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in the European Soft Drinks Industry:
Always Coca-Cola?**

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ABSTRACT

Market Integration and Market Structure in the European Soft Drinks Industry: Always Coca-Cola?

by Catherine Matraves*

This paper focuses on the question of European integration, considering whether the geographic level at which competition takes place differs across the two major segments of the soft drinks industry: carbonated soft drinks and mineral water. Our evidence shows firms are competing at the European level in both segments. Interestingly, the European market is being integrated through corporate strategy, defined as increased multinationality, rather than increased trade flows. To interpret these results, this paper uses the new theory of market structure where the essential notion is that in endogenous sunk cost industries such as soft drinks, the traditional inverse structure-size relation may break down, due to the escalation of overhead expenditures.

ZUSAMMENFASSUNG

Marktintegration und Marktstruktur in der europäischen Getränkeindustrie: Immer Coca-Cola?

In diesem Beitrag wird der Frage nachgegangen, wie sich die europäische Integration auf den Wettbewerb auswirkt. Am Beispiel der beiden Hauptsegmente nichtalkoholischer Getränke - kohlenstoffhaltige „Softdrinks“ und Mineralwasser - wird untersucht, ob sie sich im Hinblick auf die geographische Ebene, auf der Wettbewerb stattfindet, unterscheiden. Die empirischen Ergebnisse deuten darauf hin, daß die Unternehmen in Europa in beiden Segmenten im Wettbewerb stehen. Interessanterweise wird der europäische Markt eher durch Unternehmensstrategien integriert, die in wachsendem Maße multinational ausgerichtet sind, als durch zunehmende Handelsströme. Bei der Interpretation der Ergebnisse stützt sich die Autorin auf die neue Theorie der Marktstruktur, derzufolge in Industrien mit endogenen versunkenen Kosten - und hierzu zählt auch die Getränkeindustrie - die traditionell inverse Beziehung zwischen Marktstruktur und Marktvolumen angesichts der hohen Overhead-Ausgaben aufgehoben wird.

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1. Introduction

This paper applies the new theory of industrial structure (Sutton, 1991, 1998) to the European soft drinks industry. Sutton's major advance was to generate robust and testable predictions from the theory of strategic behavior, where robustness means broad regularities that hold across a range of benchmark oligopoly models. Unlike the 'New Empirical IO' literature in structural modeling (see Bresnahan, 1989, and Geroski, 1988, for surveys), this then allows a wide set of industries to be analyzed. The basic theoretical notion is that in homogeneous 'Type 1' industries, characterized by exogenous sunk costs, the traditional inverse structure-size relation holds. However, in 'Type 2' industries, characterized by endogenous sunk costs, as market size becomes very large, firms may escalate their advertising and/or R&D expenditure in response, and the inverse structure-size relation may break down. Sutton's own empirical work confirms his predictions, combining cross-section regression analysis with industry cases.¹ The detailed industry histories form the backbone of Sutton (1991); such analysis reveals rather more qualitative evidence of the differing mechanisms made explicit in the theoretical framework.

Although Sutton investigated the soft drinks industry as an example of how the 'escalation mechanism' operates in an endogenous sunk cost industry, this paper extends his analysis in two interesting directions. First, we focus on the question of market integration. Over the period that Sutton considered, he was able to assume that the soft drinks industry was mainly local, with some multinational production. Essentially, it was assumed that a separate advertising outlay was necessary to establish a brand image in each member state. This implies that competition within Europe was taking place at the national rather than at the EU level. However, in 1987, the Single

European Act was legislated. If the EU market becomes the relevant competitive market, this is equivalent to an increase in market size as firms will have access to a larger geographic area. As market size increases, this yields the prediction that the incentive for firms to endogenously escalate advertising expenditure is increased. The integration process may also be expected to have some impact on the issue of where to locate production, or indeed, how to organize distribution. Thus, our first extension is to consider the appropriate geographic level at which competition takes place, and interestingly, whether this differs across the two major segments of the soft drinks industry: carbonated soft drinks (CSDs) and mineral water.

Secondly, Sutton (1991) argues that a first mover may spend more on advertising than would be the case under strategic symmetry, but may thereby succeed in relegating an equally efficient late entrant to second place. In other words, it may be unprofitable for such a later entrant to attempt to equal the leader at the high-quality end of the market, and so its advertising efforts might be correspondingly muted. The soft drinks industry may be an example of this phenomenon where in the US, Coca-Cola and PepsiCo are dominant firms and have more or less an equal market share in the dominant cola segment; competition in advertising has had a large impact on market structure. In the EU, by contrast, Sutton argued that Coca-Cola has a first mover advantage dating from World War II. This first mover advantage has muted advertising competition, and resulted in persistent market dominance. He showed that first, concentration is much lower in the EU member states due to the large fringe of small producers, with lower advertising to sales ratios. Secondly, Coca-Cola's market share relative to Pepsi is much higher within the cola segment. However, it is important to highlight that market size was also much smaller than in the

¹ Robinson and Chiang (1996), Lyons and Matraves (1996), Lyons, Matraves and Moffatt (1999) provide further cross-section empirical evidence in support of Sutton's theoretical predictions.

US which, in turn, may have reduced the incentive for potential rivals to endogenously escalate their advertising expenditure. If market size has increased, the soft drinks industry structure in the EU may come to mirror the US more. Sutton was unable to separate the relative influences of first mover advantage and market size. We provide such an attempt.

We analyze both segments of the soft drinks industry, using more recent data at the 3-digit level of aggregation. Section two provides a brief summary of the underlying theoretical framework, based on Sutton (1991). In section three, we first discuss the structural changes that have taken place between 1987 and 1993. Second, we generate empirical predictions, feeding the exogenous structural changes into the theoretical framework. Section four assesses whether the evidence on concentration and advertising intensity is consistent with the derived hypotheses. It then moves on to focus on the competitive strategies followed by the firms themselves, within the context of the theoretical framework. Finally, section five summarizes and concludes.

2. Theoretical Framework: The Sutton Approach

The competitive roles that exogenous and endogenous sunk costs play in the determination of market structure are now well known: Robinson and Chiang (1996), Lyons and Matraves (1996), Matraves (1999) provide summaries of the Sutton (1991) approach. Suffice to say that following Schmalensee (1992), we may split industries into two types: Type 1 and Type 2.² In Type 1 industries (homogeneous/horizontally differentiated products), the traditional inverse structure-size relation holds. In Type 2 industries, this relationship may break down due to the notion that

² Sutton (Chapters 2 and 3, 1991) provide the formal theoretical exposition for both Type 1 and Type 2 industries.

expenditure on advertising/R&D in order to increase (perceived) quality is a choice variable. It is this choice that emphasizes the fundamental difference because firms can react to increases in market size by investing in quality enhancements. The consequent rise in overheads has a countervailing effect on market structure by increasing the degree of economies of scale. Thus, although there appears more room in a larger market, the escalation process raises fixed costs per firm, possibly even to such an extent that the negative structure-size relation breaks down. Certainly, the resulting market structure will be less fragmented than in a Type 1 industry.³

Consider the question of market integration within this framework. Since market concentration results from the interaction between market size and a few key behavioral and technological factors, it is extremely important that the correct market definition is used in empirical work.⁴ We provide an attempt to correctly identify the geographic level at which competition takes place. The criterion that is typically used to measure the degree of integration is the degree of international trade: in this case, intra-EU trade. However, although trade is a reasonable indicator of integration in production, it is unlikely to capture the relevant market for technology and marketing ideas, particularly if firms are multinational. Endogenous sunk costs therefore introduce the possibility of intra-firm economies of scope in their international operations.

The soft drinks industry is an advertising intensive industry. Unlike the results from R&D which can be easily exploited across borders, even if production decisions do remain non-integrated, advertising is highly dependent on local language, culture and media. This implies that advertising is more likely to be incurred in each country, as long as the national market is large enough for

³ High production economies of scale work in favor of a more negative relation; while greater consumer sensitivity to endogenous investments weigh in favor of a shallow (or even positive) relation.

such spending to be worthwhile. If the relevant production market becomes the EU, but advertising costs are incurred in each member state, this twists the balance of the fixed cost mechanisms towards the importance of endogenous fixed costs. However, if advertising decisions are taken at the EU level or, as is perhaps more likely, if marketing expertise is transferable across national borders, then it can be argued that the firms' corporate strategies are integrated. In other words, given investment in firm specific assets, multinational production may be the best route to exploit them, particularly as transport costs are high relative to the value of the product, making price/quantity decisions more likely to be member state specific.

3. Structural Change: Any Predictions

This section considers recent structural changes in the soft drinks industry.⁵ These are important to consider in some detail in order to derive predictions in the light of the theoretical framework. First, 'europeanization' is discussed, essentially understood as the effect of the Single European Market (SEM). This predicted effect of the increase of market size on concentration is derived. Secondly, we analyze the potential consequences of structural forces on corporate strategy. We argue that increased multinationality is the likely outcome of the europeanization process, and this will have an impact on the level of concentration in the market. In other words, we use the notion of endogenous investment in a firm-specific asset to influence competition in the market.⁶

⁴ Lyons, Mataves and Moffatt (1999) estimate a structural model of concentration and market size, developing an econometric technique that endogenously determines whether the EU or the member state is the appropriate market level for each country (thus consider the geographic dimension rather than the product dimension).

⁵ Sutton separates out his analysis of CSDs and mineral water. We do not this as: i) on the demand side, mineral water has recently become a direct substitute for CSDs; ii) more pragmatically, we use national statistics which are typically compiled at the 3-digit level, although we do have some firm level evidence from company accounts.

⁶ The notion of endogenous sunk costs has a direct parallel in the strategic management literature. When a firm makes a large sunk investment, this commits them to certain strategies. If the industry is such that they expect rival response, they may choose a certain investment to influence rival behavior (Thomas, 1996). For example, Thomas shows, using the RTE breakfast cereal industry, that managers may be able to preempt rivals by introducing new products with familiar brand names. Given sunk costs in advertising, incumbents have lower costs of product

3.1 *Single European Market*

By 1987, most tariff barriers had already been removed but many non-tariff barriers (NTBs) remained. Buigues, Ilzkovitz and Lebrun (1990) identified the soft drinks industry as one with high NTBs.⁷ Thus, various benefits from the SEM were expected. First come the direct benefits associated with the reduction in the cost of trade, due mainly to the decrease in labeling and packaging costs and the elimination of costs associated with importing. Secondly, and *ex ante* difficult to predict, there were expected to be dynamic gains due to the increase in competitive pressure. Allowing firms to compete directly with one another in a larger market was expected to yield indirect benefits through increased efficiency, lower prices, and wider product variety.

These forces were not expected to affect all industries equally. Specific to the soft drinks market, we emphasize that first, production economies of scale are relatively low and therefore, the majority of firms were not previously operating at a cost disadvantage. Any efficiency benefits are therefore likely to be low. Secondly, intra-EU trade has not significantly increased (moved from 4% of production in 1987 to 6% in 1992, compared to the average of 13% in an advertising intensive industry).

introduction which implies preemptive entry if withdrawal costs (in terms of harming the firm's reputation) are high.

⁷ Representative examples include: i) 150 Italian municipalities banned plastic containers implying a significant domestic advantage due to the lower incentive to import (high transport costs of glass); ii) until 1988, it was illegal in France to sell 'diet' soft drinks that contained aspartame; iii) fiscal measures (e.g., VAT differences, excise duties) that effectively discriminated against importers. Emerson et al (1988) estimate that in 1985, EU price dispersion was 33.2% when all taxes were included (the average was 19.4% for consumer goods). The European Commission estimated the benefits from eliminating: i) the plastic containers restriction as 15-50 million ECU per year; ii) the aspartame restriction as 5 million ECU per year.

Table 1: Market Size in the Big Four and the EU (current prices, ECUm)

Market Size	GER	FR	UK	IT	EU Apparent Consⁿ	EU Production
1987	2.46	2.08	2.3	1.52	11.06	11.41
1988	2.48	2.15	2.64	1514	12.39	12.59
1989	2.85	2.64	3.3	1.66	15.04	15.28
1990	3.16	3.44	3.42	1.87	16.93	17.2
1991	3.48	3.13	3.43	2.03	17.47	17.82
1992	3.62	3.17	3.46	2.25	18.15	18.47
1993	3.67	3.21	3.51	2.4	17.88	18.24

Source: National data are derived from Eurostat; EU data are derived from Panorama (1995), cross-checked for consistency using the Eurostat data.

The continuing europeanization process increases effective market size as leading firms have access to a wider geographical market. Table 1 shows the increase in actual market size due to many factors including: i) the introduction of lightweight plastic bottles, and in particular, the use of PET, which led to an expansion in capacity as the distribution range of the products could be extended;⁸ ii) PET made possible the introduction of cheaper bulk packs which encouraged domestic consumption; iii) the geographical spread of fast-food restaurants such as McDonalds; and iv) consumer demand has increased in both market segments at the expense of alcoholic drinks.⁹ Table 1 shows that between 1987 and 1993, the value of EU total soft drink production, for example, increased from 11.3 to 18.2 billion ECU in 1993, although the growth rate has been slowing since 1990.¹⁰ At current prices, the average annual growth rate in the overall EU market between 1987 and 1993 was 8.4% for production (a real growth rate of 3.4%).¹¹

⁸ By 1993, 51% of soft drinks were sold in non-returnable plastic containers in the UK and 65% in Italy (Panorama, 1995) The use of plastic is also increasing rapidly in other member states (apart from Germany due to concern over environmental issues).

⁹ Demand for mineral water has grown faster than that for CSDs in recent years, due mainly to its super-healthy image (although diet carbonates and sports drinks have also benefited), and higher concern over tap water quality. Diet drinks are underdeveloped in most member states, apart from the UK (30% market share compared to 10%, on average, in the rest of the EU, Panorama, 1995).

¹⁰ In 1984, EU market size was 8.8 billion ECU in current prices, compared with 23 billion for the US. By 1993, the gap had considerably decreased, with EU market size estimated at 18.2 and the US at 21.9.

¹¹ The EU deflator is obtained from Panorama of EU Industry (1994). Each member state deflator is derived from OECD, Main Economic Indicators, various annual issues.

Table 2: Market Size by volume (billion liters)

	1987	1993
<i>Germany</i>		
Mineral Water	4.2	6.3
CSDs	4.0 ^a	6.7
<i>France</i>		
Mineral Water	3.2 ^b	5.4
CSDs	0.9 ^b	2.3
<i>Italy</i>		
Mineral Water	4.7	6.7
CSDs	1.1 ^c	2.6
<i>UK</i>		
Mineral Water	0.08 ^d	0.5
CSDs	2.6 ^d	4.1

Source: a) 1983 from Sutton (1991); b) Sutton (1991); c) Sutton (1991); d) Sutton (1991). All other figures are from Panorama (1995), except for the UK which come from Key Note (1994).

Table 2 shows market size by volume and by segment for the ‘Big 4’. Currently, the mineral water segment accounts for approximately 40% of the EU market, but is far less important worldwide. Focusing on intra-EU differences, the dominant market segment in the UK is CSDs, in Germany the two segments are approximately equal, and in both France and Italy, mineral water dominates. Reflecting the US pattern, the most popular carbonates flavor in all member states is cola, with a share ranging from 41% in France to 49% in the UK to 56% in Greece (Panorama, 1995). Time series evidence shows that over recent years, the volume of sales in the UK mineral water segment has increased dramatically, although from a very low base, and consumption per capita has almost trebled since 1990. In France and Italy, this pattern is completely reversed, the volume increase in CSDs is substantially higher than in mineral water. Finally, in Germany, the volume increases were almost equal. Table 2 provides some evidence that these two segments are becoming closer substitutes over time. CSD manufacturers are also starting to focus on new types of soft drinks that reflect changing consumer preferences towards bottled water and fruit juices

(Beverage Industry, 1997). As market size increases, this raises the incentive to escalate advertising expenditure (Sutton, 1991).¹² This yields Hypothesis 1.

Hypothesis 1: an increase in market size is associated with an increase in the level of advertising by each surviving firm that, in turn, will tend to increase concentration.

3.2 Firms' Competitive Actions: Changing Corporate Strategy

First, comes the impact of endogenous sunk costs. Our hypothesis is that the benefits of product differentiation that lend themselves to advertising and associated firm specific talents, may lend themselves to EU development, even if member state specific advertising campaigns are run. As discussed in section two, if the integration of corporate strategy is an additional route to market integration, firms may view their operations in different EU member states as interrelated, and certain stages of the oligopoly game may be played at the EU level.

Thus, in Type 2 industries such as soft drinks, we cannot assume that integration will result in a substantially less concentrated market. This is because the endogenous choice variable of advertising is particularly sensitive to market size, and consequently, there may be little or no intensification of price competition, with inter-firm rivalry, instead, being channeled into endogenous fixed costs.¹³ Overall, our discussion highlights that, given the nature of the soft drinks industry, we are not likely to observe increased integration through increased trade flows.

¹² The toughness of price competition has increased in the 1990s, in the sense that private label started to take away market share. Cott Corp. offered comparable quality for its private label products, mostly colas, packaged the brands well and sold them for 25% less than Coca-Cola or Pepsi. Cott also developed close relationships with distributors (for example, Wal-Mart in the US, Sainsbury in the UK). It has been shown empirically only (the effect is theoretically indeterminate) that an increase in the toughness of price competition will tend to increase concentration irrespective of whether the industry is characterized by exogenous or endogenous sunk costs (Symeonidis, 1997a, 1997b).

¹³ Even when the product is not intrinsically tradable so markets are geographically segmented, if 'taste' differences are narrowing, then the oligopoly game will involve escalation in advertising at the EU or global level and increased multi-market contact.

Instead, the still separate markets (in terms of production) are likely to become dominated by the same set of MNEs. This yields Hypothesis 2.

Hypothesis 2: the impact of the SEM will come through merger and acquisition activity and increased geographic diversification. This will increase concentration at the EU level.

Carbonated Soft Drinks

CSDs are made from concentrate: either small to medium sized firms operating in a local or regional market obtain syrup from specialist firms or multinational enterprises (MNEs) make their own syrup and franchise a network of regional and/or national bottlers who add sweeteners and carbonated water to produce and distribute the final product. Within the EU, Coca-Cola and PepsiCo historically had their own networks where independent firms were authorized to bottle and sell the products within certain geographical regions.¹⁴ Bottlers could handle more than one brand, but not brands that were in direct competition with one another (i.e., a bottler could handle Pepsi and Fanta but would not then handle Coca-Cola). However, the bottler received territorial exclusivity over its specified region in return.

We argue that there are two important competitive factors associated with the creation of the SEM that will impact the organizational structure of the CSD segment as described above. First comes the impact on production and distribution. On the one hand, although NTBs have been eliminated, it could be the case that due to territorial exclusivity constraints, the EU CSD market will remain geographically segmented in production. If the EU market becomes the relevant competitive market, on the other hand, then this existing distribution system of national or

¹⁴ The franchisee provides the bottling and transportation equipment, the franchiser supplies the syrup. The franchisor's brand name is displayed throughout, and the franchisor also provides management expertise, in terms of product quality control, marketing, advertising, etc.

regional bottlers may be forced to change, even though products such as soft drinks are naturally less traded, due to transport costs. Also, economies of scale in bottling have increased over time due to better transportation systems, and the reduction in the use of returnable bottles (Muris et al, 1992).¹⁵ This means that fewer bottlers are required to supply the market.

Muris et al (1992) argue that in the US, changes in the external environment increased the transaction costs between the concentrate manufacturers and their bottlers.¹⁶ Also, the new competitive environment required new product and marketing strategies, whose implementation required the close cooperation of the distribution system. In turn, this favored vertical integration over contracting.¹⁷ These arguments can equally be applied to the creation of the single market in the EU, leading to vertical integration being the preferred corporate strategy. National and indeed, European supermarket chains are growing, making coordination between the firm and a network of bottlers more difficult, and so, expensive. Also, in recent years, the rate of new product introductions has increased. It is easier if the CSD manufacturer owns the bottler to introduce the new product than convince an independent to make the necessary firm-specific investment, as most new introductions fail. This yields Hypothesis 3.

Hypothesis 3: increased competitive pressures will be positively associated with increased vertical integration within the CSD segment.

¹⁵ In the US, for example, the number of soft drink bottling plants has persistently decreased in 1950, there were more than 6000 plants; this had declined to 3100 by 1970 (Katz, 1978), and 800 by 1990 (Muris et al, 1992).

¹⁶ Historically, the value of CSDs relative to transport costs was low, and the use of returnable (and breakable) containers required local manufacturing and a substantial local delivery system. Thus, despite substantial asset specificity, it was not possible to effectively organize hundreds of manufacturing and distribution operations, given the transportation and communication systems of that time.

¹⁷ The one vital difference between Coca-Cola's and Pepsi's distribution system is that Pepsi's franchise agreement gave its bottlers exclusive perpetual rights to fountain sales (both had perpetual exclusive territories). This limited Pepsi's ability to negotiate such sales nationally and thus, their ability to compete effectively in the US fountain market (Muris et al, 1992).

Mineral Water

Mineral water producers are required by law to bottle at source (1984 EU directive), and are therefore capacity constrained as compared to CSD firms in the sense that there is a finite supply of water from each source. As with CSD producers, supply is typically characterized by a large fringe who compete in a local/regional market, and MNEs.¹⁸ The same organizational franchising system as observed in the CSD segment cannot be used in the mineral water segment due to the legal requirement to bottle at source. This means that mineral water producers are forced to export. Given the high transportation costs, this is likely to place a limit on the final market size. This factor will tend to encourage multinationality as this is a route towards continued growth in new markets.

4. Evidence

In this section, evidence is presented in support of Hypotheses 1-3. Hypothesis 1 states that in a Type 2 industry, an increase in market size tends to be associated with an increase in advertising expenditure and so, concentration. Hypothesis 2 states that the impact of the SEM will be to increase the degree of multinationality at the firm level. This may have little impact on national concentration as domestic incumbents are acquired but will have a significant effect on concentration at the EU level, particularly if this is associated with pan-European advertising campaigns.¹⁹ Hypothesis 3 states that an increase in competitive pressure is likely to have an impact on how firms organize their production and distribution within the EU market in terms of the degree of vertical integration.

¹⁸ Note that the bottling technology is such that it would be difficult to obtain a technological advantage in production in either segment.

¹⁹ With the spread of satellite TV, we do already observe pan-European advertising for some soft drinks, e.g., Pepsi, Coca-Cola, Fanta, 7-Up or Orangina.

Table 3: UK and German Advertising to Sales Ratios

Year	UK	Germany
1987	2.84	3.55
1988	2.79	3.67
1989	2.71	3.71
1990	2.75	3.50
1991	1.99	3.27
1992	2.33	3.56
1993	1.84	3.53

Source: Advertising Agency (MEAL) data (UK); A C Nielsen (Germany)

Consider first advertising expenditure. Table 3 shows that advertising expenditure has been consistently above the 1% cut-off point for the industry classification as Type 1 or Type 2 (Davies and Lyons, 1996) in both the UK and Germany over the period 1987 to 1993. The average advertising to sales ratio over this period for the UK was 2.5% and for Germany was 3.5%. However, the advertising to sales ratios do not vary much from year to year, indicating that although advertising is increasing in line with market size, it is not increasing faster than market size.

Table 4: Advertising expenditure by segment

Germany			UK			Italy			France		
Year	Cola	Water	Year	Cola	Water	Year	Cola	Water	Year	Cola	Water
1986	13	22	1986	44	7	1985	-	48	1987	43	-
1987	16	30	1987	60	14	1989	103	82	1991	-	98
1988	15	40	1988	75	23	1991	165	97			
1989	15	41	1989	82	35						

Source: Euromonitor (1993). Figures were converted into ECUm at the annual average exchange rate, taken from Eurostat, Money & Finance (1994).

Table 4 shows that, consistent with Hypothesis 1, where market size is larger in a particular segment, advertising expenditure is also larger. Thus, the mineral water segment dominates France and Italy, and advertising is significantly higher than in CSDs. The reverse is true for the UK. Interestingly, Table 4 shows that advertising has been increasing far more rapidly in the UK

mineral water segment than in cola. The real average annual growth rate for mineral water between 1986 and 1989 was 63%, compared with 17% for cola. This is suggestive of a response to the boom in demand for mineral water over the late 1980s.

The mineral water segment is particularly interesting as it may highlight a possible limitation of the theoretical framework. Sutton (1991) showed that in France, the escalation of advertising outlays by Perrier was very effective in increasing market share, and subsequently, other currently leading brands were also heavily advertised. By contrast, nothing similar had occurred in the other major European markets by 1986. Germany remained fragmented, and Italy lay in between in terms of concentration although firms were advertising intensively in both countries, and market conditions were similar in terms of market size and consumer demand. Sutton argued that mineral water is an outlier. However, if cross-country structural differences do reflect variation in the effectiveness of advertising to stimulate willingness to pay, then the theoretical framework is flawed. In other words, the usefulness of the theory is crucially dependent on the assumption that the advertising response function depends only on certain product characteristics which may be impossible to proxy but determine the effectiveness of advertising in increasing demand.²⁰ What the theoretical framework is *not* consistent with is the notion that the advertising response function depends on idiosyncratic features of a firm's advertising campaign. This is because at the heart of the empirical methodology lies the ability to categorize industries into those in which advertising can increase perceived quality and those in which it cannot. If variation in concentration across the EU

²⁰ The advertising response function may also depend on observable institutional factors that differ across countries, i.e. differences in regulation where TV advertising is more regulated in Europe than in the US; brand advertising has never come close to US levels (Quelch and Harding, 1996). Also, there may exist cultural differences.

member states can be directly linked with the effectiveness of advertising campaigns, then the theory may be flawed.²¹

Consider Hypothesis 2 relating to an increase in the degree of multinationality and its consequent impact on concentration. Within the CSD segment, we observe reorganization of firm structure (see below); within the mineral water sector, due to the legal requirement of bottling at source, and a limit on capacity, we should observe an increase in multinationality. We look first at the most important cross-border merger and acquisition activity that has taken place since 1987. Secondly, the corresponding impact on concentration is discussed.

The most important acquisition was that of Perrier by Nestlé in 1992, and the subsequent sale of Volvic to the French firm, Danone (the firm was then called BSN) - the sale of Volvic was stipulated by the European Commission, along with certain other conditions. This acquisition fundamentally altered the EU mineral water segment. In 1987, the combined market share of the top three firms was about 60%.²² Pre-merger, Perrier had considerable free capacity in the majority of its sources, Nestlé was operating close to capacity in all its sources and in the case of Danone, its still water brand, Evian, was not operating to maximum capacity, but its sparkling water brand, Badoit, was. The sale of Volvic to Danone, with Nestlé retaining the Perrier sources, gave both firms considerable extra capacity and more brands.²³ Also, through the acquisition of Perrier, Nestlé now controls major springs in a number of EU member states (e.g., Buxton in the

²¹ Differences in concentration could arise from observing disequilibrium market structure in certain countries. If this is true, German market structure may, over time, come to approximate the market structure observed in France.

²² As the demand for mineral water has increased, new springs have been opened, mainly by small firms competing in price only. These local firms do not have a large enough market, due to the limitations imposed by transport costs, to invest in advertising.

²³ Interestingly, Danone's leading brands (Evian and Volvic) are both waters of low mineral content (< 500 mg per liter) whereas Nestlé's leading brands (Contrex, Vittel and Hépar) are waters of high mineral content (> 500 mg

UK). Therefore, any future EU-wide increase in demand could then be fulfilled by these two firms. Post-merger, the 1993 combined market share of Nestlé and Danone was about 82% in France, and approximately 35% of the overall EU mineral water market (Panorama, 1994).²⁴

Focusing on other important EU markets in terms of size,²⁵ in both Italy and Germany, the leading brands are typically bottled in glass, substantially increasing the importance of transport costs. As there exist few national retailers, this hinders the nationalization of the market due to distributional problems. In Germany, 1993 mineral water consumption was higher than in France, but the industry remains fragmented: the top four firms controlled approximately 25% of the market. The leading firms are subsidiaries of major food and drink manufacturers (e.g. Apollinaris is owned by a leading brewer, Brau und Brunnen; Blaue Quellen is owned by Nestlé). Although the mineral water market segment is advertising intensive, there is comparatively little TV advertising in contrast to CSDs. However, Euromonitor (1993) asserts that demand for premium brands has risen in recent years, primarily due to their sophisticated yet healthy image. Notwithstanding this, the production of mineral water remains dominated by relatively small enterprises; only a few brands go beyond regional or even local boundaries. In Italy, since 1986, as market size has increased, advertising has also increased, and the market has become more concentrated over the past decade. Danone sold the Fabia and Sangemini brands to Terme Di

per liter). As a result of the merger, Danone and Nestlé have also succeeded in further segmenting the French market horizontally (in terms of the product characteristics), as well as by perceived quality.

²⁴ Since 1987, Danone has expanded substantially in Spain and Italy; and Nestlé in Germany and Italy (acquiring San Bernardo in 1993, and 25% of San Pellegrino through Perrier).

²⁵ In the UK, Perrier was the leading brand in 1987, with the highest advertising and a 60% market share. Market size has been rapidly increasing, although from a very small base. As mineral water production is low-tech, new firms can enter relatively easily which has contributed to the strong own-label growth (accounting for 42% of 1993 sales in the grocery sector). In 1993, advertising was as follows: Evian=£0.7m; Highland Spring=Volvic=£0.69m; Perrier=£0.44m. As the theoretical framework predicts, such expenditures are reflected in the firms' market shares. It is estimated that Evian is now the market leader in terms of volume, with a market share of 11.2%, then Buxton with 6.5%, Volvic with 6.1%, and Highland Spring with 5.8% (Key Note, 1994). Perrier now has only a 3.9% market share (although it still has a high price premium).

Acqui (Ciarrapico) in order to concentrate on Ferrarelle and Boario; Nestlé took a 25% interest in San Pellegrino through the acquisition of Perrier.

Table 5: Concentration (CR4) in the Soft Drinks Industry

	1970	1975	1980	1987	1993
Germany	25.4	34.0	32.2	20.8	22.0 ^b
UK	22.1	26.2	29.0	34.9 ^a	63.2 ^c
Italy	25.9	30.3	41.1	27.0	23.6 ^b
France	66.9	70.7	76.2	63.2	63.4
EU	-	-	-	26.4	28.7

a=1986, b=1991, c=1992 CR5 (1986 CR5=37.3%)

Notes: 1970-1980: CEC Report, 1989 (Marfels); 1986-1993: national CR4s derived from the various Census of Production data; all Italian data are by employment

Looking now at changes in concentration, both Hypothesis 1 and Hypothesis 2 predict an increase in concentration. Table 5 shows that in the overall 3-digit industry, we observe varying trends in concentration among the member states. Concentration has increased by 2.3 percentage points in the EU which is quite a large change over a relatively short time period, and in line with our *a priori* expectations.²⁶

At the national level, using the official published statistics, concentration has slightly increased in Germany and has remained stable in France. In Italy, concentration has decreased by 10%. The biggest increase in concentration is observed in the UK where concentration has significantly increased over this seven year period. It is clear that no systematic pattern exists. This is what we would expect because if competition is taking place at the EU level, there should exist no systematic pattern at the national level. Indeed, if integration is manifested through increased multinationality, then you might expect the same number of firms to be observed at the national

²⁶ In the US, in 1996, retail sales in CSDs were about \$52.6 billion, CR3 is about 90% (Standard and Poors industry survey). In \$ billion, mineral water=\$4.34, sports drinks = \$1.92, RTD teas = \$2.82, fruit beverages = \$14.94.

level, perhaps with concentration increasing over time due to exploitation of firm-specific assets, and an increase in concentration at the EU level.

Hypothesis 3 linked increasing competitive pressure and reorganization of the franchise network in order to better exploit the wider market and expand internationally. We argued that leading firms were more likely to vertically integrate to exploit the new market opportunities. This is observed in the data, particularly in the case of Coca-Cola, giving the firm direct control over the distribution and marketing of the product.

In France, for example, Pernod-Ricard used to hold the Coca-Cola franchise. Coca-Cola was dissatisfied with sales because: i) CSD market size was very small compared with other EU markets; ii) Coca-Cola was not the market leader. Coca-Cola's main objectives in taking over bottling were to improve its distribution system and customer relationships, and sales have dramatically increased since. The 1993 company report shows that over the past 5 years, the average annual growth rate (volume) was 15%, compared with an industry average of 9%.

In Germany, a wholly-owned subsidiary manages a national network of local bottlers. In 1983, there were more than 100 bottlers franchised; by 1989, this number was 61.²⁷ This indicates, as also observed in the US market, the movement towards consolidation as the market became more mature. Coca-Cola dominates the German market with a 1996 volume market share of 56%, compared to Pepsi's 5% and is also the largest advertiser, mainly via television (Euromonitor, 1993). Coca-Cola also dominates the Italian market (48% volume market share in 1996)

²⁷ Traditionally, most bottling plants were under the control of the brewers, of whom there are hundreds as they were protected by the German beer purity laws. However, following the EU decision that the beer purity law is illegal, substantial restructuring is expected as German firms will now face increased competition.

compared to PepsiCo's 13%, which has been slowly increasing since 1988 when San Benedetto, an established mineral water producer, began to bottle Pepsi and 7-Up.

UK market structure was radically altered in 1986 when two new ventures were formed: i) a JV between Coca-Cola and Schweppes Beverages (hereafter, CCSB); ii) a merger between the soft drinks businesses of Britvic and Britannia Soft Drinks, forming Britvic.²⁸ The main incentive was that the market was becoming national rather than regional (equivalent to an increase in effective market size), and retail chains and other buyers wanted to do business with one national rather than many regional suppliers.²⁹ Also, using several bottlers meant that marketing incentives were lessened as advertising efforts would, in part, be appropriated by other firms.

A 1991 Monopolies and Mergers Commission (MMC) inquiry found that CCSB had a 42.7% share by market value and Britvic a 22.4% market share. Since 1987, Britvic had increased their market share from 19.5%, but at the expense of smaller firms, rather than CCSB.³⁰ It was estimated that the number of firms operating in the UK was 100, compared with the 1986 estimate of 270 firms (Sutton, 1991). By 1993, the number of firms operating in the UK was

²⁸ At this point in time, CCSB controlled the Coca-Cola, Fanta and Lilt brands, and also Schweppes, Russchian, etc., giving them a presence in most market niches; since 1990, they have considerably expanded abroad, acquiring Perrier's non-water interests to give a strong position in Spain and France. Britvic is the only other UK firm to produce a full range, including Pepsi and 7-Up, with a far stronger position in the licensed trade due to connections with leading brewers.

²⁹ In the UK, the top 5 supermarkets account for 62% of sales, versus 21% in the US; 54% of Sainsbury's sales come from own-brand labels (Quelch and Harding, 1996). When Sainsbury's Classic was first introduced in 1994, 2 liters cost 59 pence versus 105 pence for Coke; Coca-Cola's market share initially slumped from 63% to 33% in Sainsbury supermarkets. In 1995, own-label cola took 65% of total cola sales in Sainsbury and 15% of the total UK cola market (Quelch and Harding, 1996).

³⁰ In 1993, Britvic/PepsiCo launched a new brand, Pepsi Max, a diet cola with a trendy appeal, spending £3.5m on advertising. This was the first time PepsiCo had launched a new product in any other market apart from the US, first introducing it in Scotland. By contrast, CCSB spent only £1.2m on its diet brand, Diet Coca-Cola. Thus, an absolutely higher amount was spent by Britvic/PepsiCo and Pepsi Max immediately took a 10% market share, and accounted for 20% of Pepsi's UK sales by the end of 1995. The observed successful strategy is not to compete with Coca-Cola on exactly the same product, but instead to innovate, to develop new market niches. Britvic also introduced a new innovative and award winning advertising campaign for its Tango brand, highlighting its tangy orange flavor. The packaging was also redesigned, and the brand increased its market share.

further reduced to 70 (Panorama, 1995). The evidence on the number of firms is consistent with the Sutton hypothesis that the less efficient firms or the large fringe of small firms can no longer compete as advertising expenditure escalates. The firms escalating their expenditure will break free from the rest of the pack, and either merger and/or exit takes place. In 1996, Coca-Cola bought out the franchise agreement, ending the 10 year old UK joint venture, and consistent with Hypothesis 2, this shows further evidence of forward vertical integration.

In 1997, Coca-Cola created a new 'anchor bottler' in the Nordic countries called Coca-Cola Nordic Beverages to serve Denmark, Sweden and Norway. This was a joint venture between Coca-Cola (49%) and Carlsberg A/S (51%). In 1998, the largest Coca-Cola bottler outside North America was split into two companies. Coca-Cola Amatil Limited of Australia which had expanded to include operations in 18 countries on three continents spun off its European bottling operations as a separate publicly listed company, Coca-Cola Beverages (Coca-Cola owns 50%).³¹ Overall, the evidence is consistent with Hypothesis 3.

5. Summary and Conclusions

The main objective of this industry case was to assess the effect of European integration on the competitive process in the soft drinks industry, applying the new theory of industrial structure as developed most fully in Sutton (1991). Our results showed first that as market size increased, so too did advertising expenditure, although not faster than market size. Secondly, an increase in concentration was observed at the EU level, and no systematic pattern was observed at the national level. We predicted that market integration would have differential effects on the two

³¹ 1997: Coca-Cola Enterprises is the world's largest bottler, accounting for over half of all Coke products bottled in the US (44% owned by Coca-Cola in 1997). Pepsi bottling operations accounted for 52% of Pepsi's soft drink sales in the US.

major segments within the soft drinks industry in the way that firms responded. Undertaking such a case study allowed us to assess how different structural features impacted the way that firms respond to the underlying Type 2 industry nature.

Within the mineral water segment, firms are capacity constrained by the legal requirement of bottling at source. Market size has been increasing over the past decade across all member states (starting from a very low base in the UK). Both the French and Italian market structures have been characterized by increasing consolidation, and the extent of MNE activity has also rapidly increased. It was argued (Sutton, 1991) that the French market was relatively stable. We believe that one of the major reasons the Nestlé-Perrier merger took place was in order to exploit the Perrier brand name across the entire EU. In general, it is difficult for advertising campaigns to be transferable across borders, if only because of language difficulties, but it may be easier to transfer management expertise. Thus, the EU may become unified through integration of corporate strategy. As observed in the data, MNEs such as Nestlé and Danone are acquiring mineral water springs in various member states; distribution is limited only by the degree of transport costs.

Within the CSD segment, we then investigated the extent of a first-mover advantage. We showed that market size increased, raising the incentive for PepsiCo and other CSD firms to escalate their advertising expenditure. If other soft drink firms such as PepsiCo do begin to heavily advertise their products as market size increases, but Coca-Cola does not lose market share, then we can conclude that the first-mover advantage must be stronger than the market size effect. On the other hand, if we were to observe an erosion in Coca-Cola's market share, this would suggest that other firms are successfully convincing consumers that the (perceived) quality of their products is higher than Coca-Cola. In all member states, Coca-Cola has not been losing market share. Only in the

UK market is PepsiCo succeeding in persuading consumers to buy their product, with the introduction and subsequent intensive advertising of their innovative product, Pepsi Max. Interestingly, this implies that the first-mover advantage is stronger than the market size effect.

In conclusion, we have shown that the soft drinks industry is currently in transition, becoming increasingly dominated by MNEs who make decisions based on overall opportunities within the European market. Thus, this case study suggests that trade integration is not the only route to market integration. Integration of corporate strategy through multinationality is an additional way.

Appendix: Market Shares in the Soft Drinks Industry (ECUm)

EU	1987	EU	1993
CCSB	1053	Coca-Cola	1494
Coca-Cola	844	CCSB	1483
Source Perrier	746	Nestlé	1285
Nestlé	370	Danone (BSN)	976
EU Market Size	11411	EU Market Size	18235

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