

Changing governance patterns in European food chains: the rise of a new divide between global players and regional producers *

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This article traces general trends in European food markets and the strategies of leading firms in selected European food chains (milk, sugar, cereals, meat). The analysis highlights the emergence of a growing divide between the largest downstream firms on the one hand and specialty and upstream producers on the other. The former have adopted globalization and financialization strategies over the past decade and promoted global sourcing under the deregulated conditions of European primary food and agricultural markets while the latter remain anchored in national or regional markets and production systems. Implications of these findings for both Global Value Chain (GVC) analysis and European policy are discussed.

Key words: Global Value Chains, Europe, CAP reform, food industry

Introduction

European food industries have historically been characterized by significant public intervention in regulating agriculture and food production. Building on national agricultural policies launched after World War II, the European Common Agricultural Policy (CAP) established detailed schemes of a Common Market Organisation (CMO) in agricultural and food industries during the 1960s, including various forms of price support, production incentives and market protection, with the objectives of achieving self-

* This article is based on the authors' contribution to the report "Study on Competition and Concentration in the Agro-food Sector," Aragrande, M (coord.), Dipartimento di Economia e Ingegneria Agrarie (DEIA) Università degli Studi di Bologna, prepared for the European Commission, July, 2003. The authors wish to thank two anonymous reviewers for supportive and useful comments on the theoretical implications of empirical results presented in this article.

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sufficiency in agricultural and food supply and ensuring stable income for European farmers. The CAP entered into a phase of crisis in the mid-1980s, when it continued to stimulate production increases in the context of stagnating demand both within and outside European markets, thus generating huge stocks of unsold agricultural products. In the face of rising liberal doctrines in the international political arena, and the need to control skyrocketing budget expenditures, the EEC – and subsequently the EU – implemented a series of major reforms in 1992, 2000 and 2003, with the objective of reintroducing market forces to the European agricultural and food production system. In 2006, a further set of reforms were introduced aimed at the sugar industry – an industry that had remained largely untouched by previous regulatory changes thanks to the strong lobbying capacity of European sugar producers and upstream beet-producing farmers.

The guiding principles of these reforms have been the paradigm of free competition according to which economic welfare is enhanced by market liberalization. While European agri-food producers would lose the rents generated by the traditional system of market regulation – or at least part of these rents affected by liberalization policies – and a number of them would be pushed out of the market, deregulation was considered to benefit consumers and tax-payers – who supported agricultural rents either directly through public subsidies or indirectly through higher retail prices for food products – together with foreign competitors who would gain greater access to the European market. Major agricultural exporting countries, including members of the Cairns Group¹, were expected to become the main beneficiaries of the liberalization of European markets and had an influential voice in the agricultural reform debate at the World Trade Organisation over the 1990s and early 2000s. Agricultural reforms were also considered to advantage food producers operating in the downstream segment of European agri-food chains by allowing greater market choice in their sourcing of agricultural and primary processed inputs. However, they met strong resistance from upstream producers, particularly in the sugar industry where the European Association of Sugar Producers sought to preserve CAP protection on account of the lower environmental, social and product quality standards adopted by large competitors such as Brazil, and of losses incurred by European sugar producers if global competitive forces were to be unleashed in the industry.

¹ The Cairns Group was formed in 1986 and now includes 17 countries from Latin America and the Asia-Pacific region, as well as Canada and South Africa.

This article aims to shed light on such conflicting positions in the CAP reform debate by using a Global Value Chain (GVC) perspective to analyze changes in the competitive dynamics and governance patterns of selected European food chains from the late 1980s to the early 2000s. As laid out in the seminal work of Gereffi (1994), the earlier GVC analysis identified large branded firms and retailers in the Western hemisphere as key players – “lead firms” – in the deployment and continuous redeployment of production systems involving networks of affiliates and suppliers on a world scale.² It is thus from the perspective of major European firms, including large brand firms but also primary processing producers, that changes in the governance of European food chains will be analyzed in this article. Our study focuses on products and firms belonging to the meat, cereals, sugar and milk chains,³ and draws on databases on food markets (Food for Thought) and food transnational corporations (TNCs) (Agrodata), as well as interviews conducted with European industry associations and leading food TNCs in 2002–2003 (see appendix 1). First, we highlight the emergence of a new type of “global” food products on European markets, and the rising heterogeneity of product/market strategies adopted by major food producers in Europe. Second, we identify a new divide between global players on the one hand, i.e. the largest firms operating downstream European food chains (secondary processing), and regional producers on the other, including both upstream producers (primary processing) and specialty downstream firms. We differentiate the two camps on the basis of a typology characterizing the ownership structure, chain position, market, production and sourcing strategies of leading TNCs in our selected European food chains. The theoretical and policy implications of these empirical results are discussed in light of recent advances in the socio-economic literature on GVCs and current orientations in EU food and agricultural reforms.

² Gereffi (1994) initially referred to Global Commodity Chains (GCCs) and adopted a Global Value Chain (GVC) terminology in subsequent publications including Gereffi and Kaplinsky (2001) as well as Gereffi, Humphrey, Sturgeon (2005).

³ The choice of chains studied was made by the European Commission, for which this research was undertaken, on the basis of selected product categories: (i) sugar, soft drinks and confectionaries in the sugar chain, (ii) butter, cheese and ice cream in the milk chain, (iii) animal feed, starch, flour, bread, biscuits and pasta in the cereal chain, and beef, pork, poultry, delicatessen and frozen prepared meat in the meat chain.

1. Downstream European food chains: the rise of global market strategies

The analysis of market trends and market concentration ratios allowed us to establish a distinction between “global” products developed and marketed by large TNCs, and “local” or “generic” products belonging to less concentrated industry segments (subsection 1.1). Focusing on the top 22 largest producers in our selected European food chains, we computed a globalization index showing the rise of global downstream firms since the late 1980s, and the persistence of regional strategies for firms involved in specialty as well as generic, primary processing production (subsection 1.2).

1.1 “Global” versus “local” and “generic” products

In consumer markets, food is certainly one of the most location-specific products, anchored in life styles, customs and habits developed over time, as well as the level of development. Inside Europe, strong differences persist between countries; for example, the share of food expenditures in the household budget is twice as large in Portugal (20%) as in the United Kingdom (9.9%).⁴ Nevertheless, homogeneous consumption patterns are beginning to emerge in world markets, across countries and macro regions, resulting in the rise of high-growth “global” product segments. A.C. Nielsen (2002) found that seven product categories were exhibiting growth rates of 10% or more in 2001 in the majority of the 47 countries under study. With the exception of alcoholic beverages, these products are related to the consumers’ preferences for health (dairy products, light and vitamin-enhanced products), ease of use, innovation and sophistication (prepared meals, bottled waters). Similar trends could be observed in the six main European food markets over the 1990s for products in the milk, meat, cereals and sugar chains (table 1).

While food consumption grew at the average annual rate of 3% in these markets, most product categories exhibiting superior growth rates in table 1 have the characteristics of sophistication (soft drinks, chewing gum), newness (bread spread), ease of use (prepared meals, melted cheese), health (artificial sweetener) or fitness (energetic sweets in sugar confectionary) – all associated with key consumption trends in the emerging global segment of the world food market. By contrast, the majority of product categories exhibiting sales growth rates below 3%

⁴ Eurostat, 2000, <http://europa.eu.int/comm/eurostat>.

Table 1. Retail sales of selected food products in six EU countries*
(Millions of euros)

Product	1991	2001	Average annual growth rate (%)
Artificial sweeteners	242	572	13,7
Chewing gum	1 161	2 267	9,5
Delicatessen products	10 195	18 048	7,7
Dairy spreads	272	428	5,7
Soft drinks	13 441	20 845	5,5
Frozen convenience meat	4 278	6 020	4,1
Sugar confectionery	6 781	9 416	3,9
Melted cheese	2 161	2 927	3,5
Poultry	18 855	25 903	3,2
<i>Average annual growth rate of food consumption expenditures**</i>			3,0
Savoury biscuits	866	1 073	2,4
Bread products	32 132	38 596	2,0
Sweet biscuits	7 377	8 762	1,9
Natural cheese	22 075	26 212	1,9
Pork	30 625	36 289	1,7
Dry pasta	3 641	3 947	0,8
Flour	547	593	0,8
Ice cream	9 665	10 401	0,8
Butter	5 811	5 616	-0,3
Sugar	2 961	2 723	-0,8
Beef	41 719	30 371	- 3,1

Source: Authors' calculations based on data provided by Food For Thought, 2003, Geneva.

* Belgium-Luxembourg, France, Germany, Italy, Spain, United Kingdom

** Calculation based on data from Euromonitor for 1990 and 2000 (local currencies and current prices).

were either “generic” products such as flour, sugar, butter and meat, or “local” specialty products such as natural cheese, both incorporated into traditional consumption patterns. A few low-growth products (savory and sweet biscuits, ice cream) have also been partly touched by global trends as these can cut across traditional products categories. For instance, the practice of “snacking” affects ice creams, biscuits as well as sugar confectionaries that might be sold under the same brand, such as Mars, in the global product segment. As a consequence, a given food category such as ice cream might include both highly sophisticated products, such as those developed and marketed by Unilever, and traditional, local products such as the Italian craft-produced ice cream. Overall, applying the Fisher’s exact test of independence to our 20 product categories shows that the association between products’ sales growth rate and their

characteristics (i.e. global versus generic or local) is significant with a P value of 0.032.⁵

Table 2 provides additional information on these emerging market features by distinguishing four types of products on the European market: branded, private label, specialty and generic products. The ranking of products according to the concentration ratios in the European markets, i.e. the market share of top four producers (CR4), shows that “global” products such as chewing gums, artificial sweeteners, and soft drinks exhibit significantly higher concentration ratios (above 50%) than do “generic” and “local” products such as bread, flour, butter, meat, and natural cheese, for which CR4 ratios are in the range of 12% to 30%.⁶ As discussed further in the next section, high concentration ratios in the “global” product segment stem from the leading market positions occupied by large TNCs, such as Wrigley in chewing gum, Coca Cola, PepsiCo and Cadbury Schweppes in soft drinks, and Unilever and Nestlé in ice cream, which have developed a capacity to sell their branded products on several major European markets. A few large retailers have also set up sourcing and distribution systems at the European level with these transnational producers, thus contributing to promote the diffusion of their global products across Europe (Rabobank, 2001). Accordingly, large branded producers are emerging as major lead firms in the “global” segment of the European food market.

The market shares of leading producers of local and generic products have not reached such a European scale. Interestingly, table 2 shows that private labels tend to be more important, with market shares of 20% or more, for generic products, such as butter, flour and bread, than for most global-type product categories, while meat continues to be predominantly sold without branded labels. Lead firms appear to be emerging here in the retail segment, rather than manufacturing, of European food chains. Retail concentration has indeed doubled in Europe during the 1990s, from a top five retailers’ market share of 13% in 1990

⁵ The Fisher’s exact test is used to calculate an exact probability value of the relationship between two dichotomous variables, as found in a two by two cross-table. It works in the same way as the Chi-square test for independence, but can be used when the number of observations is small (less than five) in one of the cells. The table program used here can be found at <http://home.clara.net/sisa>.

⁶ Using the Fisher Exact test of independence in a 2 by 3 table, a classification of food products into three categories of high (above 50%), medium (above 30% and below 50%) and low (30% or less) CR4 levels shows that the relationship between concentration levels and average annual sales growth rate (above or below 3%) is significant with $P = 0.009$.

Table 2. Market share of top four producers (CR4), retailers' private labels, craft production, and no-label products in Western Europe*, December 2001

Products	CR4 (%)	Private label (%)	Craft production (%)	No-label products (%)
Chewing-gum	75.8	1.6		
Savoury biscuits	68.5	20.1		
Artificial sweeteners	66.0	12.6		
Soft drinks	64.0	15.7		
Ice cream	58.3	14.7	11.2	
Dairy spreads	56.3	8.8		
Melted cheese	54.3	12.6		
Sweet biscuits	47.9	22.4	0.3	
Sugar	41.7	15.9		
Dry pasta	38.2	23.7	2.4	
Sugar confectionery	35.1	14.7	0.1	0.2
Frozen prepared meat	31.2	19.7		1.1
Natural cheese	30.1	16.7	1.0	1.8
Delicatessen	26.1	20.4	15.1	13.4
Butter	26.5	21.2		3.1
Flour	25.6	32.1		9.7
Beef	19.4	15.2		69.1
Poultry	18.1	14.8		31.9
Pork	14.0	10.3		69.6
Bread	12.1	22.7	53.6	

Source: Food for Thought, 2003, Geneva.

Notes: Craft production is defined as direct sales from producer to consumer (e.g. bakeries, delicatessen). No-label products are low-cost generic products sold without any branding

* EU15, Switzerland and Norway.

to 26% in 2000,⁷ although it remained much higher in Northern Europe than in Southern Europe so that on average, retail concentration did not come near the level in the most concentrated segments of manufacturing in European food chains. With the exception of Carrefour, most retailers had not reached leadership positions in a significant number of national markets in Europe by the early 2000s. However, retailers' buying power within the chain was strengthened by a growing centralization of sourcing. For instance, the top six central buying offices accounted for as much as 65% of retail chain food sales in Italy, up to 72% in the United Kingdom and 98% in France in 2000.⁸ Dominant players in European food chains could thus be identified as either major producers in the case of branded products, or large retailers for generic products sold under

⁷ Here Europe refers to EU-15, Norway and Switzerland; M+M Planet Retail, www.planetretail.net; M+M Eurodata, www.mm-eurodata.com.

⁸ Institut de Liaison et d'Etudes des Industries de la Consommation, 2000.

private labels. For other types of products, leadership in European food chains remained much more dispersed.

1.2 Assessing market globalization of large food TNCs in Europe

This section seeks to identify the international scope of activity exhibited by top food producers in the selected European food chains. A distinction is drawn between global strategies, characterized by homogeneous market approaches and the search for economies of scale across world macro regions on the one hand, and more home region oriented strategies by which firms concentrate a large proportion of their activities in the home region and operate a smaller range of business activities outside, on the other. We computed an index of “sector globalization” to assess the extent to which a firm has developed homogeneous product-market approaches across world macro regions. The index is obtained by dividing the total number of business segments the firm operates in outside a company’s home region by the total number of business segments within its home region. A globalizing firm would have about the same type and number of businesses in its region of origin as in other regions, whereas a more home region oriented firm would typically have a greater variety of businesses in its home region than in other regions.⁹ Our methodology¹⁰ combined this sectoral index with an index of “geographical globalization” measuring the scope of a firm’s activity outside its country *and* macro region of origin. This was obtained by multiplying two measure: the share of foreign affiliates in the firm’s total number of affiliates; and the proportion of macro regions where the firm’s affiliates are established in the total number of world macro regions used in this study.¹¹ For both indicators, values close to 1 indicated high globalizing intensity in a firm’s strategy while values closer to zero signalled a primarily home-oriented strategy. Globalization indices were computed for 22 leading producers in the meat, cereal, sugar and milk chains. This sample consists of firms which are among the top four European leaders in each of the product categories listed in

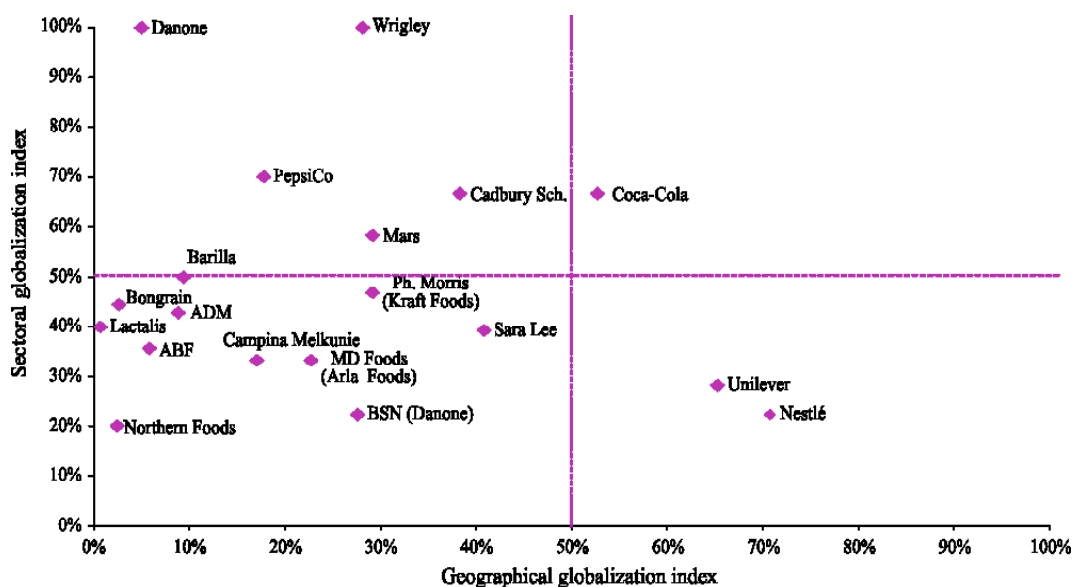
⁹ The case where a food processing firm would have a greater number of activities outside its home region than in its home region has not been observed in our sample.

¹⁰ Tozanli (2005) developed this methodology and applied it to the top 100 world food TNCs included in Agrodatabase.

¹¹ Africa, Latin America, Asia, North America, Western Europe, Eastern and Central Europe, Mediterranean and Oceania.

table 2, and belong to the world top 100 Agrodata database in 2002.¹² Appendix 2 provides information on the country of origin, type of chain position, majority ownership, product portfolio, total sales and geographical scope of these 22 firms, while appendix 3 provides values for the computed globalization indices. Figures 1 and 2 indicate their degree of globalization in 1988 and 2002 respectively. Firms located in the upper right quadrant of the figures exhibit high levels of both sector and geographic globalization, whereas firms located in the lower left quadrant are following home region oriented strategies both in terms of geographical and product scope. The upper left quadrant corresponds to the strategies by which firms operate a similar range of business within and outside its home region, but the presence outside the home region is relatively limited. In the lower right quadrant, firms exhibit high levels of internationalization outside their macro region, but the range

Figure 1. Globalization of leading TNCs in selected European food chains, 1988



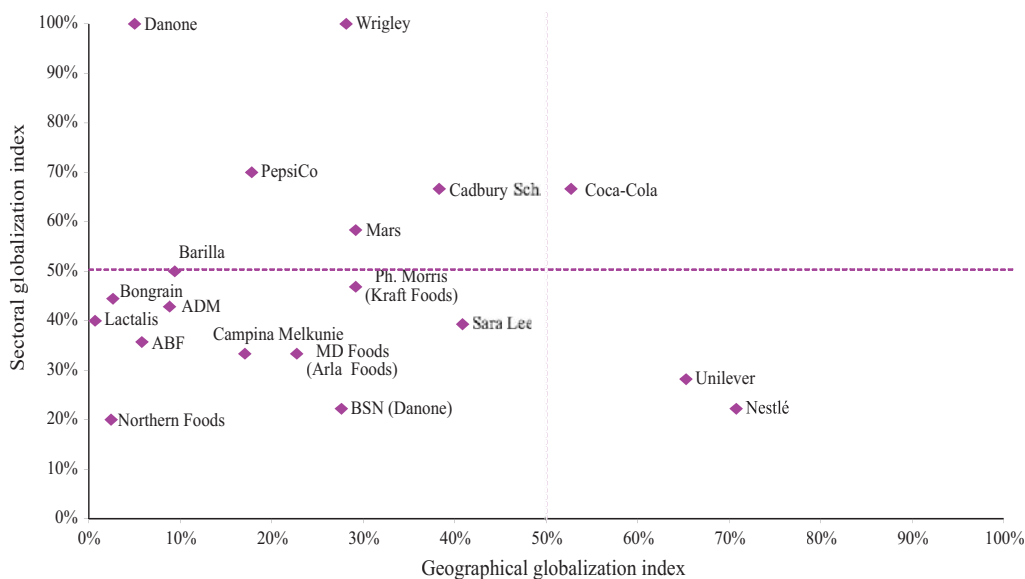
Source: Authors' elaboration based on Agrodata.

¹² The whole business portfolio of each firm was taken into account in computing globalization indexes. Three of the firms belonging to the sample in 2002 had not entered Agrodata list of top 100 by the late 1980s (Kerry, Sudzucker, Danish Crown), so that the sample is of only 19 companies for 1988. Out of 22 firms, only 7 are mainly positioned in upstream primary processing activities, both because the world largest food TNCs tend to focus on downstream, higher value secondary processing activities, and because market shares are assessed in Table 2 with reference to final markets, so that a number of primary processing firms with marginal presence on end markets, such as Cargill, do not appear in the sample.

of businesses it operates outside the home region is limited compared to those within the home region.

Comparing the two graphs reveals a striking evolution from home-oriented towards global strategies in the sample studied. In 1988, only Coca Cola exhibited significant levels of both geographical and sector globalization, while Unilever and Nestlé had developed a strong presence outside their macro region of origin but in a narrower range of businesses. A majority of firms operated mainly in their home macro region. By 2002, nine downstream firms had joined Coca Cola into the upper right “global” quadrant of figure 2. Another five firms had homogenized their business portfolios across regions either in upstream, primary processing (Campina, ABF, ADM) or in downstream specialty segments (Barilla, Bongrain) while remaining predominantly in their macro region of origin, thus moving from the lower left to the upper left quadrant in figure 2. Only five out of 22 firms continued to follow home region oriented strategies, i.e. remained in the lower left quadrant of figure 2, including two new comers in the world top 100 food TNCs (Sudzucker, Kerry). A growth path could thus be identified for about half of the sample between the late 1980s and early 2000s, based on the development of global businesses across major world macro regions. By contrast, other firms did not reach such levels of globalization, highlighting the existence of heterogeneous market strategies across European food chains.

Figure 2. Globalization of leading TNCs in selected European food chains, 2002



Source: Authors' elaboration based on Agrodata.

2. Changing governance patterns in European food chains

By linking the types of international strategy identified in the previous section with a variety of firms' characteristics including their chain position, product and market approach, size, ownership and country of origin – see appendix 2 – as well as their production and sourcing strategies, distinct profiles of leading producers in European food chains could be identified. Table 3 summarizes these various dimensions, highlighting differences between global firms on the one hand, and regional firms on the other. The statistical significance of differences observed along a number of variables was assessed using the Fisher's exact test of independence, for which P values are indicated in the last column.

First, all the global firms with a homogenized business activities – located in the upper right quadrant of figure 2 – were operating in the downstream segment of food chains, i.e. using primary processed materials such as sugar and flour to manufacture their own products for the end market. Although five additional downstream firms followed regional strategies, the specificity of global firms' downstream position was significant with a P value of 0.005. Second, global firms were also

Table 3. A typology of producers in European food chains

Characteristics	Global firms (n=10)	Regionally oriented firms (n=12)	Fisher Exact Test
Chain position	Downstream (10)	Upstream (7) Downstream (5)	P = 0.005
Size (sales value, 2002)	Above \$8 billion. (9)	Below \$8 billion. (11)	P = 0.0002
Ownership control	Institutional investors (9)	Families (4) Upstream farmers (5)	P = 0.003
Country of origin	United States (6)	Europe (11)	P = 0.015
Business and marketing strategy	Global brands Global products	National and some regional brands Local (specialty) and generic (primary processing) products	
Production	Macro-regional factories	National factories	
Sourcing	Potentially global	Locally embedded	

Source: Authors. Numbers in parenthesis indicate the number of firms meeting a given criteria in each category; ex: United States (6) indicates that 6 out of 10 global firms were of American origin.

the largest in our sample, with sales value above \$8 billion in 2002, while only one regional primary processing firm, ADM, reached such sales level. Conversely, only one highly specialized global firm, Wrigley, exhibited sales value below \$8 billion in 2002. The relationship between large size and a global strategy was significant with a P value of 0.0002. Third, global strategies are significantly associated with the strong presence of institutional investors in the firm's ownership structure. Among global firms, only Mars remained under private family control. By contrast, ownership of a majority of regional firms was controlled by either families or upstream farmers. Six global firms were also of American origin, whereas most regional firms were European, with a P value significant at 0.015. A downstream chain position, large size, institutional ownership and American origin were thus key characteristics of the global segment of European food chains, contrasting with the smaller size, family and farmers' ownership, European origin and varied chain positions associated with regional strategies. Although other variables listed in table III could not be systematically explored for all firms in the sample, selected case studies and interviews also allowed us to identify distinct production and sourcing patterns for global versus regional producers.

2.1 Global players at the downstream end of European chains

The largest downstream firms in our sample pursued a market strategy typically characterized by the search for global leadership in selected core businesses. Organic growth was achieved mainly through the sophistication of marketing and product development responding to – and enhancing – consumer desires for health, thinness, fitness, newness as well as convenience in use and preparation. With regard to our specific product categories, the 2003 Food for Thought database indicated that global firms had reached European leadership in high growth, global products such as chewing gum (Wrigley, Cadbury), soft drinks (Coca Cola, PepsiCo, Cadbury Schweppes), artificial sweeteners (Sara Lee), sugar confectionary (Cadbury, Mars), dairy spreads (Unilever), and melted cheese (Kraft Foods). They had also built leadership in specific segments of slower-growth product categories such as ice cream (Unilever, Nestlé) or biscuits (Danone). Overall, the intensity of marketing investments made by global food firms placed them among the world top 100 'global marketers' identified by Advertising Age (2001) across industries, with advertising budgets above \$200 million in 2000.

In order to increase returns on these large intangible investments, global firms searched to deploy “umbrella” brands by stretching core brands on a growing number of products and countries, as illustrated by the recent launch of the global ice cream Heartbrand by Unilever. Attached to well-known national brands, Heartbrand came with a sophisticated range of product options, a heavy advertising campaign at the European level, and innovative forms of distribution. Other examples of umbrella brands in our sample included Nestlé, Mars, Lu (Danone) and Cadbury.

A pattern of international growth based on financialization

The global growth of large downstream firms also followed the strategy of selling off businesses with limited potential in order to expand in selected core businesses through mergers and acquisitions. Data for the world top 100 food TNCs indicated that 3,926 major corporate structural changes, including mergers, acquisitions, restructuring and disinvestments, had been recorded between January 1987 and June 2003, of which about two thirds (1,439) took place in Europe (Ayadi, Rastoin and Tozanli, 2004). A typical case is provided by Danone, refocusing on three core businesses including bottled waters, dairy products and biscuits while disinvesting from beers, pasta products, convenience foods, condiments and packaging between the mid-1990s and the early 2000s, thus extending its global reach as shown by its trajectory in figures 1 and 2 – although Danone has not yet developed a strong presence outside Europe compared with major competitors such as Nestlé.

The importance of institutional investors in the ownership structure constituted another distinctive feature of global firms, not independent from their growth strategies based on the search for global leadership. Since institutional investors are essentially “money managers”, investing household savings under conditions of tight competition rewarding short-term, relative performance, their growing presence in the ownership structure of large publicly traded corporations over the last decade has resulted in growing pressures on top management to increase returns on capital and a related “financialization” of corporate strategies, defined as the prioritization of objectives to boost “shareholder value” in the strategic management of large corporations (Froud *et al.*, 2000; Lazonick and O’Sullivan, 2000; William, 2000). In mature markets such as agri-food, large publicly traded corporations have typically searched for higher financial returns on the basis of enhanced branding and product innovation and global scale economies. Conversely, these firms

have relied on financial markets to support their international growth by financing acquisitions (Palpacuer *et al.*, 2006). As a consequence, globalization and financialization appeared to be closely intertwined in the corporate strategies of large downstream producers in European food chains.

From macro-regional production systems to global sourcing?

Global strategies had implications not only for the marketing strategy of global firms, but also for their production process. Interviews conducted by the authors indicated that global firms had launched a restructuring process aimed at developing large macro-regional factories specialized by product lines and serving the entire region, with the objective of generating scale economies and productivity increases. These macro-regional factories had been progressively replacing traditional national factories through continuous restructuring and cost cutting programmes, involving plant closures and lay-offs at the national level, together with modernization and employee training in selected macro-regional production sites. For instance, Danone launched in 2001 a restructuring programme for its entire European biscuit division, revamping 16 industrial sites into three categories: (i) five factories destined to become macro-regional production sites, (ii) five factories to be restructured through production transfer towards larger plants and lay-offs, and (iii) six factories to be closed in the following years. In the early 2000s, Nestlé launched its own version of a macro-regional production system in ice cream, distinguishing between “global factories” that would perform initial production stages for global or macro-regional markets, and “finishing factories” in which products would be adapted to local markets. According to Peter Brabeck, CEO of Nestlé: “All aspects of the product perceived by consumers should to remain local, the rest will be global”.¹³ Authors’ interviews further indicated that global firms had been seeking to concentrate on higher value manufacturing by outsourcing lower value, upstream stages of their production process, including the primary transformation of cocoa (Nestlé), oilseeds (Unilever) and the collection of milk (Danone).

¹³ Sources: company press releases, 2001 (Danone), RIA, July 2001, n° 615, p. 24 (Nestlé).

The adoption of global strategies in marketing and production entailed a centralization of support functions such as sourcing, aimed at controlling and coordinating the activity of local buyers. In the firms studied, such centralization relied on new information technologies, including shared internet platforms such as *CPGmarket.com* launched by Danone and Nestlé in the early 2000s. Although management discourses emphasized that such tools primarily aimed at increasing the efficiency of a firm's internal buying departments, centralization also allowed large volume buying and greater price pressures on suppliers. Nestlé – one of few TNCs publishing data on production – indicated that the share of raw materials in its production cost had already declined from 28% to 23% between 1990 and 2000.¹⁴ The company launched GLOBE (Global Business Excellence) in 2000, a restructuring programme aimed at optimizing and standardizing management methods across divisions with the objective of increasing cost efficiency.

The globalization of sourcing would constitute the next logical step following such centralization, allowing large downstream firms to source components and raw materials on a world scale. Although a number of restrictions have historically been placed on European agricultural and primary processed imports, such option has been facilitated by recent technological and regulatory developments. Authors' interviews indicated that improvements in transportation technologies had reduced geographical constraints in terms of suppliers' proximity for the sourcing of perishable products. The use of refrigerated cargos now allows the long distance transportation of fresh meat, for instance, so that products can travel overseas for several weeks before reaching retailers' shelves or downstream firms' processing factories. Global firms are also said to have modified their product content in order to improve the transportability and conservation of ingredients. In ice cream, for instance, this could be achieved by substituting milk powder for fresh milk – to the extent allowed by European product regulation, itself under pressures from global producers towards reduction and simplification. In the milk, cereals and meat chains, regulatory changes through CAP reforms since the early 1990s have increasingly allowed the entry of foreign products on the European market. Only in the sugar chain, had highly concentrated and politically powerful national upstream producers been able to preserve a strong market protection up to the mid-2000s, although the 2006 reform adopted by the European Commission is finally introducing significant deregulation to this industry.

¹⁴ Source: annual reports.

2.2 Regional producers in upstream and specialty production

With the exception of the upstream United States producer, ADM, regional producers in our sample were of European origin and had not built a significant presence outside their macro region by the early 2000s. These firms were among top four producers in low growth, low concentrated end European markets for generic and specialty products such as sugar (ABF, Sudzucker), bread and pasta (Barilla), natural cheese (Bongrain, Lactalis), butter (Arla, Campina, Lactalis), meat (Danish Crown), and flour (ADM), as well as higher growth but weakly concentrated product segments such as delicatessen (Kerry, Northern Food) (Food for Thought, 2003).

Specialty or generic production

Two main types of market strategy and ownership patterns could be identified among these producers. Regional, family-controlled specialty producers formed the first group. It was adopted by a number of downstream firms (Lactalis, Bongrain, Barilla) that had developed homogeneous businesses across Europe and vertically integrated the upstream primary transformation of agricultural products. The French Bongrain and Lactalis were collecting milk for their cheese production, while the Italian dry pasta producer, Barilla, owned cereal-milling facilities. Lactalis, initially positioned on a broad range of milk-based products, moved out of easily transportable commodities, such as milk powder, in order to focus on specialty products. These medium-sized, Southern European downstream firms were also building regional brands by expanding well-known national brands such as the French cheese brand Président owned by Lactalis, or the Italian pasta brand Barilla, in foreign markets. Their specialty product strategies were associated with a strong control of families on firms' ownership. After revamping the leadership of the company in the mid-1990s, the Barilla family increased its control from 51% to 85% of the firm's ownership between 1996 and 1999, with the explicit aim of reducing the risk of a foreign takeover. Likewise, the Bongrain family owned over 80% of shares in its company, while Lactalis remained privately owned by the Besnier family. A few downstream firms (Uniq, Northern Food) departed from such family-based ownership arrangement. They struggled with diversified national business portfolios and failed to promote a regional specialty market approach. Uniq and Northern food have gone bankrupt

and been sold to institutional investors, although these invested on their own capital resources and not – as done in global firms – as part of their fund management activities. As indicated in figure 2, regional strategies can also be adopted by upstream producers such the cooperative, Danish Crown, reaching a sectoral globalization index of 100% in its region of origin in 2002.

The second group consists of upstream producers that had launched diversification strategies either into the primary processing of other food chains, into the downstream stages of their own chain, or in unrelated secondary processing businesses. Horizontal diversification included sugar producer Sudzucker's moves into animal feed, cereal processing and sweeteners, as well as ABF's extension from cereal processing into sugar, animal feed and seed processing. Vertical downstream diversification strategies have been a distinctive feature of Northern European producers in the milk chain (Arla, Campina), leading to the development of a broad range of milk-based products. Unrelated diversification strategies included investments in ready-to-eat products (Sudzucker) or fruit juice (Arla). In our sample, ADM was the only primary processing firm significantly engaged in building global leadership in core businesses through overseas investments, as illustrated by its leaning towards the upper right quadrant in figure 2. By contrast, European upstream producers had favoured CAP-protected exports over foreign investments in developing world market sales. Under the combined effect of rising non-European competitors, declining EU regulatory support, and in some cases stagnating world demand, their international competitiveness sharply declined during the 1990s, resulting in large losses in their world export market share.¹⁵ Being specialized in generic products, these producers could not easily have adopted differentiation strategies that might have provided a non-cost competitive advantage over non-European suppliers. On the other hand, as volume producers, they were no longer cost competitive *vis-à-vis* producers in emerging countries and even United States producers, as they actively invested in lower cost overseas production facilities since the late 1990s.

¹⁵ The share of EU exports in world export volumes declined from 34.1% to 6.3% in beef and veal, from 36.2% to 21.4% in butter, 24.4% to 14.1% in wheat flour, 50.4% to 38.4% in refined sugar, and 52.8% to 32.5% in milk powder between 1990 and 2000 (FAO database, 2001).

Locally-embedded supply chains

Most regionally oriented producers in our sample remained anchored in European upstream chains on the basis of sourcing or ownership linkages in the early 2000s, with half of them belonging to farmers under cooperative or private status. Beyond the presence of agricultural producers in the ownership of many primary processing firms, the perishable nature and difficult transportation conditions of agricultural raw materials generated interdependencies between agricultural producers and primary food processors. In the sugar chain, for instance, refineries worked in close collaboration with sugar beet cultivators, and processing plants are located near sugar beet plantations. In the milk and meat chains, close relationships has been developed between livestock farmers and slaughter houses or dairy producers. Major primary food processing firms had thus established high volume production plants in proximity to large EU agricultural production pools. They provided regular outlets for agricultural producers in these regions and benefited from CAP protection through CMOs in various commodity markets. Buffered from international competition, European primary processing firms were able to build local oligopolies in major European agricultural regions. Examples include, in the milk chain, large dairy co-operatives such as Campina, absorbing 50% of annual raw milk production in Holland in 2001; Arla Foods, with control over 90% raw milk supply in Denmark and 66% in Sweden in 2001; Lactalis, controlling up to 68% of annual raw milk production in the leading milk producer region of Normandy in France in 2000.¹⁶ In the sugar chain, major producers also built control over sugar beet production pools in the EU. Sugar refiners developed long-term relationships with upstream beet producers, signing up annual contracts and providing agricultural inputs and technical assistance. In European meat chains, slaughter houses were established in regions specialized in husbandry. For instance, Danish Crown played an important role in absorbing and coordinating upstream production in Denmark. Authors' interviews indicated that interdependencies were looser in the grains chain, however, due to easier transportation conditions for this commodity. With this exception, European primary producers had significant vested interests in national production facilities that became threatened, under conditions of market deregulation through CAP reform, both by the rise of non-European competitors on world primary processed food export markets, and by global downstream firms' greater freedom to search for

¹⁶ *Source:* Agrodata 2001, Chambre Régionale d'Agriculture de Normandie, 2001.

non-European lower cost producers for supplying the European market. Authors' interviews with European business associations indicated that in anticipation of further market losses for European production, a number of leading upstream firms had actively engaged in investing in overseas production facilities.

2.3 Some theoretical and policy implications

What are we to make of this growing divide between upstream and downstream, global players and regional or national producers? How do such findings contribute to the broader debate on governance patterns in the GVC literature, and what are their implications from a policy perspective? We believe that several inferences can be drawn on the basis of our identification and characterization of diverging profiles and trajectories among large firms in the European food industry.

Changing governance patterns in GVCs

First, by highlighting the rise of “downstream power” in GVCs, we provide supporting evidence to the analysis of the changing governance patterns in the age of global capitalism by Gibbon and Ponte's (2005), who have been among the few contributors to the governance debate to take into account changes towards financialization and globalization. In characterizing such changes, however, they focused on the rise of top international retailers and only touched upon key strategic orientations of large food TNCs towards financialization, global branding, oligopolistic competition and the outsourcing of production. Our analysis of major food TNCs in Europe thus provides complementary evidence of the emergence of global, financialized firms located in the downstream segment of European chains and exercising significant market power over the upstream part of these chains.

We also agree with Gibbon and Ponte (2005) in that “the original distinction made by Gereffi (1994) between buyer-driven and producer-driven forms of governance remains a key one for understanding current changes in the global economy” (p. 164). By combining data on consumption trends, market concentration and product branding, we were able to identify distinct types of lead firms in various segments of the European food market including, on the one hand, large producers specialized in high growth, sophisticated global products that still performed in-house a major part of manufacturing activities and, on the other hand, large retailers developing their own brands for generic

products and exercising strong buying power *vis-à-vis* primary food processing producers. Although in traditional chain structures, retailers are located a step further downstream than large producers, in current chain configurations both types of lead firms hold direct control of consumer-related branding and product development activities, as retailers have become increasingly successful in marketing private labels and branding. Such intangible activities are key sources of market power in the global economy thanks to their high rent-generating capacity (Kaplinsky, 2000; Palpacuer, 2000a; Rabat and Kim, 1994) and to their “parameter setting” role (Humphrey and Schmitz, 2001) allowing lead firms to define what is produced and – to a varying degree – how it is produced upstream the chain. Both branded manufacturers and mass retailers are thus developing new ways of building and maintaining market power to “drive” GVCs, even though the strategic role of branding and product development activities was not emphasized in Gereffi’s (1994) initial rendering of the typology.

It is important to note here that in highlighting the rise of global financialized “drivers” downstream European food chains, our contribution relates to the “overall form of governance” to be distinguished from the “forms of coordination” by which activities are organized in GVCs (Ponte and Gibbon, 2005, p. 3). Palpacuer (2000b) similarly argued for the need to differentiate between the notion of power, relating to how resources and rents are *distributed* within the chain, and the notion of coordination, pertaining to the ways in which resources are *used* in productive processes within the chain. For instance, in their influential article on GVCs governance, Gereffi *et al.* (2005) elaborated on the forms of coordination characterizing various types of chains while leaving aside the broader perspective on power initially envisioned by Gereffi (1994) and restated by Gibbon and Ponte (2005). Conversely, the characterization of coordination modes used by food TNCs in managing their relationships with suppliers falls beyond the scope of the current study focusing on sources of power and power distribution within European food chains.

The spread of a global model and its geographical consequences

Our results also tie into a broader debate on the global nature of contemporary capitalism. The emergence of a GVC perspective fostered such debate in the 1990s with regard to the national versus global character of new forms of economic organization, with Whitley (1996) arguing against Gereffi (1996) that national business systems, rather than

GVCs, remained more prevalent in shaping contemporary industries. The discussion continued in subsequent years over the diffusion of a “shareholder” type of capitalism from the United States into Japan and Western Europe, including a financialization of corporate governance in these countries. In Europe, shareholder capitalism was considered to have transformed national business systems in ways that still contain important country-specific features (Dore *et al.*, 1999; Jackson, 2002). Likewise, comparative studies of GVCs in industries such as apparel show that the trend towards concentration and financialization has been more pervasive in the retail sector of the United States and the United Kingdom than in mainland Europe, and that the spread of a global model of Anglo-Saxon origin, if occurring, was taking place against the background of strong persisting national features in terms of firms’ size, ownership, relation to financial markets and business cultures (Palpacuer *et al.* 2005; Palpacuer, 2006). Our study of major food TNCs in Europe provides additional evidence of the diffusion of a dominant pattern of global financialized corporation among lead firms in European GVCs. It also shows, however, that locally embedded, country-specific production remains significant both in the upstream segment of European food chains, among cooperatives formed by farm producers to perform primary processing activities, and in downstream specialty niches developed by family-controlled producers.

Against the backdrop of the rising power of global buyers, regulatory changes in European food chains could have far-reaching consequences for the relationship between upstream and downstream parts of the chains and the organization of upstream production. The CMOs played an instrumental role not only in shaping the geography of sourcing for agricultural products – that remained largely contained within European boundaries – but also determining the distribution of value between downstream and upstream producers on the basis of a strong upstream price support policy. Recent CAP reforms in the direction of greater market openness and price competition can thus produce significant changes both in the distribution of gains and the geographical configuration of food chains serving the European market. Authors’ interviews indicated that global sourcing had already become significant for non-perishable products such as butter and milk powder in the milk chain, where New Zealand and Australia had become key competitors of European producers, while the Russian Federation, Ukraine and Kazakhstan had emerged as low cost suppliers for the European market for cereals. With regard to the sugar industry, largely untouched by 1992 and 2000 reforms, the European Commission estimated that applying world market prices would push out of the market a significant number

of producers so that by 2010-2015, European sugar production would decline by two thirds and be concentrated in a few countries while the end of market protection would allow as much as 80% of European sugar needs to be met by Brazil, the leading world exporting country (CEC, 2003). Authors' interviews with business associations in Brussels suggested a slightly different scenario of "inward processing" in which Brazilian sugar cane, rather than raw sugar, would be imported for further processing within major European ports.¹⁷ The 2006 sugar reform is not based on full liberalization but on a 36% cut in institutional price aiming to bring the price in Europe closer to the world market level, so that changes are anticipated to be of a lesser magnitude than could be foreseeable under a full liberalization scenario. Further deregulation will nevertheless allow large TNCs operating in the downstream segment of European food chains to develop the type of global production networks that have emerged in industries such as apparel or electronics over the past decades. Retaining upstream production in Europe would require promoting the type of chains that serve niche markets, as developed by specialty producers, rather than the mass market for which global sourcing is proving to be more attractive. Since niche markets are unlikely to absorb the bulk of European mass primary-processing production capacity, current deregulation policies will significantly affect production volumes in coming years.

Conclusion

Gereffi (1995) and others have been primarily concerned with North-South relationships in GVCs, and conditions under which suppliers located in developing countries could improve their position by following trajectories of "industrial upgrading" so that their participation in global production could contribute to economic development in these countries. Unlike most of the GVC literature, this article deals with changes taking place in a Northern setting, in the midst of regulatory reforms that are likely to promote global sourcing and significantly reshape the geography of food production for the European market. It provided evidence of a growing divide between major players at the downstream end of European chains, which have engaged in globalization and financialization strategies since the late 1980s and have strong incentives to shift from European to lower-

¹⁷ In a subsequent study assessing the 2005 reform proposal, estimates of EU production decline and the growth of extra-European imports were no longer provided (CEC, 2005).

cost global sourcing, and upstream producers, which have maintained regional mass production schemes under CAP protection.

The CAP was inspired by a vision of European food industries that is increasing put to question by recent changes in the global economic environment. First, the CAP was guided by a territorial approach to food production and consumption responding to the traditional role of food products as key cultural components of society. The rise of global products is now transforming food consumption and production patterns, freeing them from local embeddedness and the constraints of space, and weakening the normative foundation of the CAP as a tool for constructing a European community. Second, the CAP was, implicitly, based on a view of food chains where upstream agricultural and food processing activities were primary sources of value creation, overlooking the now paramount role of marketing, product development and distribution activities. Framed with reference to the paradigm of classic market competition, the rhetoric underlying recent CAP reforms did not acknowledge the existence of a growing divide between upstream and downstream firms in European agri-food chains, nor did it recognize the patterns of global sourcing that liberalization was likely to promote the downstream segment of the chain.¹⁸ Accordingly, liberalization policies are likely to favour both a downstream-driven globalization of European food chains and a significant dislocation of upstream production in Europe. At a time when issues of environmental protection and the quality of life and food are becoming more important, a key challenge will thus be to preserve European agricultural production while allowing it to evolve out of the productivist model established in the 1960s.

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¹⁸ The most recent impact study of liberalization in the sugar industry performed by the European Commission provided no estimate of consequences for European production and imports (CEC, 2005).

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Appendix 1. List of interviews completed for the study (2002-2003)

Industry associations:

COABISCO – Association of European biscuit producers – President
CIAA – European confederation of food industry associations – Director
EDA – European Dairy Association – President
EUROGLACES – Association of European ice-cream industries – Secretary General
FEFAC – European Feed Manufacturers’ Federation – Secretary General
GAM – European Flour Milling Association – Secretary General and Member
UNESDA – European federation of non-alcoholic beverages industry associations – Secretary General
CIUS – Committee of Industrial Users of Sugar – Secretary General
CEFS – Committee of European sugar producers – Director General
SNFSF – National association of French sugar producers – Director
UECBV – European livestock and meat trading union – Secretary General

Corporations:

BARILLA – Bakery Raw Materials & Finished Products Purchasing Manager
BONGRAIN – Director Europe
CADBURY SCHWEPES – Sourcing Manager Europe
DANONE – Production Manager and Union representative
LACTALIS – Public Relation Manager

Databases used in the study:

Agrodata is maintained at the Institute for Mediterranean Agronomics in Montpellier, France. It records information on the businesses, affiliates, annual sales, profits and restructuring operations of the world top 100 food TNCs since 1972. Information is obtained from companies’ websites and annual reports, as well as 18 business and food trade journals.

Food For Thought is an online private food and drink market database covering 114 food and drink products and 25 countries in North America, Western and Eastern Europe.

Appendix 2. Leading European agri-food TNCs in the sugar, cereals, milk and meat chains, 2002 (n = 22)

Company	Country of origin	Product and chain position	Status	Majority shareholders (% of shares)	Product portfolio (agri-food only)	Total sales (millions of dollars), 2002	Food sales (millions of dollars), 2002	Region ^(a) (number of host countries)
ABF	United Kingdom	Upstream producer	Public	Weston family (54%) ^(a)	Seeds, cereal milling, oils and fats, bakery products, biscuits, sugar, proteins, yeast	7 066	5 959	LA (2), NA (1), Asia (1), ECE (1), OC (2), WE (5)
ADM	United States	Upstream producer	Public	Institutional (68%) ^(b)	Oils and fats, cereal processing, feed, malt processing, protein processing, frozen food	23 454	23 454	LA (4), NA (2), OC (1), WE (5)
Arla	Denmark/ Sweden	Upstream producer	Coop.	Cooperative members (100%) ^(c)	Drinking milk, butter, cheese, ice cream, fruit juices, corn flakes, baby food, drinking water	5 208	5 208	LA (3), NA (2), Asia (2) ECE (3), MED (1), WE (7)
Barilla	Italy	Specialty downstream producer	Public	Barilla family (85%) ^(c)	Bakery, biscuits, pasta products	2 323	2 323	LA (2), NA (1), Asia (1), ECE (1), MED (1), OC (1), WE (11)
Bongrain	France	Specialty downstream producer	Public	Bongrain family (> 80%) ^(c)	Cheese processing, dairy industry, feed	4 013	4 013	LA (4), NA (1), Asia (3), ECE (5), OC (1), WE (8)
Cadbury Schweppes	United Kingdom	Global downstream producer	Public	Institutional (14%) ^(a)	Chocolate, sugar confectionery, soft drinks	8 256	8 256	Africa (5), LA (2), NA (2), Asia (8), ECE (2), MED (2), OC (2), WE (8)
Campina Melkunie BV	Holland	Upstream producer	Coop.	Cooperative members (100%) ^(c)	Drinking milk, butter, cheese, baby food, feed	3 774	3 774	LA (1), NA (1), Asia (1), ECE (2), WE (5)
Coca-Cola Co.	United States	Global downstream producer	Public	Institutional (62%) ^(b)	Soft drinks, bottled water	19 564	19 564	Africa (4), LA (11), NA (2), Asia (8), ECE (2), MED (21), OC (1), WE (2)
Danish Crown	Denmark	Upstream producer	Coop.	Cooperative members (100%) ^(c)	Animal slaughtering, meat processing	5 660	5 660	ECE (2), WE (1)
Danone	France	Global downstream producer	Public	Institutional (71%) ^(c)	Yoghurts, dairy desserts, biscuits, bottled water, milk based soft drinks, condiments	13 799	13 799	Africa (1), LA (5), NA (2), Asia (7), ECE (7), MED (6), OC (1), WE (14)
Kerry	Ireland	Upstream producer	Ex-coop, public	Kerry Cooperative Creameries (31%) ^(c)	Dairy industry, meat processing, proteins, animal husbandry, poultry	3 823	3 823	LA (2), NA (2), Asia (4), ECE (2), OC (2), WE (5)
Kraft Foods	United States	Global downstream producer	Public	Institutional (48%) ^(b)	Biscuits, coffee, chocolate, sugar confectionery, cheese, dairy spreads, fruit juices, ready-to-eat meals, snack food, yeast	29 723	29 723	LA (20), NA (1), Asia (8), ECE (9), MED (5), OC (2), WE (16)

Appendix 2. Leading European agri-food TNCs in the sugar, cereals, milk and meat chains, 2002 (continued)

Company	Country of origin	Product and chain position	Status	Majority shareholders (% of shares)	Product portfolio (agri-food only)	Total sales (millions of dollars), 2002	Food sales (millions of dollars), 2002	Region ⁽¹⁾ (number of host countries)
Lactalis	France	Specialty downstream producer	Private	Besnier family (100%) ^(c)	Drinking milk, butter, processed and specialty cheese	5 599	5 599	NA (1), ECE (3), WE (7)
Mars	United States	Global downstream producer	Private	Mars family (98%) ^(c)	Chocolate, sugar confectionery, ice cream, rice milling, ready-to-eat meals, pet food	16 000	9 640	Africa (2), LA (5), NA (1), Asia (10), ECE (7), MED (3), OC (2), WE (16)
Nestlé	Switzerland	Global downstream producer	Public	Highly dispersed capital structure ^(d)	Chocolate, sugar confectionery, coffee, ice cream, yoghurts and dairy desserts, corn flakes, baby food, pet food, bottled water, soft drinks	61 834	50 841	Africa (11), LA (21), NA (2), Asia (17), ECE (9), MED (11), OC (5), WE (15)
Northern Foods	United Kingdom	Specialty downstream producer	Public	Franklin Resources (12%) ^(d)	Ready-to-eat-meals (frozen), bakery, biscuits, grain milling, Fruits & vegetables processing, yoghurts, meat processing	2 277	2 277	WE (1)
PepsiCo	United States	Global downstream producer	Public	Institutional (69%) ^(b)	Soft drinks, bottled water, fruit juices, sweeteners, snack food, biscuits, frozen food	25 112	25 112	Africa (5), LA (19), NA (2), Asia (7), ECE (7), MED (7), OC (2), WE (17)
Sara Lee	United States	Global downstream producer	Public	Institutional (63%) ^(b)	Meat processing, bakery, cakes, diet food, coffee, ready-to-eat-meals (chilled), snack food	17 628	9 219	Africa (11), LA (17), NA (2), Asia (14), ECE (7), MED (117), OC (3), WE (18)
Sudzucker	Germany	Upstream producer	Public	South German beet growers (56%) ^(c)	Sugar refining, sweeteners, ready-to-eat-meals (chilled), agriculture	4 853	4 853	ECE (6), WE (6)
Unilever	Holland United Kingdom	Global downstream producer	Public	Institutional (18%) ^(b)	Ice cream, margarine, olive oil, dairy spreads, tea, soft drinks, tea plantations	49 139	27 883	Africa (11), LA (20), NA (2), Asia (14), MED (8), OC (2), ECE (12), WE (14)
Uniq	United Kingdom	Specialty downstream producer	Public	M&G Investment Management (12%) ^(c)	Frozen food (ready-to-eat-meals), dairy spreads, butter	2 144	2 144	ECE (1), WE (6)
Wrigley	United States	Global downstream producer	Public	Institutional (55%) ^(b)	Sugar confectionery (chewing gum)	2 746	2 746	Africa (1), LA (2), NA (1), Asia (7), ECE (10), MED (2), OC (13), WE (9)

Source: Agrodatabse.

⁽¹⁾ Regions : Latin America (LA), Northern America (NA), Oceania (OC), Mediterranean (MED), Eastern & Central Europe (ECE), Western Europe (WE).

^(a) http://business.timesonline.co.uk/article/0,,9065-1279031_4-00.html ^(b) www.edgar-online.com; ^(c) Annual reports; ^(d) Corporate Watch, <http://www.corporatewatch.org.uk>; ^(e) Forbes www.forbes.com.

Appendix 3. Globalization index, 2002

Firm	Country of origin	Geographical globalization	Sectoral globalization
Coca-Cola	United States	69%	100%
Kraft Foods	United States	69%	100%
Mars Inc.	United States	93%	100%
Pepsico	United States	71%	100%
Wm. Wrigley Jr. Co.	United States	74%	100%
Barilla	Italy	10%	100%
Bongrain	France	24%	100%
Cadbury Schweppes	United Kingdom	59%	100%
Danish Crown	Denmark	10%	100%
Danone	France	50%	100%
Lactalis	France	5%	100%
Nestlé	Switzerland	68%	100%
Sara Lee Corporation	United States	84%	83%
Unilever	Netherlands/	69%	75%
	United Kingdom		
Associated British Foods	United Kingdom	32%	71%
Archer Daniels Midland	United States	40%	67%
Campina Melkunie	Netherlands	9%	67%
Arla Foods	Denmark/Sweden	13%	40%
Sudzucker	Germany	10%	33%
Uniq	United Kingdom	2%	33%
Kerry Group Plc	Ireland	21%	25%
Northern Foods	United Kingdom	0%	0%
Wrigley	United States	28%	100%
Lactalis	France	5%	100%
Pepsico	United States	18%	70%
Coca-Cola	United States	53%	67%
Cadbury Schweppes	United Kingdom	38%	67%
Mars Inc.	United States	29%	58%
Barilla	Italy	9%	50%
Philip Morris	United States	29%	47%
Bongrain	France	3%	44%
Archer Daniels Midland	United States	9%	43%
Northern Foods	United Kingdom	1%	40%
Sara Lee Corporation	United States	41%	39%
Associated British Foods	United Kingdom	6%	36%
Md Foods	Denmark	23%	33%
Campina Melkunie	Netherlands	17%	33%
Unilever	Netherlands/	65%	28%
	United Kingdom		
BSN (Danone)	France	28%	22%
Nestlé	Switzerland	71%	22%
Unigate (Uniq)	United Kingdom	2%	20%

Source: Agrodata database.

Globalization Index calculation :

Geographical globalisation index = (# of host regions where a food MNE is established outside its home region / 8 world regions as defined in Agrodatab)* (# of foreign affiliates / total # of affiliates of the food MNE)

Sectoral globalisation index = # of businesses of the food MNE outside its home region / # of businesses within its home region

The definition of businesses used for the calculation of sectoral globalisation follows the United Nations' four-digit Standard Industrial Classification. Since the end of the 1980s, the Agrodatab research team has been developing the UN SIC using six-digit classes in order to better respond to the high segmentation of food markets.

The eight macro regions used for the calculation of geographical and sectoral globalisation indexes are: Africa, Asia, Latin America, Oceania, North America, Western Europe (EU-15, Norway, Switzerland, and Iceland), ECE (Eastern and Central European States, Russia Federation and Balkan countries), and the Mediterranean (Turkey, Iraq, the Syrian Arab Republic, Lebanon, Jordan, Israel, Egypt, Saudi Arabia, United Arab Emirates, Yemen, Kuwait, Bahrain, Libyan Arab Jamahiriya, Tunisia, Algeria, Morocco, Gibraltar, Malta, and Cyprus).

