Does Strategic Group Membership Affect Firm Performance? An Analysis of the German Brewing Industry

Unternehmensstrategien und Performance: Eine Analyse strategischer Gruppen in der deutschen Brauwirtschaft

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Abstract

The concept of strategic groups has been successfully applied for analyzing firm strategies, structures and performance in various industries. Based on a large-scale empirical study, this paper identifies strategic groups in the German brewing industry and analyzes the effects of group membership on economic performance. The brewing industry is an interesting research object. The severe economic crisis German breweries face in their home market and the deep structural changes reshaping the global beer industry are forcing German breweries to rethink their strategic position. The analysis reveals a limited number of strategic groups and significant performance differences between these groups. Both results are in line with the central hypotheses of the concept of strategic groups. The empirical results enable firm managers to benchmark their breweries against more successful strategic groups, to better adapt corporate and competitive strategies to firm environments, to identify more profitable strategic positions, and to take action to switch from one strategic group to another.

Key words

beer market; brewing industry; firm performance; strategic groups

Zusammenfassung

Das Konzept der strategischen Gruppen ist wiederholt zur Analyse des Zusammenhangs von Unternehmensstrategien und -Performance eingesetzt worden. In diesem Beitrag untersuchen wir auf der Grundlage einer großzahligen empirischen Studie, inwieweit in der deutschen Brauwirtschaft strategische Gruppen existieren und die Zugehörigkeit zu einer dieser Gruppen Einfluss auf die Unternehmens-Performance hat. Die Brauwirtschaft ist ein besonders interessanter Anwendungsfall für das Konzept der strategischen Gruppen, da sie mehr als 1 200 Unternehmen umfasst und zugleich tiefgreifende Veränderungen der Weltbrauwirtschaft wie auch des Verbraucherverhaltens die Unternehmen zwingen, ihre Strategien kritisch zu überprüfen. Im Rahmen der Untersuchung konnten die beiden zentralen Annahmen des Konzepts der strategischen Gruppen – Existenz einer begrenzten Anzahl strategischer Gruppen sowie zwischen ihnen bestehender Performance-Unterschiede – bestätigt werden. Die Untersuchungsergebnisse haben vielfältige Implikationen für das Management von Unternehmen der Brauwirtschaft; sie erlauben es Managern u.a., ihre Brauereien mit erfolgreicheren Wettbewerbern zu vergleichen und Maßnahmen zum Wechsel in eine mehr Erfolg versprechende strategische Gruppe einzuleiten.

Schlüsselwörter

Biermarkt; Brauwirtschaft; strategische Gruppen; Unternehmens-Performance

1. Introduction

The food and beverage industries are often characterized as crisis-resistant growth industries. Once a typically local industry strongly influenced by internationally diverse consumer preferences, international trade in food products has been surging (ERNST & YOUNG et al., 2002). Therefore, globalization and trade on international food product markets have become highly relevant issues in the food industry (FISCHER, 2003). Nevertheless, a closer look reveals that this development is subject to controversy. Whereas emerging markets offer large growth and profit potentials, the expansion of many mature food and beverage markets in the western world has

slowed considerably, making these markets all the more competitive (TOZANLI, 2005).

High competitive pressures are common throughout large parts of the German market for food products. This is due to factors such as changing consumer behavior, market share gains by retailer brands and low-price discount stores, new international retail sourcing strategies, growing concentration ratios throughout food supply chains and the market entry of large foreign competitors. As a result, for the most part, the profitability of the German food industry is low, and firms jockey to find more profitable positions in the market (LEYRER, 2004). The many small and medium-sized companies and the (comparatively few) large food manufacturers have been struggling with international competition, on the one hand, and the peculiarities and challenges of the domestic market, on the other (HEIN, 2004). Nevertheless, despite generally difficult market conditions in nearly all subsectors of the food industry, firms exist that are more profitable than their most important competitors and the industry average. This situation raises two questions: what factors distinguish more profitable from less profitable firms, and how can these differences be explained?

One possible explanation is provided by the theoretical concept of strategic groups. It is based on the assumptions that in each industry a limited number of strategic groups exist and that membership in a specific strategic group strongly influences firm performance (BARTÖLKE, 2000). The concept of strategic groups has been successfully applied to very diverse industries (HOMBURG and SÜTTERLIN, 1992), including the dairy industry (ANNAS, 1994; GLOY, 1996), agriculture (MCLEAY, MARTIN and ZWART, 1996; FERNÁNDEZ et al., 2004) and the functional food business (CLOUTIER and SAIVES, 2002).

In this paper we apply the concept to the German brewing industry. Due to the deep economic crisis this industry has been undergoing for nearly two decades, the strategies pursued by firms operating in this shrinking and highly competitive industry deserve more attention. Earlier analyses of firm strategies and firm performance in the German brewing industry were restricted to specific industry segments (for instance, medium-sized family firms or regional subsectors, such as the Bavarian beer industry) or mainly relied on qualitative research methodologies (BRUNKEN, 1990; GOEHLER, 1993; MARX, 1998; LUDIN, 2001). Thus, this paper presents the first in-depth, industry-wide quantitative analysis of firm strategies. It is based on a written survey in the form of a census in order to more thoroughly analyze corporate and competitive strategies, strategic groups and firm performance.

2. Background: The Brewing Industry

2.1 The World Brewing Industry

Over the last two decades, the world beer industry has been characterized by three megatrends – growth, concentration and globalization – dramatically changing the structure of the industry and breweries' competitive environment.

Average annual growth rates of about 2% have contributed to a considerable market expansion since the late 1980s. Production volume grew from 1,076 million hectoliters in 1988 to 1,455 million hectoliters in 2003. Since then, growth rates have increased considerably, reaching 3.5% in 2005 and 6.0% in 2006 and contributing to a total market volume of nearly 1,700 million hectoliters in 2006. In 2007, the world market again showed a high growth rate and grew to nearly 1.8 billion hectoliters. This accelerating market growth has been driven mainly by fast growing emerging and developing markets, such as Russia, China and Nigeria (BARTH-HAAS GROUP, 2006/2007). Whereas the United States has for decades been by far the largest beer market with an annual production volume of around 240 million hectoliters, China overtook the market leadership in 2004 with an output of more than 290 million hectoliters (EBNETH, 2006a). Since then, the Chinese market has shown further extraordinary growth, reaching a production volume of about 350 million hectoliters in 2006; in 2010, experts expect an output volume of 450 million hectoliters. Although brewing is a global industry, the 40 leading countries account for 93% of production volume. Important producers are located in North and South America, in East Asia, in some African countries, such as Nigeria and the Republic of South Africa, and in Europe (BARTH REPORT and HANSMAENNEL, 2006).

Besides growth, increasing concentration ratios have been major characteristics of the world beer industry. In 1988, the top ten brewers had a combined market share (CR 10) of 32.4%. CR 10 rose slowly between 1988 and 1998, but increased sharply after the turn of the millennium and reached more than 60% in 2006 (EBNETH, 2005; BARTH-HAAS GROUP,

Table 1. Top Ten Brewers 2006

Rank	Company	Country	Production volume 2006 in hectoliters	Share of world beer production
1	InBev	Belgium	222.0	13.1%
2	SABMiller	UK	216.0	12.7%
3	Anheuser-Busch	USA	183.2	10.8%
4	Heineken	The Netherlands	131.9	7.8%
5	Molson-Coors	USA/Canada	49.5	2.9%
6	Modelo	Mexico	49.4	2.9%
7	Carlsberg (without BBH)	Denmark	49.2	2.9%
8	Tsingtao	China	45.7	2.7%
9	Baltic Beverage Holding (BBH)	Russia	45.5	2.7%
10	Femsa	Mexico	37.7	2.2%

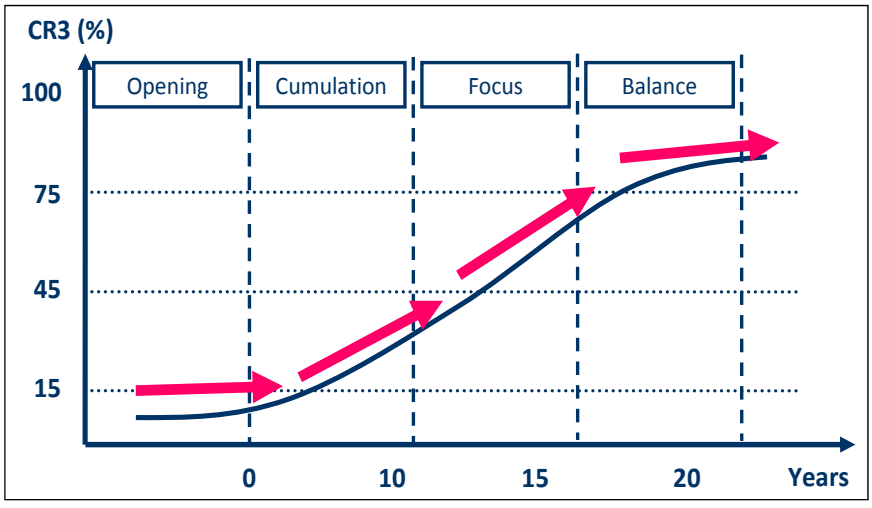
Source: BARTH-HAAS GROUP (2006/2007: 32)

2006/2007). In 2006 the list of top ten brewers consisted of several global players (InBev, SABMiller, Heineken and Carlsberg) as well as large national market leaders, like Anheuser-Busch, Molson-Coors, Modelo and Tsingtao (table 1). The merger of InBev and Anheuser-Busch in 2008 strongly contributed to further concentration by creating a global brewing company with an annual output of about 460 million hectoliters and a market share of about 25% (KÖHN and LINDNER, 2008). Growing concentration ratios have also been highly characteristic of most national beer markets.

DEANS, KRÖGER and ZEISEL (2002) classify the development status of markets with reference to the combined market share of the top three producers (CR 3). Based on extensive empirical studies, the authors hypothesize a typical pattern of market phases in globalizing industries. According to DEANS et al. (2002), markets tend to be highly deconcentrated in an early phase (CR 3 < 15%). Then they enter the cumulation phase, in which firms grow rapidly, many mergers and acquisitions take place, and future world market leaders begin to emerge. In this phase, firm size becomes more and more important for competitiveness and CR 3 grows rapidly to up to 45%. The following focus phase is characterized by a CR 3 between 45% and 75%. The velocity of market concentration tends to slow down, and future world market leaders can be clearly identified. Mega-mergers and acquisitions become more prevalent. In the balance phase (CR 3 > 75%), mergers and acquisitions are rare; a few remaining players dominate the market (figure 1).

The world brewing industry has developed very much in line with the framework described by DEANS et al. (2002). Of the world's 40 most important national beer markets, 28 had already entered the balance phase in 2006. These include many emerging and developing markets, such as Mexico and Columbia (CR 3: 100%), Turkey (99%), Brazil (95%) and Nigeria (94%), as well as traditional beer producers, such as Canada and Poland (84% each) and the United States (78%). Eleven countries, most of them traditional European beer markets (for instance, The Netherlands, Belgium, the United Kingdom

Figure 1. Market Phases in Globalizing Industries



Source: after DEANS, KRÖGER and ZEISEL (2002)

and Austria), are in the focus phase. For the fast developing markets of China (50%) and Russia (69%), the focus phase can be expected to be no more than a transition to the balance phase. Only one leading beer market is still in the cumulation phase: Germany (33%), which is therefore in an internationally unique market situation (BARTH REPORT and HANSMAENNEL, 2006). Interestingly, the world beer market as a whole is also still in the cumulation phase (CR 3: 37% in 2006). So, from the perspective of the DEANS et al. (2002) model, further market concentration can be expected and recent mega-mergers (InBev and Anheuser-Busch; takeover of Scottish & Newcastle) do not come as a surprise.

Growing concentration ratios in the world beer markets are mainly due to a considerable number of international mergers and acquisitions. The globalization of the industry has been pushed mainly by five international brewing groups: InBev, SABMiller, Heineken, Carlsberg and Scottish & Newcastle (EBNETH, 2005), the last of these itself a victim of an international takeover by Heineken and Carlsberg in April 2008. According to RÖSSING (2005), the top five brewing groups spent more than €75 billion in around 400 mergers and acquisitions between 2000 and 2005. The 31 biggest deals alone accounted for approximately €64 billion (EBNETH and THEUVSEN, 2007a). More recently, new mega-deals have occurred. One impressive example is the merger of InBev and Anheuser-Busch in 2008.

As a result, the leading brewing groups' degrees of internationalization have been growing rapidly. EBNETH and THEUVSEN (2007b) calculated the Foreign Sales Index (FSI) and the Network Spread Index (NSI) of leading brewing groups. FSI is defined as the ratio of a company's foreign sales to total sales and is the most common way of measuring the degree of internationalization. The NSI was first proposed by IETTO-GILLIES (1998). It is calculated by dividing the number of countries in which a company maintains subsidiaries (n) by the total number of countries that received foreign direct investments during the investigation period (n*). Nevertheless, since beer is not produced in significant quantities in every country, the NSI provides more meaningful results if n* is restricted to those 167 countries that, according to BARTH-HAAS GROUP (2005/06), showed a production volume of at least 4,000 hectoliters in 2004 (EBNETH and THEUVSEN, 2007b). Table 2 presents the FSI and NSI of selected international brewing groups in 2004.

Table 2. Degrees of Internationalization of Leading Brewing Groups 2004

Company	Country	FSI	NSI
InBev	Belgium	97.0	41.9
Heineken	Netherlands	94.9	35.9
Carlsberg	Denmark	94.7	18.0
SABMiller	UK	85.7	13.8
Scottish & Newcastle	UK	68.1	9.6

Source: EBNETH and THEUVSEN (2007b)

2.2 The German Brewing Industry

Unlike the world market, the western European beer market has been in decline since the mid-1990s. The average annual decline rate has been about 0.3%. Nevertheless, with an annual output well above 300 million hectoliters, the western European market still accounts for nearly 20% of global beer production. A closer look reveals remarkable differences between regional markets. Whereas beer consumption is rising in southern European countries like Spain and has benefited from duty reductions in some Scandinavian countries, the still dominant German and UK markets are very weak, with annual decline rates of 1% or more (EBNETH and THEUVSEN, 2006).

In 2005 German food (and tobacco) manufacturers with more than 20 employees had a turnover of about €153 billion and employed more than 500,000 people. With regard to turnover, the meat industry (more than €30 billion) and the dairy industry (more than €23 billion) are by far the largest subsectors (BMVEL, 2006). Producers of bakery goods are third, and the beverage industry - including the brewing industry - is fourth. Taken separately, the brewing industry is Germany's fifth largest subsector of the food industries, with a turnover of about €11.1 billion per year (2004) and about 30,000 employees in companies with 20 or more employees (BMVEL, 2006). Furthermore, more than 100,000 persons are currently employed in upstream sectors of the brewing industry and about 50,000 persons in downstream sectors (DEUTSCHER BRAUER-BUND, 2006b).

In 2006, 1,284 German breweries produced about 107 million hectoliters of beer. The structure of the German brewing industry is unique since Germany has by far the largest number of breweries of any country in the world. Of all the breweries in the European Union, 75% are located in Germany. In 2004, the average production volume per brewery

was only 38,026 hectoliters in Bavaria, 42,917 hectoliters in Baden-Württemberg and 83,468 hectoliters in Germany as a whole. These numbers are far below the average size of production facilities in other European countries, for instance, Italy (853,200 hectoliters), the UK (957,650 hectoliters) and the Netherlands (1,702,000 hectoliters) (DEUTSCHER BRAUER-BUND, 2006b, 2006c, 2007).

Currently, radical changes are taking place in the German brewing sector. Demographic changes and changing consumer behavior have resulted in shrinking market volume. Domestic sales decreased from about 114.4 million hectoliters in 1992 to 95.4 million hectoliters in 2006; annual per capita beer consumption declined from about 142 liters (1994) to 116 liters in 2006 (DEUTSCHER BRAUER-BUND, 2007). Furthermore, so-called hybrid consumers tend to show multi-optional buying behavior. On the one hand, they are distinctly price-oriented; on the other hand, they also show narcissistic or hedonistic behavior with a desire for luxury goods (KUNERT, 2006). Therefore, consumption trends favor cheap beer as well as regional and national premium brands. Due to recent changes in buying behavior and remarkable overcapacities in the industry, pricing and competitive pressures have been growing continuously (NIEDERHUT-BOLLMANN, 2006).

Furthermore, international brewing groups, including Heineken, Carlsberg and InBev, have entered the German market and have been pursuing aggressive marketing and pricing strategies (EBNETH, 2006b; EBNETH and THEUVSEN, 2007a). Whereas in the past their export and international licensing strategies largely failed, acquisitions of domestic breweries have turned out to be a much easier – if not always profitable – market entry strategy. The internationalization strategies of foreign competitors as well as the mergers and acquisitions of national market leaders have strongly contributed to the ongoing consolidation process and growing competitive pressures in the German brewing sector (KUNERT, 2006; NIEDERHUT-BOLLMANN, 2006).

Furthermore, competitive pressures have led to marked structural changes (table 3). Whereas the total number of breweries in Germany has not changed significantly over the years, there has been an erosion of the middle segment. The trend clearly shows that very large brewing groups, on the one hand, and newly founded microbreweries, on the other, are the winners of ongoing changes in the industry. This trend closely parallels similar developments in the U.S. beer market that have emerged since the 1980s (BASTIAN et al., 1999; CARROLL and SWAMINATHAN, 2000). As a result, a concentration process has gained momentum. The aggregated market share of the five largest breweries (CR 5) grew from about 28% in 1998 to about 52% in 2004. As a consequence, the German brewing sector has started to slowly develop from a polypoly into a wide oligopoly dominated by a handful of national – in many cases family-owned – brewing groups and several local subsidiaries of international brewing groups (NIEDERHUT-BOLLMANN, 2006).

Table 3: Structural Changes in the German Brewing Industry

Company size by annual production volume	Number of companies		Change
	1995	2006	
Microbreweries (<5,000 hl per year)	643	816	+26.9%
Small breweries (5,000–50,000 hl per year)	393	284	-27.8%
Medium-sized breweries (50,000–200,000 hl per year)	136	104	-23.6%
Large breweries (200,000–1,000,000 hl per year)	71	51	-28.2%
Brewing groups (>1,000,000 hl per year)	29	29	+/-0%
Total	1,282	1,284	+0.2%

Source: DEUTSCHER BRAUER-BUND (2006a, 2007)

3. The Concept of Strategic Groups: Outline and Applications

The term *strategic groups* was coined by HUNT (1972), who distinguished strategic groups in the U.S. home appliance industry with reference to product differentiation, product diversification and vertical integration (MCGEE and THOMAS, 1986). According to MICHAEL PORTER (1980), who popularized the concept, a strategic group consists of those firms in an industry that pursue the same or, at least, very similar strategies. This results in similar firm behavior *vis-à-vis* competitive pressures.

The concept of strategic groups is often considered a bridging concept between industrial economics and strategic management research. From the industry

perspective of industrial economics, the identification of strategic groups allows a more disaggregated analysis of industries. On the other hand, from the firm-centered perspective of strategic management research, strategic groups represent a more aggregated analysis of firm strategies (PORTER, 1981; BALDAUF, 1996).

Proponents of the strategic group concept argue that (a) a limited number of strategic groups can usually be identified in an industry and that (b) performance differences can be observed among the various strategic groups. Members of the same strategic group compete against each other, and, as a group, they compete against other strategic groups (BAUER, 1991). In order to identify strategic groups, the whole spectrum of corporate, competitive, functional and cooperative strategies relevant in an industry has to be taken into account. All strategic factors included in the empirical analysis should be important enough for firms to represent mobility barriers (HOMBURG and SÜTTERLIN, 1992).

The idea of mobility barriers was introduced by CAVES and PORTER (1977) and can be considered a generalization of the concept of barriers to market entry (BAIN, 1968). Mobility barriers are those factors that prevent firms from changing from one strategic group to another and that, at the same time, hamper the market entry of potential competitors from other industries (MCGEE, 1985). In other words, strategic decisions made by a firm in one strategic group cannot be easily imitated by firms in other strategic groups without incurring considerable investments in costs or time.

The existence of mobility barriers between strategic groups can explain the persistence of performance differences within an industry (CAVES and GHEMAWAT, 1992). Sources of mobility barriers stem from market-related factors (such as choice of product spectrum and distribution channels), industry characteristics (such as relevance of economies of scale) and firm characteristics (such as size, degree of vertical integration and management resources) (HOMBURG and SÜTTERLIN, 1992).

More recently, the concept of strategic groups has experienced a more thorough theoretical and methodological underpinning. DRANOVE, PETERAF and SHANLEY (1998) refer to the "New Economics of Industrial Organization". They offer an empirical testing model that allows researchers to distinguish the performance effects of strategic groups from firm- and industry-level effects. In accordance with early writings on strategic groups, they emphasize the crucial role of mobility barriers for the preservation of strategic groups and group-level performance effects over time. Various authors have proposed the integration of strategic group and resource-based theory. The resource-based view in strategic management argues that valuable, scarce, non-imitable, non-substitutable and durable resources are the main source of a firm's competitive advantage (WERNERFELT, 1984; THEUVSEN, 2001). SHORT, PALMER and KETCHEN (2003) argue that the single-firm perspective of the resource-based view in strategic management and the group-level perspective of the strategic group concept do not contradict each other but provide interesting insights into the effects of firm differences and group processes on performance. A similar perspective was taken by LEASK and PARNELL (2005), who stress that the resource-based view offers an additional lens for the interpretation of strategic groups, strategic decisions and performance effects.

The concept of strategic groups has been applied to very diverse industries (HOMBURG and SÜTTERLIN, 1992). The spectrum analyzed includes consumer goods industries (such as home appliance industries and pharmaceutical industries), capital goods industries (like information technologies, chemicals and machine building industries) and service industries (banking, insurance companies, airlines and so on). Consumer goods industries are a main focus of analyses based on strategic group theory (MCGEE and THOMAS, 1986).

Prior research has revealed that, in consumer goods industries, mobility barriers are often due to market-related factors, such as marketing strategy, distribution channels and characteristics of the product program. In some cases, industry (such as R&D intensity) and firm characteristics (vertical integration, firm size) are also relevant in the consumer goods industries. The situation is different in the capital goods industries, where mobility barriers are mainly due to industry and firm characteristics. These include production technologies, R&D intensity, vertical integration and firm size. In service industries, market-related factors are most important (HOMBURG and SÜTTERLIN, 1992).

The concept of strategic groups has been applied to diverse agribusiness subsectors. MCLEAY, MARTIN and ZWART (1996) identify five strategic groups among New Zealand intensive crop farmers focusing on the farmers' marketing, business and management characteristics. FERNÁNDEZ et al. (2004) analyzed strategic groups in Andalusian olive tree farms. Based

on a survey carried out in 2002 and a cluster analysis, they distinguish between six strategic groups, ranging from extensive olive tree farms in dry farming to diversified farms in irrigated farming, and find differences with regard to margin per hectare. INDERHEES (2007) uses factor analysis to extract five strategic dimensions in German agriculture: growth, diversification, cooperation, investment behavior and outsourcing. Using these dimensions as cluster-building variables, he identifies five strategic groups: diversifiers, precarious farms, cooperators, expanding lonely fighters and growth-oriented outsourcers.

CLOUTIER and SAIVES (2002) analyze 280 Canadian nutraceutical and functional food producers. Based on product, market and resource variables (such as product use, technology, distribution and main customers), they distinguish between six strategic groups. SCHRAMM, SPILLER and STAACK (2004) suggest a categorization of food manufacturers with reference to brand orientation (high/low) and regional focus (local, national, international, global). ANNAS (1994) and GLOY (1996) each identify four strategic groups in the German dairy industry. Whereas ANNAS refers to processing capacity, branding and distribution as relevant strategic variables, GLOY chooses production and raw material variables.

The brewing industry has been subject to several strategic group analyses. HATTEN and SCHENDEL (1977) provided an analysis of strategic groups in the U.S. brewing industry between 1952 and 1971. They were able to distinguish not only strategic groups but also causes of performance differences between groups. DAY, LEWIN and LI (1995) introduced data envelopment analysis into strategic group research in the brewing industry, whereas HOUTHOOFD'S and HEENE'S (1997) analysis of 36 Belgian breweries extended the regional scope of analyses in the brewing industry. Overall, strategic group analyses of the German brewing industry have been restricted to certain industry segments, such as medium-sized breweries (BRUNKEN, 1990), Bavarian breweries (LUDIN, 2001) and export-oriented breweries (MARX, 1998) or have refrained from applying advanced statistical techniques (GOEHLER, 1993). Other studies have not primarily focused on strategic groups but addressed related topics, such as success factors in the brewing industry (KUNERT, 2006).

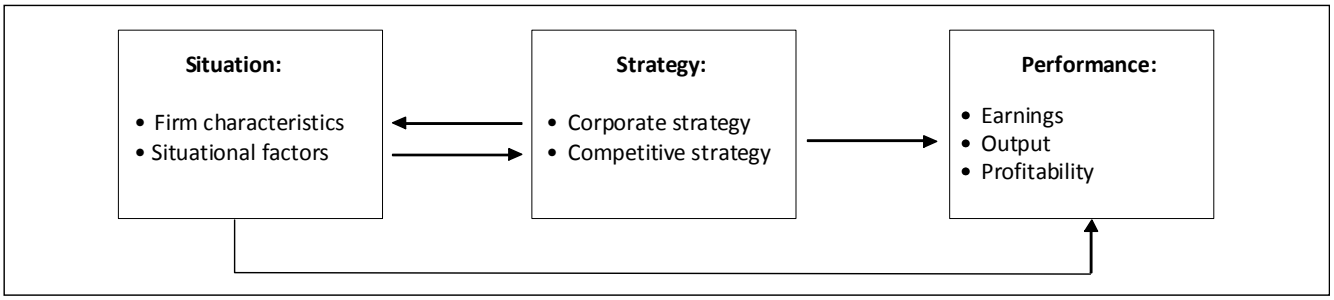
4. Methodology

4.1 Theoretical Framework

The structure-conduct-performance paradigm (MASON, 1949; BAIN, 1968) popular in the literature on industrial organization can be regarded as the basic theoretical framework not only of modern competitive theory but also of microeconomic strategy research (BÜHLER and JAEGER, 2002). Within industrial organization research, two theoretical strands can be distinguished. One strand assumes a passive adaptive behavior of firms supposing a one-sided causality. This research direction views the conduct and the resulting performance or success of an enterprise as determined by the structure of the industry (HAY and MORRIS, 1991). The competing behaviorist approach also incorporates firm behavior and interdependences between market structure and market behavior. Taking into account the competitive strategies of market players allows intra-industrial analyses (SCHERER, 1985; JAQUEMIN, 1986). In this paper we employ the second approach by developing a contingency-theoretical framework.

As outlined in figure 2 and in line with contingency theory, it is assumed that the situation within an industry (for instance, intensity of rivalry, complexity and uncertainty of the environment) and firm characteristics (such as age, size and availability of financial and managerial resources) determine firm

Figure 2. Theoretical Framework



Source: NIEDERHUT-BOLLMANN (2006)

strategies; but, vice versa, firm strategies also influence the competitive situation within an industry, such as price pressures and innovation rates. Contingency theory hypothesizes that firm performance (earnings, output, profitability and the like) is determined by the quality of the fit between firm strategy, on the one hand, and the external and internal situation, on the other (WOLF, 2008). Strategy formulation and implementation are considered moderating variables affecting the strategy-performance relationship. Furthermore, the business environment, which comprises situational factors, also directly influences firm performance through such means as legislation, regardless of which strategy a firm pursues and how well this strategy has been implemented.

Strategies are the central construct in the theoretical framework outlined above. Strategies are long-term plans that guide a firm's day-to-day operational decisions and have a major impact on firm performance, the attainment of firm objectives and future firm development. A strategy determines the market orientation of a company, its competitive behavior and the allocation of its resources. Management literature distinguishes two main strategic management levels: corporate strategy and competitive strategy (BARNEY, 2001).

On the corporate level, the most important strategic decision is the choice of what the company produces and for whom (product-market combinations). Furthermore, decisions concerning distribution channels, internationalization, growth (or retrenchment) and diversification (or specialization) are core elements of corporate strategy. The elements of corporate strategies included in this study are outlined in table 4.

Competitive strategies refer to how firms compete in particular businesses and how strategic business units can gain competitive advantages through distinctive ways of competing in their market environment. PORTER (1980) popularized the distinction between cost leadership, differentiation and niche strategies and fleshed out the different ways of gaining competitive advantages. Table 5 refers to PORTER'S distinction and outlines the various elements of alternative competitive strategies included in this study.

Table 4. Corporate Strategy in the Brewing Industry

Strategic parameters	Variables
Products/ diversification	▪ Share of different beer varieties ▪ Share of non-alcoholic beverages ▪ Complementary products ▪ Other products ▪ Share of inhouse production
Markets	▪ Size of the main sales area (local, regional, national, international) ▪ International business activities ▪ Total beverage output
Distribution channels	▪ Share of alternative distribution channels
Growth	▪ External growth through acquisitions of other breweries or other beverage companies or licensing agreements ▪ International activities planned ▪ Satisfied with market share; no plans for further growth

Source: NIEDERHUT-BOLLMANN (2006)

Table 5. Competitive Strategy in the Brewing Industry

Strategic parameters	Variables
Cost leadership	▪ Price ▪ Costs per hectoliter ▪ Direct distribution ▪ Second mover ▪ Share of retailer-owned brands ▪ High utilization of capacities
Differentiation	▪ Advertising, sponsoring ▪ Innovations ▪ Container design ▪ Quality ▪ Company-owned food and beverage outlets ▪ Deliveries to prestigious food and beverage outlets ▪ Regional purchase ▪ Share of main beer brand ▪ Share of electronic commerce
Niche strategies	▪ Share of beer specialties/ niche products ▪ Regional niche

Source: NIEDERHUT-BOLLMANN (2006)

4.2 Survey

The theoretical framework outlined above served as a guideline for designing and carrying out a large-scale empirical study. All theoretical constructs were operationalized in a questionnaire, which comprised a total of 211 situational, strategic, performance and moderating variables. These variables show different scaling behavior. Where the respondents were asked to comment on pre-formulated statements, five-point

Likert scales were used. The performance variables were surveyed in two steps. First, the breweries were asked to disclose information on percentage changes of output quantities, turnover, earnings and return on investment (ROI) over the preceding three years. Then they were asked to self-evaluate their productivity, profitability and financial power in comparison to industry averages.

In a pre-test, respondents revealed no difficulties with the questionnaire. One question, concerning exit strategies, was deleted as it was considered too sensitive. For data analysis, SPSS 12.0 for Windows was used.

In 2005, 1,260 German breweries were surveyed. The sample is slightly smaller than the number of breweries (1,274 in 2005) published by the German Brewers Association. This is due to factors such as some bankruptcies and voluntary closure decisions in the industry. In all, 281 analyzable questionnaires were returned. This represents a response rate of about 22% of the whole sample, including micro-breweries; it is higher – about 40% – for the group of breweries with an annual output of more than 5,000 hectoliters.

5. Results

5.1 Strategy Dimensions in the German Brewing Industry

The theoretical framework embraces a considerable number of strategy variables. Correlation analyses indicated the existence of several independent strategy dimensions. In order to identify these dimensions, a factor analysis was conducted (main component analysis with varimax rotation). This allowed us to reduce the large number of strategy variables to a limited number of important factors underlying the strategic decisions of German breweries. Statistical criteria, such as eigenvalue and scree plot, and additional plausibility considerations implied a six-factor solution. This solution explains 49.71% of variance (table 6):

- **Size:** The first factor represents all strategic variables that influence firm and market size (total output volume, percentage of sales through beverage wholesalers, number of brewery-owned pubs and restaurants, size of the main sales area).
- **Innovation:** The second factor represents variables that describe a brewery's innovativeness, the velocity with which innovations are introduced into the market and brand image. The negative loading on "We always try to be first to introduce innovations into the market" can be explained by a different scaling (1 = I fully agree) compared to the variable "We are more innovative than our strongest competitor" (1 = I fully disagree).
- **Branding:** The third factor represents the following differentiation variables: product quality, brand image, sales price and percentage of branded products sold.
- **Production orientation:** The fourth factor is characterized by a high loading on the sales of the main brand as a percentage of total beverage output and a positive loading of the variable "inhouse-produced beverages". The high negative loading of the variable "total sales of nonalcoholic beverages" underpins the interpretation that this factor captures a brewery's orientation towards producing beer in its own production facilities.
- **Internationalization:** The fifth factor collects variables that describe the status quo and future development of a brewery's international business activities. This development is closely related to the statement "We always try to be first to introduce innovations into the market".
- **Mass-market orientation:** The sixth factor is characterized by a high positive loading of the variable "total sales of pils beer", a positive loading of the variable "sales price of the main beer brand" and a high negative loading of total sales of wheat beer. These characteristics are often found in breweries with a strong emphasis on mass-market products in the low-to-medium price segment.

The Kaiser-Meyer-Olkin (KMO) coefficient and the Bartlett test were used for testing the quality of the data analysis. The KMO coefficient indicates whether significant correlations exist that allow a factor analysis to be conducted. The value 0.696 can be considered "fairly good" (BACKHAUS et al., 2006). The Bartlett test tests the null hypothesis that all correlations are zero. The test variable is Chi-square distributed and is 986.31 with 351 degrees of freedom; this means that the correlations are significantly different from zero (sig. = .000).

Table 6. Rotated Factor Matrix of Strategy Variables

Variable	Factor 1 Size	Factor 2 Innovation	Factor 3 Branding	Factor 4 Production orientation	Factor 5 Internatio-nalization	Factor 6 Mass-market orientation
Total sales of beverages	0.844					
Size of the main sales area	0.727					
Percentage of sales through beverage wholesalers	0.630					
Number of brewery-owned pubs and restaurants	0.568					
Innovativeness compared to the strongest competitor		0.729				
Utilization of brewing capacities compared to the strongest competitor		0.596				
"We always try to be first to introduce innovations into the market."		-0.549			0.455	
Brand image compared to the strongest competitor		0.618	0.414			
Product quality compared to the strongest competitor			0.692			
Sales price compared to the strongest competitor			0.658			
Percentage of sales of branded products			0.560			
Sales of main beer brand as percentage of total beverage output				0.783		
Total output of non-alcoholic beverages				-0.708		
Inhouse-produced beverages				0.479		
"The importance of the brewery's international business activities will grow."					0.774	
"The importance of the brewery's international business activities is currently high."					0.726	
Total sales of wheat beer						-0.747
Total sales of pils beer				0.357		0.731
Sales price of the main beer brand (crate: 20 x 0.5 l)			-0.353			0.565
Cronbachs Alpha	0.727	0.681	0.714	0.623	0.606	0.598
% of variance	15.33	8.761	8.441	6.465	5.469	5.245

Note: Only factor loadings of at least 0.35 are listed.
Source: own calculation

5.2 Strategic Groups in the German Brewing Industry

A hierarchical cluster analysis was conducted in order to identify strategic groups in the industry under analysis. The six strategic factors identified through the factor analysis were used as cluster-building variables. First, the single linkage method (nearest neighbor) was used to identify outliers in the sample. This analysis did not show any results that required breweries to be eliminated from the sample. For cluster building, Ward's method was used. This method uses the variance criterion for cluster building and results in very homogenous groups (BACKHAUS et al., 2006).

The dendrogram implied a six-cluster solution. Furthermore, the elbow criterion showed a marked increase of heterogeneity when choosing a six-cluster instead of a five-cluster solution. Due to these statistical criteria and additional plausibility considerations, the six cluster solution was chosen. Mean value comparisons were used to identify differences between

the six clusters with regard to the cluster-building variables. Analysis of variance[1] allowed us to test for significant differences in mean values between clusters (table 7). Discriminant analysis was used for rechecking classification results. This method starts with given clusters and then analyzes to what extent the cluster-building variables are able to explain the assignment to groups (BACKHAUS et al., 2006). 87.2% of cases were clustered correctly.

The strategic groups in the German brewing industry identified through a cluster analysis can be described as follows:

Cluster 1: Large internationalized wheat beer specialists (n=17): This cluster represents breweries characterized by an above-average emphasis on product differentiation through branding. Sales prices, importance of the main beer brand, firm size and percentage of inhouse-produced beverages are far above average. Innovations are of minor importance; at the same time, the importance of the brewery's current and future international business activities is considered much higher than in the total sample. Percentages of sales of pils beer and nonalcoholic beverages are below average, while the percentage of sales of wheat beer is above average.

Cluster 2: Small local innovators (n=55): Firms in cluster 2 pursue product differentiation through innovations and a broad product range. The price of the main beer brand is above average, whereas sales of the main beer brand as a percentage of total beverage output is far below average. It is worth noting that the current and future importance of international business activities is considered high. Breweries in this cluster are smaller than the industry average, rely mainly on branded products and serve primarily local and regional markets.

Cluster 3: Local full-line wholesalers (n=48): Breweries in cluster 3 are characterized by a comparatively small percentage of inhouse-produced beverages; therefore, wholesaling plays a major – although not an exclusive – role in these companies. Branded products and main beer brand as percentages of total beverage output, firm size and price of main brand are far below average. Furthermore, product differentiation through branding and innovations is of minor importance to these breweries. Firms in this cluster tend to be full-liners, with broad product spectra and above-average percentages of nonalcoholic beverages. These breweries serve mainly local and regional markets.

Cluster 4: Local pils beer specialists (n=52): Breweries in cluster 4 are strongly specialized in pils beer production; nonalcoholic beverages are of minor importance. Product differentiation through innovations is of below-average importance, while differentiation through branding is of above-average importance. The percentages of inhouse-produced beverages and the sales portion of the main beer brand are remarkably high. Firms in this cluster sell their main beer brands at comparatively low prices. The firms are smaller than the industry average and serve mainly local and regional markets.

Cluster 5: Regional full-line mass producers (n=83): Cluster 5 consists of breweries that sell their main beer brands at comparatively low prices but, at the same time, demonstrate above-average utilization of production capacities. Firms in this group are full-liners and are strongly engaged in producing nonalcoholic beverages. International business activities and innovations are of comparatively low importance, but product differentiation through branding and sales of the main beer brand as a percentage of total beverage output are above average. The breweries in this cluster mainly serve regional and supraregional markets and their beverage output (in hl) is slightly below industry average.

Cluster 6: Large production-oriented innovators (n= 26): Cluster 6 consists of firms that put a great emphasis on product innovations. The breweries serve mainly regional and supraregional markets and are much larger than the industry average. The breweries are full-liners with broad product spectra, show above-average percentages of pils beer sales and distribute primarily inhouse-produced beverages. The prices of their main beer brands, their utilization of production capacities and the importance of international business activities are far above average.

5.3 Strategic Groups and Firm Performance

One of the central hypotheses of the concept of strategic groups is that performance differences between groups exist and, thus, that strategic group membership strongly influences firm performance.

[1] Due to the partial violation of the normal distribution assumption, an additional Kruskal-Wallis test was conducted. The test showed that the results of our analysis are not influenced by different calculation methods. Therefore, to the extent that no differences were found, only results of the analysis of variance are given below.

Table 7. Description of Strategic Groups

Cluster-building variables	Cluster 1 n=17	Cluster 2 n=55	Cluster 3 n=48	Cluster 4 n=52	Cluster 5 n=83	Cluster 6 n=26	Scaling
Factor 1: Size							
Total sales of beverages***	2.59 (1.179)	1.73 (0.56)	1.62 (0.606)	1.88 (0.90)	1.71 (0.595)	3.31 (0.736)	1 = up to 5,000 hl 2 = up to 100,000 hl 3 = 100,000 to 250,000 hl etc.
Size of the main sales area***	2.06 (1.249)	1.15 (0.356)	1.23 (0.425)	1.31 (0.466)	1.16 (0.366)	2.15 (0.784)	1=local, 2=regional, 3=supra-regional
Sales through beverage wholesalers***	27.56 (26.72)	13.54 (14.05)	11.27 (14.97)	20.04 (18.82)	10.56 (14.92)	41.06 (44.52)	% of total sales of beverages
Brewery-owned pubs and restaurants***	17.31 (24.03)	4.22 (5.58)	4.71 (5.61)	3.88 (5.84)	4.2 (6.16)	41.06 (44.522)	number
Factor 2: Innovation							
Innovativeness compared to the strongest competitor**	2.88 (0.781)	3.83 (0.771)	2.93 (1.223)	2.78 (1.026)	3.15 (0.878)	3.65 (0.797)	much lower =1 much higher = 5
Utilization of brewing capacities compared to the strongest competitor***	3.06 (0.827)	2.87 (0.933)	2.59 (1.041)	2.47 (0.924)	3.10 (1.033)	3.31 (0.884)	much lower =1 much higher = 5
"We always try to be first to introduce innovations into the market."*	3.12 (0.993)	2.04 (0.881)	2.89 (0.982)	3.00 (0.97)	2.94 (0.992)	2.12 (0.431)	I fully agree =1 I fully disagree=5
Brand image compared to the strongest competitor**	3.94 (0.659)	3.69 (0.940)	2.41 (1.066)	2.83 (1.136)	3.25 (0.954)	3.31 (0.884)	much weaker =1 much stronger = 5
Factor 3: Branding							
Product quality compared to the strongest competitor**	4.00 (0.612)	3.89 (0.685)	2.87 (0.806)	3.86 (0.825)	3.61 (0.703)	3.62 (0.941)	much lower =1 much higher = 5
Sales price compared to the strongest competitor**	4.00 (0.612)	3.78 (0.937)	2.73 (0.939)	3.57 (0.755)	3.09 (0.860)	3.50 (0.949)	much lower =1 much higher = 5
Percentage of sales of branded products*	100 (0.000)	95.85 (9.546)	67.85 (25.318)	94.97 (12.833)	91.83 (15.23)	89.07 (16.9	% of total sales of beverages
Factor 4: Production orientation							
Sales of main beer brand as percentage of total beverage output***	62.53 (20.078)	41.34 (14.361)	51.67 (24.816)	69.13 (18.79)	62.34 (22.855)	57.52 (28.33)	% of total sales of beverages
Total output of non-alcoholic beverages***	4.63 (6.826)	19.67 817.57)	21.04 (21.25)	2.17 (4.75)	21.66 (21.29)	15.96 (21.62)	% of total sales of beverages
Inhouse-produced beverages***	91.59 (9.631)	80.24 (16.201)	63.53 (22.728)	88.53 (17.687)	81.76 (17.916)	91.12 (11.487)	% of total sales of beverages
Factor 5: Internationalization							
"The importance of the brewery's international business activities will grow."**	3.24 (1.033)	3.20 (1.053)	3.34 (1.140)	3.57 (1.204)	4.35 (0.793)	3.27 (1.251)	I fully agree =1 I fully disagree =5
"The importance of the brewery's international business activities is currently high."*	3.00 (1.061)	2.58 (1.066)	2.85 (1.032)	3.25 (1.163)	4.11 (0.880)	2.81 (1.059)	I fully agree =1 I fully disagree =5
Factor 6: Mass-market orientation							
Total sales of wheat beer***	56.39 (29.869)	14.22 (9.401)	16.98 (17.659)	7.40 (9.659)	9.11 (8.514)	9.68 (8.878)	% of total sales of beverages
Total sales of pils beer***	5.31 (12.480)	19.69 (16.931)	19.82 (21.219)	50.93 (28.787)	26.61 (24.030	39.54 (33.64)	% of total sales of beverages
Sales price of the main beer brand (crate: 20 x 0.5)***	1.06 (0.243)	1.72 (0.854)	2.46 (1.022)	2.41 (1.183)	2.80 (0.994)	2.09 (1.019)	1= €12 and more 2= €11–€11.99 3= €10–€10.99 etc.

a: For each cluster, mean values and - in brackets - standard deviations are given.
b: ***, **, *: the mean value in this cell is significantly different from the standardized mean value of the total sample on the .001-, .01-, or .05 level, respectively.
Source: own calculations

For this reason, we used an analysis of variance to determine whether significant performance differences exist between the clusters identified. In an industry still dominated by family-owned firms not legally obliged to disclose financial information, performance data are not readily available and privacy needs have to be respected. Therefore, respondents were asked to report the development of total beverage output, turnover, profit and return on investment during the 2002 to 2004 period on seven-point Likert scales instead of disclosing exact data. Table 8 shows that there are significant differences with regard to all performance criteria. Furthermore, the analysis reveals that Cluster 1 (large internationalized wheat beer specialists) is more successful than the other clusters with regard to three out of four criteria. Only with regard to total beverage output are firms in Cluster 1 less successful than their competitors in other clusters. In stark contrast, Cluster 3 (local full-line wholesalers) shows the worst performance with regard to all performance criteria. Whereas respondents in clusters 1, 5 and 6 were able to markedly improve their performance over the three years surveyed, breweries in the remaining strategic groups tended to suffer from below-average performance development.

These results were largely confirmed by Waller-Duncan tests, which revealed homogeneous subgroups relating to the development of performance criteria between the years 2002 to 2004. The null hypotheses that the averages of the homogenous subsets are equal were rejected at the 0.05 level. It is interesting to see that some firms in Cluster 1 are only less successful than their competitors in other clusters where total beverage output is concerned; however, firms in Cluster 1 are significantly more successful than firms in other clusters with regard to return on investment. In stark contrast, firms in Cluster 3 are always among the least successful subgroups (table 8 and FRANZ, 2005).

Respondents' self-assessments with regard to the profitability and financial power of their enterprises largely parallel the results given in table 8. With regard to both performance dimensions, significant differences can be observed between the strategic groups, and in both cases breweries in Cluster 1 consider themselves most successful, while breweries in Cluster 3 consider themselves least successful.

6. Conclusions and Implications

The empirical results show that the concept of strategic groups is an adequate theoretical framework for an analysis of the German brewing industry. We were able to confirm the concept's two most central hypotheses: the existence of a limited number of strategic groups in an industry and the existence of performance differences between these strategic groups. The strategic positions of the breweries surveyed are quite diverse. Whereas, on the one hand, strong brand orientation is typical of many breweries, on the other hand, low investments in brands and low-pricing strategies are also common. Similar differences can be observed with regard to innovativeness and internationalization strategies. Obviously, increasing competitive pressures are addressed in various ways and with very diverse outcomes.

The empirical findings have manifold managerial implications. The results of the analysis allow managers in the German brewing industry to determine the strategic group their firms are in and to compare their firms with more successful strategic groups.

Table 8. Development of Company Performance 2002 to 2004

Development of performance criteria 2002 to 2004	Cluster 1 n=17	Cluster 2 n=55	Cluster 3 n=48	Cluster 4 n=52	Cluster 5 n=83	Cluster 6 n=26	Waller-Duncan test (increasing)
Total beverage output **(p=0.019)**	4.47 (1.407)	4.06 (1.754)	3.47 (1.866)	4.31 (1.853)	4.60 (1.693)	4.56 (1.850)	3+2+4+1è2+4+1+6+5
Turnover **(p=0.008)**	5.00 (1.519)	4.20 (1.685)	3.57 (1.889)	4.24 (1.797)	4.77 (1.643)	4.54 (1.668)	3+2+4+6è2+4+6+5+1
Profit **(p=0.002)**	5.50 (1.401)	4.30 (1.502)	3.64 (1.665)	4.35 (1.604)	4.62 (1.468)	4.63 (1.583)	3+2+4è2+4+5+6è5+6+1
Return on investment **(p=0.002)**	5.54 (1.450)	4.13 (1.439)	3.41 (1.570)	4.21 (1.663)	4.35 (1.246)	4.39 (1.720)	3+2+4+5+6è1

a: For scaling seven-point Likert scales are used (1= >10% decrease; 2= between 5 and 10% decrease; 3= up to 5% decrease; 4= constant; 5= up to 5% increase; 6= between 5 and 10% increase; 7= >10% increase).
b: For each cluster mean values and - in brackets - standard deviations are given.
Source: own calculations

Furthermore, they can determine what strategic decisions have to be made in order to close strategy gaps and to overcome mobility barriers between strategic groups. From our results, we can conclude that overcoming mobility barriers and finding a position in a more successful strategic group is paramount for many breweries, despite the difficulties of overcoming mobility barriers. In doing so, breweries should focus primarily on those mobility barriers that are easiest to overcome, for instance, the lack of preparedness to develop innovative ideas. Other mobility barriers seem to be more difficult to overcome. Successful branding, for instance, is nearly impossible for many small and medium-sized breweries due to the limited availability of financial resources and management know-how. This is consistent with the resource-based view in strategic management, which argues that different mobility barriers are of very different relevance (BARNEY, 1991).

The results confirm PORTER'S (1980) "stuck in the middle" hypothesis, according to which only a clear strategic position – be it cost leadership or differentiation – allows above-average performance in any given industry. The empirical results indicate that many German breweries are still "stuck in the middle", that is, lack a clear strategic focus that allows them to compete successfully. This may contribute to the poor financial performance of many companies in the sample and may require a more systematic strategic management than is commonly found at present in many small and medium-sized enterprises (RABBE and SCHULZ, 2007).

Future research should explore the processes that explain a firm's membership in a strategic group and the reasons why firms remain in their strategic groups even though performance differences are sometimes large and at least some mobility barriers comparatively low. Neoinstitutional theories highlight mimetic behavior resulting from uncertainties and ambiguities. Mimicking competitors reduces managers' and owners' risk of being blamed for wrong decisions (DIMAGGIO and POWELL, 1983; FIOL and O'CONNOR, 2003), but may, at the same time, contribute to managerial rigidities and a lack of innovative strategic approaches. From a resource-based perspective, the limited availability of valuable, scarce, non-imitable and non-substitutable resources is employed for explaining certain firm behaviors, such as not attempting to change strategic group membership (LEASK and PARNELL, 2005). Path dependences can also be considered a possible explanation for holding on to once successful, but now obsolete strategies and success factors. The latter explains the decline not only of individual enterprises but also of whole industries (MILLER, 1993). GARUD and KARNOE (2001) argue that breaking inefficient paths requires a process of mindful deviation and that this process typically requires external interventions through consultants or other outsiders. Last but not least, a strong industry culture may contribute to adherence to traditional strategic behavior. The culture of an organization or an industry comprises the shared norms and values that have developed within a social system and are viewed as valid and unquestionable by its members. It is often argued that strong cultures distract firms and industries from the early perception of external threats and serve as barriers to innovation and radical change (SCHREYÖGG, 1989). Without more in-depth research, it remains an open question which theory best explains why many firms do not change group membership despite below-average performance.

In summary, the concept of strategic groups raises more questions than it answers, and identifying strategic groups can be considered no more than a first step toward a more thorough explanation of the emergence and continued existence of strategic groups in an industry.

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