C
Industry			
Food and drink	55.5	22.2	22.2
Industrial and agricultural chemicals	52.4	19.0	28.6
Pharmaceuticals and consumer chemicals	57.1	28.6	14.3
Electronics and electrical appliances[2]	38.5	50.0	11.5
Mechanical engineering	33.3	44.4	22.2
Metal manufacture and products	40.0	40.0	20.0
Petroleum	66.7	33.3	
Automobiles (incl. components)	33.3	58.3	8.3
Other manufacturing[3]	50.0	14.3	35.7
Total[4]	46.6	34.5	18.9

1. Respondents were asked "is any technological work carried out for your subsidiary,
   A - in a properly constituted R&D laboratory with a permanent staff of scientists,
   B - less formally by members of the engineering unit during the process of production".
   C - covers respondents who used both A and B.
2. Includes computers and telecommunications.
3. Includes building materials, instruments, rubber, miscellaneous.
4. Covers subsidiaries in UK, Belgium, Greece and Portugal

Table 10. Proportion of Production Exported by MNE Subsidiaries in Europe.

	Export share (percentage of respondents[1])					
	Zero	0.1 to 10.0 %	10.1 to 25.0 %	25.1 to 50.0 %	over 50 %	Total
Industry						
Food and drink	22.2	66.7	11.1			100.0
Industrial/agricultural chemicals	9.1	18.2	4.5	27.3	40.9	100.0
Pharmaceuticals/consumer chemicals	31.6	26.3	5.3	15.8	21.1	100.0
Electronics/electrical appliances[2]	20.6	14.7	5.9	17.6	41.2	100.0
Mechanical engineering	33.3		16.7	8.3	41.7	100.0
Metal manufacture/products	14.3	28.6	28.6		28.6	100.0
Petroleum	28.6	42.9			28.6	100.0
Automobiles (incl. components)	14.3			28.6	57.1	100.0
Other manufacturing[3]	11.1	16.7	5.6	27.8	38.9	100.0
Total[4]	19.7	19.7	7.0	17.6	35.9	100.0

1. Percentage of respondents whose export share is in this range.
2. Includes computers and telecommunications.
3. Includes building materials, instruments, rubber, miscellaneous.
4. Covers subsidiaries in UK, Belgium, Greece and Portugal.

12 Disintegrated data on the market orientation of production showed that the European food industries focus more heavily in the local market than US companies that have a more European perspective.

2.1 Subsidiaries and Domestic Food Firms in Greece

The entrance of Greece into the European Union (1981) changed the conditions of the competitive game within the Greek food industry, bringing new players which gave different dimensions to existing domestic and international competition. The gradual decline of all kinds of barriers to trade, and the harmonization and deregulation of the industry, facilitated import penetration by well known global brand-name products (see section on new environment in FDI). Although one would expect trade to be the major means of servicing the market, it seems that the MNEs have had strong incentives to enter the market by establishing production and/or marketing subsidiaries (Anastassopoulos and Traill, 1994). Penetration of MNEs in the Greek food market occurred mainly through acquisitions (table 11, also this is in line with evidence provided in table 6). It is worth noting that all the domestic enterprises (DMEs) which had been taken over by the MNEs had developed distinct competencies, namely goodwill and consumer loyalty in the local market, managerial and marketing capabilities and a small range of products which were traded in regional markets.

Table 11. Mergers and Acquisitions of Food Enterprises in the Greek Food Industry

Year	National	International	Total
1987-89	8	7	15
1990	3	1	4
1991	16	4	20
1992	11	5	16
TOTAL	38	17	55

Source: Top Investment, Athens 1994.

Deregulation of the market, including the gradual relaxation of the protection system to domestic firms and structural changes in demand and supply, constrained the domestic firms to restructure their operations in order to compete successfully in the Single European Market (SEM). The DMEs operate under the threat of losing local and international market shares and therefore reorganize themselves in order to compete successfully and defend such shares. Reorganization of leading local firms occurred mainly

through acquisitions of other small to medium sized domestic firms (table 11). Nowadays, it seems that subsidiaries and associate firms[13] have a strong presence in the Greek food sector together with domestic firms, and that the competitive behavior of both groups has replaced the traditional forms of domestic orientation and international competition via trade channels, bringing more dynamism to the Greek sector and integrating it into the world industry.

The eclectic paradigm of international production (for a general background see Dunning, 1993) offers a general framework for determining the extent and pattern of domestic production owned by foreign firms. Given this framework an MNE subsidiary maximizes its rents by utilizing the **ownership (O) location (L)** and **internalization (I) advantages** which it possesses in a foreign market. It is useful to compare the ownership-specific advantages of MNEs in the Greek food industry in relation to the ownership-specific advantages of DMEs as these two types of firms may be considered to constitute two different strategic groups. In the food industry, the most important **O** advantages are related to marketing skills and expertise, the need and ability to create new products tailored to specific markets or market segments and consumer loyalty as well as brand reputation. This type of activity is associated with either TMRs in creative transition or the WPM/RPM type of subsidiary. The locational criteria to enter the foreign market as an alternative to exporting or licensing are the local market potential (size, growth, segments, oligopolistic considerations etc.), transportation and inputs costs, and locational factors associated with immediate access to markets (perishable goods) or production closely dependent on access to raw materials. An important factor is the distribution network, especially in the Greek market which has a specific retailing structure. Moreover in cases of entry by acquisition, the MNE gains advantages of the trade channels in foreign markets and especially in neighboring markets (see previous section on means of establishment of subsidiaries in Europe). The DME maximizes its rents utilizing its **O** advantages of experience in operating the local market and of

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13 Firms with less than 20 percent foreign equity ownership.

traditional links with local consumers and international markets of long standing.

2.2 Hypotheses

It is hypothesized that MNEs are fundamentally different from their uninational counterparts by the nature of their organizational linkages, the degree of possession of **O** advantages, and the efficient combination of different **L** factors. These two different types of firm are expected to pursue distinctive market behavior in the Greek food market, reflecting differences in structures and competitive advantages and these differences may also affect their performance. The original establishment of an MNE subsidiary in the Greek food market during the 1980s commonly reflected a decision to substitute local production for imports and consequently inhibited the growth of imports into the local market. It was thus a traditional TMR subsidiary. Therefore it is expected that MNEs initially experienced a high degree of local market orientation and trading activity. MNEs are expected to have a higher import propensity than DMEs, especially for finished goods from the parent company or trade associated companies.

In the choice between *de novo* entry and acquisition, it seems that MNEs chose the latter option, acquiring well established domestic firms with distinct assets such as brand names, distribution network and export channels. Therefore, it is possible that these subsidiaries explored local knowledge and local marketing abilities, as well as special export opportunities in the Greek food industry, taking advantages of local natural endowments and regional characteristics. It is further hypothesized that exports were also more easy for MNEs not only due to their international experience and combination of O and L advantages but also because they could effectively transfer intermediate goods, such as technological inputs, and final market products through intra-firm channels. But this should be controlled by the degree of internationalization of the parent company, and more specifically, by the degree that the parent company chooses a subsidiary to supply a regional market such as the Middle East or Eastern Europe rather than locate a subsidiary in each market.

Finally, DMEs operating previously in the market have developed trading links and channels with foreign markets, particularly Central and Eastern Europe and the Middle East, using locational advantages coming from experience and goodwill for traditional Greek food products with low to medium level of processing. For all these reasons, MNEs and DMEs may reasonably considered to form different strategic groups within the Greek food industry and mobility barriers may enable performance in the two groups to differ over time. In this section two hypothesis are tested:

(1) The type of ownership - MNEs vs DMEs - has an independent influence on firm performance.
(2) The determinants of performance of MNEs and DMEs differ.

2.3. Data Sources and Variables

The data presented in this part are compiled for 81 firms (25 MNEs[14] and 56 DMEs) operating in the Greek food industry. Firstly, because accounting data provided in Annual Reports constitute standardized information, only firms with a published accountancy system are included. This information was taken from ICAP Hellas.[15] Secondly, this study utilizes unique firm level data from the National Statistical Service of Greece.[16] Thirdly, since it also seems that the relative size of a firm is associated with performance and group homogeneity, the enterprises were confined to Fortune 150 companies for the year 1992. Firms which do not meet all three data set criteria are excluded.[17] Fourthly advertising expenditures were obtained at the product level from NIELSEN Hellas. Definition of the variables which are used in this section is given in table 12.

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14 By MNEs in this section of the paper, we refer to those Greek affiliates of multinational enterprises in which they retain a controlling interest. A rule of thumb of at least 20 percent of foreign equity ownership has been used to identify such affiliates.
15 A firm level information agency.
16 This data set is of a confidential nature and was only supplied for research purposes.
17 Each agent provides this study with a different set of information, and there is a need to have access to three data sets to capture all the variables needed.

Table 12. Description of the Variables

Variable	Description
OWN	= this variable takes the value 0 for DMEs and 1 for MNEs
GRTA	= growth rate of total assets
GRGP	= growth rate of gross profits
GRS	= the growth rate of sales
GPOTA	= the ratio of gross profits to total assets
GPOFA	= gross profits over fixed assets
NPOS	= net profits over sales
EMPL	= the number of employees
SOW	= salaries over wages
TROS	= proportion of training expenditures over sales
EXPOS	= exports over sales
IMPOS	= imports over sales
TRAD	= sales value of goods, sold in the same condition as purchased to total sales
ADOS	= the ratio of advertising expenditures to sales
RDOS	= the ratio of total in-house research and development expenditures to sales
RTOS	= proportion of the expenditures on the account of royalty and technical fees over sales

2.4 Test Results

The first preliminary analysis is comparing average indicators for the two groups of firms. Having specified a number of variables, systematic differences in group means for each proxy variable using the unpaired t-test statistics are tested. Table 13 compares the relevant variables. While growth of total assets and gross profits were not significantly different, growth of total sales is 19 percent for MNEs compared to 6 percent for DMEs and the difference is statistically significant at the 1 percent level.

Looking for profitability differences between the two groups of firms, one can argue that although DMEs share the same average net profit margins, MNEs have higher gross profit margins and this is statistically significant. The DMEs are less likely to avoid taxes in contrast with MNEs which can effectively trade intermediate and final goods using transfer pricing techniques. On average, MNEs employ systematically more labor, use unskilled personnel - as they pay more wages than salaries - but engage in training of their employees. Regarding trade, MNEs export significantly less than the DMEs - 13 percent compared to 22 percent - suggesting that MNEs are on average more local-market oriented (so far still TMRs rather than RPSs or RPM/WPM). Moreover, MNEs import more than DMEs, thus operating as distributors of well-known global products imported from the

parent. So the MNEs in Greece are a part of a wider parent network, distributing high value-added products and enjoying higher gross margins from commercial activities, while trading activity into the Greek food market seems to be an important factor in the formation of gross profits (16 percent for MNEs compared to 11 percent for DMEs).

Table 13. Univariate Mean Difference Tests Between MNEs and DMEs (Independent Sample *T-Tests*)

Variable	MNEs	DMEs	difference	*T-value*
Growth Opportunities				
GRTA	0.1858	0.1520	0.0338	0.56
GRGP	0.1359	0.1486	0.0127	0.07
GRS	0.1904	0.0622	0.1282	3.46*
Profitability				
GPOFA	1.0290	0.6044	0.4246	5.86*
GPOTA	0.4856	0.3637	0.1219	3.95*
NPOS	0.029	0.025	0.004	0.30
Employment				
EMPL	284	236	48	1.77
SOW	1.6292	5.9796	4.3505	1.13
TROS	0.0027	0.0007	0.0020	2.99
Trade				
EXPOS	0.1358	0.2251	0.0893	2.54
IMPOS	0.1279	0.0922	0.0357	2.16
TRADOS	0.1625	0.1101	0.0523	2.52
Intensities				
RDOS	0.0026	0.0006	0.0020	5.73*
RTOS	0.0133	0.0028	0.0105	2.34
ADOS	0.0393	0.0107	0.0286	8.69*

• denote 1% significance level

Regarding technology, MNEs spend systematically more on R&D and royalties and technical fees than do the DMEs. The intensive R&D activity of the subsidiaries in Greece may reflect their need to supply the competitive Greek market (exclusive technology - high inputs royalties - supported by adoptive SL work), but also the need to develop new products (LIL work) that assimilate unique Greek food knowledge. The later products, perhaps synthesizing distinctive traditional Greek food technology with MNE knowledge and overseas market access, may then lead to extensive exports (RPM subsidiary). The existence of a strong

indigenous Greek sector motivates the high technological commitment of the MNE subsidiaries (RDOS and RTOS) in two ways. Firstly, it means that to penetrate the Greek market with their established foods needs intensive adaptation work; so that the TMR elements in subsidiaries need strong SL backing. Secondly, the distinctive knowledge in the Greek food sector may need MNE support to achieve mass market acceptance in wider market areas (RPM behavior) but its effective commercial assimilation by the MNEs (perhaps dilution in synthesis with MNE technology) needs the extensive development work of LILs. Moreover, marketing efforts seem to be an important distinction between the two groups as the MNEs spent nearly 4 percent of sales on advertising expenditures compared to 1 percent for DMEs.

2.5 Regression Analysis

This study uses multiple regression analysis to test the hypotheses presented above. In order to measure the ownership effect on firm performance, a time series of cross-sections for both MNEs and DMEs is analyzed. The basic model is presented as:

[1] Model 1 $P_{it} = a_0 + b_{it} X + u_{it}$

Where P_{it} represents the performance of firm i for the period t and X represents a vector of firm specific explanatory variables. Model (1) imposes complete homogeneity of the performance functions of both groups. To test hypothesis (1) that ownership affects performance, a dummy variable is used to indicate ownership.

[2] Model 2 $P_{it} = a_0 + h_{it}OWN + b_{it} X + u_{it}$

Where OWN is an ownership dummy variable, equal to 1 for MNEs, 0 otherwise. Model (2) assumes that the slope coefficient (b) is the same for all groups, that the error term (u) has the same distribution for the two groups, and that the intercepts for the two groups are different (a_0 and a_0+h respectively). The hypothesis that $h_{it} \neq 0$ is tested by constructing an *F* statistic for the comparison of the two models. (see for example Judge et al 1988, chapter 10).

To test hypothesis 2, that the determinants of performance differ between groups, the performance function is divided into two equations P_M P_D respectively representing MNEs and DMEs.

[3] Model 3 $PM_{it} = a_1 + b_{1it} X + u_{it}$

[4] $PD_{it} = a_2 + b_{2it} X + u_{it}$

In model 3 there is a separate regression relationship for MNEs and DMEs which allows both intercepts and slopes to be different for the two groups. Here, we want to test that $a_1 \neq a_2$ and $b_1 \neq b_2$ *i.e.*, the determinants of performance between the two groups differ. To examine the statistical significance for the heterogeneity (if any) in intercepts, slopes and overall, we make use of covariance analysis, contrasting the residual sums of squares of the restricted model (model 1) with those of the unrestricted models (models 2 and 3). This methodology is consistent with the procedure adopted by Kumar (1990).

2.6 Regression Results

(1) *pooled results*

To test hypothesis 1, equations 1 and 2 are fitted for the whole sample. The pooled data set has a total of 405 observations, 56 DMEs and 25 MNEs for a five-year period. Table 14 reports the estimated coefficients. The OWN variable has a positive coefficient (equation 2) and is statistically significant at the 1 percent level, indicating group heterogeneity and a positive relationship between multinationality and performance. From equation 2 it is inferred that advertising intensity - as a proxy to product differentiation - firm imports, and royalties and technical fees are important determinants of firm performance in the Greek food industry. In particular, the coefficient of advertising intensity is positive and statistically significant at the 10 percent level. The coefficient of royalties and technical fees is positive and statistically significant at the 1 percent level, indicating that imported technology and know-how are used to support the local sales efforts. Also, trade of imported goods seems to be an important element of profitability,

with the coefficient of imports positive and statistically significant at the 10 percent level. R&D and exports seem not to be important determinants of profitability. The training expenditures variable has a negative coefficient and is not significant. One possible explanation for this finding is that R&D and training expenditures may affect firm performance positively in the medium to long-run period but not in the short-run period.

However, it is useful to explain the performance functions of both groups of firms separately given the indication of dummy variable for sample heterogeneity. Serious bias may be incurred if equation 2 is used to represent the pooled data set.

Table 14. Performance Functions of MNEs and DMEs

	MNEs&DMEs		MNEs	DMEs
equation	(1)	(2)	(3)	(4)
dependent	GPOA	GPOA	GPOA	GPOA
explanatory				
INTERCEPT	0.554	0.510	0.624	0.552
OWN		0.270		
		(3.156)[a]		
ADOS	4.492	3.027	3.586	5.077
	(3.239)	(2.102)	(2.152)	(2.519)[c]
RDOS	12.923	0.042	10.129	-9.037
	(0.957)	(0.004)	(1.738)	(-0.527)
RTOS	7.484	7.315	2.723	9.388
	(5.858)	(5.401)[a]	(1.212)	(6.404)[a]
TROS	-1.054	-2.759	5.038	-4.697
	(-1.113)	(-0.290)	(0.621)	(-1.137)
IMPOS	0.751	0.679	1.367	0.265
	(2.352)	(2.232)	(2.116)	(0.918)
EXPOS	-0.010	-0.007	0.728	-0.166
	(-0.099)	(-0.067)	(1.737)	(-1.866)
R^2	0.23	0.26	0.12	0.37
N	405	405	125	280

Figures in parentheses are t-values. Superscripts indicate levels of significance as follows: [a] 1 percent, [b] 5 percent, [c] 10 percent.

2.7 Performance Functions for MNEs and DMEs

To test the hypothesis 2, the MNEs sample has a total of 125 observations, 25 firms for a five-year period, and the DMEs sample

has a total of 280 observations, 56 firms for a 5-year period. Table 14 reports the estimated coefficients. From table 14 (equations 3 and 4) it is inferred that the intercept and the coefficients appear to be quite different for the two groups.

The parameter estimates for advertising intensity in explaining profitability are positive and statistically significant for both groups - with the magnitude being higher for DMEs - confirming that product differentiation is an important determinant for profitability for firms competing and experiencing local market orientation in the Greek food industry. The parameter estimates for R&D discriminate the two groups with significant positive sign in explaining variation in profitability for MNEs, and negative (though insignificant) sign for DMEs, suggesting that R&D is a distinctive strategy for the MNEs. It thus appears that for MNEs the types of roles (SL and LIL) through which R&D helps to support the distinctive elements of the application of their Greek operations do help enhance performance in the short-term period. With the basis on long-established local knowledge Greek enterprises have less need for this support for their profitability. Royalties and technical fees are highly significant with positive sign in explaining variation in profitability for DMEs and positive sign but not significant for MNEs. This result is mainly firm-specific and attributable to the behavior of the larger DMEs which are dependent on imported technology.

Training is significant in neither case. Trade behavior of imported high-value-added products is an important determinant of profitability within the Greek food market. MNEs seem to respond better to demand factors in the domestic Greek market, by increasing the value-added component of their imported products, engaging more in R&D and sophisticated marketing techniques. Indeed it can be safely ascertained that the Greek consumers are requesting higher-quality products, mainly supplied by MNEs and the best performing DMEs. Concerning exports, MNEs perform better due to the efficient combination of OLI factors. Moreover in the equation for DMEs it is inferred that exports are associated with poor performance.

2.8 Testing the Heterogeneity of Groups

The regression analysis indicated group heterogeneity in the performance functions specified. To test for the statistical significance of these findings we made use of covariance analysis. Table 15 shows the outcome of this analysis. The *F* test suggest that the observed heterogeneity of performance functions of MNEs and DMEs is statistically significant at the 1 percent level. This finding supports the initial hypotheses for group differences in intercepts, slopes and the overall performance functions.

Table 15. Results of Heterogeneity Tests

	Hypothesis	H_0	*Ftest/df*	support
(1)	The ownership has an independent influence on firm performance: Test of differential intercepts	$h_{it} \neq 0$	13,6* (1,397)	supported
(2)	The determinants of performance of MNEs and DMEs differ			
	(i) Test of differential slope vectors:	$b_1 \neq b_2$	3,85* (7,389)	supported
	(ii) Test of overall heterogeneity	$a_1 \neq a_2$ & $b_1 \neq b_2$	4,71* (7,389)	supported

* Indicates significance at 1 percent level.

Conclusion

The paper set out by noting the ways in which the intensifying competitive environment forced MNEs to seek new strategies and new roles for their national subsidiaries, including increased need of support from R&D operations. Evidence was produced to show that this dynamic trend affects the MNEs in the food industry, despite the strong persistence of distinctive national food sectors, such as the Greek. The analysis then turns to the Greek industry to investigate elements of the strategic positioning of MNEs' subsidiaries in comparison to the strong but more traditional, Greek firms.

The second part examines the determinants of firm profitability in a sample of Greek food firms in order to test

hypotheses of differences between different types of firms. Using univariate analysis, it has been shown that MNEs experienced higher rates of growth of sales than DMEs. DMEs export more than do MNEs. MNEs have a higher local market orientation, import more finished products for trading purposes in the local market and have higher technological and marketing intensities. Utilizing observations from a pooled sample of 81 firms over a five-year period using multiple OLS regression analysis, and incorporating variables which capture ownership-specific advantages, it has been confirmed that the ownership of firms has an independent influence on performance. The determinants of firm performance differ given that each firm experiences different OLI advantages, particularly between MNEs and DMEs. Technological intensity, import performance and export orientation are found to be important elements to determine profitability differences between MNEs and DMEs in the Greek food industry. Further work is necessary in order to determine the underlying reasons for such differences.

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