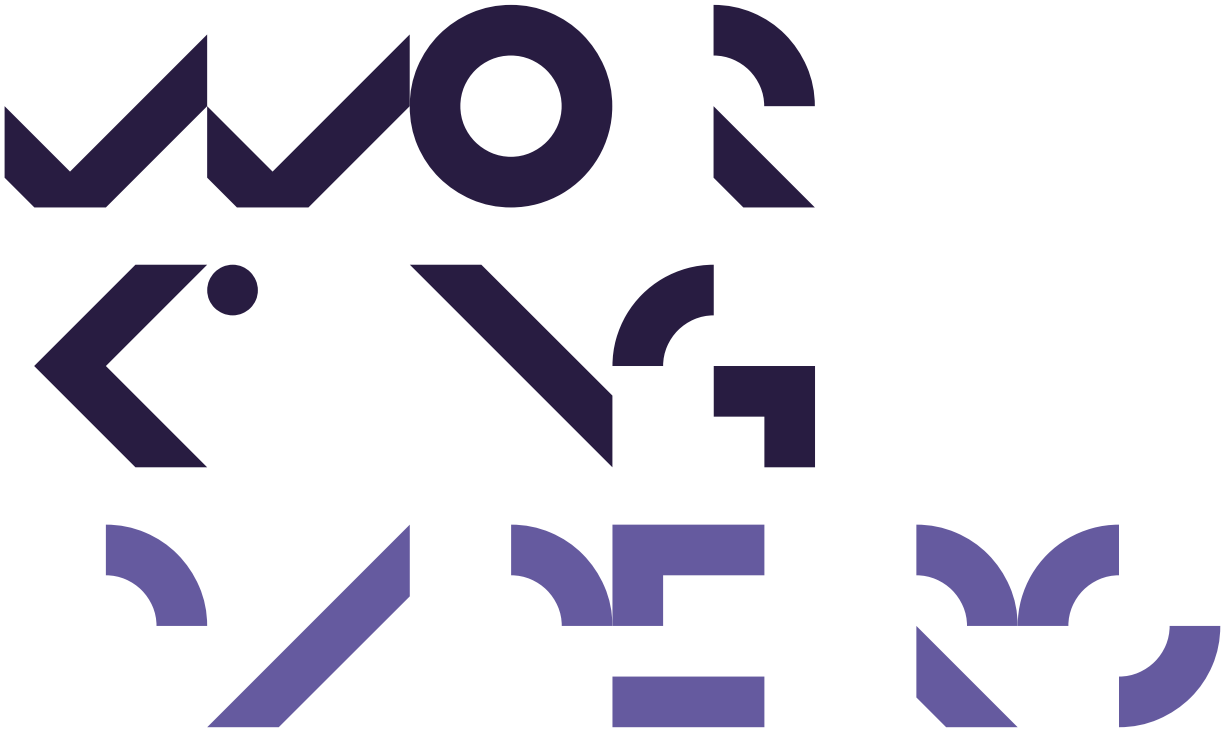

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Branding and Performance in the Global Beer Market

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Branding and Performance in the Global Beer Market

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Abstract

The mass market for beers is served by a few global breweries in an oligopoly structure covering most of the world market. The homogeneity of their main lager beers are very high and produced at large scaled plants at low costs. However, the breweries spend large amounts of money to promote some of the lager beers as premium beers and at a high and increasing price premium. Based on a database with prices for standard and premium lager, the paper study the development in the consumption of different types of beers on the global market in recent years. We estimate the price premium on premium beers and relate it to the rapid change in the oligopoly structure of the market through the merger and acquisition activities.

Keywords: Branding, brewing industry, income elasticities of beer

JEL Classifications: L11, L66, M37

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1. Introduction

The global markets for alcoholic drink has been changed in recent years, and there has been a trend away from wine and spirits towards beer and this trend has made the beer market grow compared to market for other alcoholic drinks in the last 50 years, see Piron and Poelmans (2016). The growth has been driven by an increase in consumption per capita which has doubled in the period, mainly as a result of an increasing beer consumption in the developing countries whereas the consumption in the developed countries has been stagnant or declining.

As a consumer good, beer is a branded product, and the beer price therefore varies a lot between different types of beers, see Madsen and Wu (2016). This paper focuses on the development in the demand of different types of beers with a special focus on the branded segment of the global beer market, the premium lager. Marketing and sales promotion take more than 15% of the total cost among the big breweries and this places the brewing industry among the top branded consumer industries. The price premium earned by branding of beers may be the motivation behind the large expenses on marketing and sales promotion, but it may also be one of the motives for the merger and acquisition activities in the industry in recent years. The paper looks into these relationships in the global beer market.

The next section examines the development of demand for different types of beers in the last 15 years, and estimates income elasticities for different types of beers. Section 3 looks at the branding effects for the premium beers and section 4 discusses the concentration of the industry and relates it to the merger and acquisition activities, and the performances of the industry in recent years. Section 5 concludes the paper.

2. The structure of the global beer market

The global beer market has undergone a massive structural change since the turn of the century. Table 1 lists the World consumption of different types of beers; both the quantity consumed and the value of consumption, according to Market Data Analytics in 2016. Their consumer data include 47 large countries worldwide and the total beer consumption of 190.3 billion liters in 2016. The data covers about 96% of the total world beer consumption as reported by FAO statistics in

2014. For a list of the countries see the Appendix. However, Saudi Arabia and United Arabian Emirates have an insignificant consumption of beer products. They will therefore not be included in the time series analysis below.

Table 1. World consumption of different types of beers in 2016 and the growth since 2000.

	Quantity consumed (Bill liter)			**Value of consumption (Bill USD)**		
Type of beers	2016	Freq. 2016	% 2000-16	2016	Freq. 2016	% 2000-16
Standard lager	139.7	73.4	55.6	335.8	59.1	53.9
Premium lager	30.6	16.1	31.8	143.8	25.3	45.1
Ales and stouts	5.7	3.0	14.6	23.7	4.2	16.2
Specialty beers	9.0	4.7	27.8	47.4	8.3	42.8
Low alcohol beers	5.3	2.8	108.0	18.0	3.2	110.9
Total beer cons.	190.3	100.0	49.2	568.7	100.0	50.0

Source: Market Lines' Database - Market Data Analytic.

The lager beer is the most popular type of beer and covers close to 90% of the world consumption with the standard lager as the main type. The lager beer is bottom fermented at a low temperature which makes beer more clears compared to ales & stouts, where the top fermentation makes beer less clear but more tasteful. The premium lagers usually have a higher alcohol content and is advertised by the breweries as a high quality beer and sold with a price premium. The lager beer has gained market share over the period from 2000 to 2016 as verified by a higher growth rate compared with the growth rates of ales & stout and specialty beer. Althoug low alcohol beers have a higher growth rate, total consumption in 2016 is only 5.3 billion liters, representing 2.8% of the world market. The specialty beers are craft-styled beer brewed in small-scale local breweries emerged in the 1990s as so-called microbreweries and they use a variety of brewing methods. However, specialty beers accounted for less than 5% of the world market in 2016 and have seen a shrinking share of the World market since 2000. For more details on the historic development of the beer types, see Poelmans and Swinnen (2011) and Persyn and Swinnen (2011).

Table 1 also lists the value of beer consumption, which increased by 50 percent during the period; almost the same as the increase in quantity consumed which was 49.2 percent. This implies that world retail prices of beer on average have been constant in the period and equal to 3.81 USD per

liter beer. As the US consumer prices increased 39 percent in the period, beer become relatively cheaper, which can explain some of the increases in consumption. The decline in the average retail price could be a result of a change in both the cost of production and the consumer tax, which in general is high on beer consumption and further varies a lot between countries, see Bamforth and Cabras (2016). The main reason for the relative decrease in the average world price of beer is probably the fast growth of beer consumption in Asia, which has considerably lower production costs of beer compared with the western countries and table 2 shows the regional development in consumption for three types of beer after the turn of the century.

Table 2. Regional consumption of three types of beers in 2016 and the growth since 2000.

	Number of	**Standard lager**		**Premium lager**		**Specialty beers**	
World regions	Countries	2016	% 2000-16	2016	% 2000-16	2016	% 2000-16
Africa & M. E.	5	4.6	51.5	0.7	29.6	0.2	32.3
Asia	14	72.9	130.9	7.3	78.2	0.4	69.4
South America	5	24.5	45.0	1.5	233.7	0.6	95.6
North America	2	12.9	0.8	7.9	-3.2	4.6	15.8
Western Europe	16	13.0	-23.3	6.9	0.0	2.5	19.3
Eastern Europe	5	11.9	37.6	6.3	103.8	0.7	56.8
All countries	47	139.7	55.6	30.6	31.8	9.0	27.8

Note: Consumption measured in billions of liters.
Source: Market Lines' Database: Market Data Analytic.

In the period investigated, beer consumption has decreased in Western Europe, been stable in North America but increased dramatically in the developing countries, particularly for lager beer. Asia now alone consume more than half the standard lager and a quarter of the premium lager. The developing countries also have a higher growth rates of the specialty beers, but from a low level. North America and Western Europe still consume about ¾ of the specialty beer. The main factors behind this dramatic shift in beer consumption are the different growth in the countries and the fast rise in living standard in the developing countries that can now afford a higher consumption of beer. This picture confirms the positive income elasticity of beer and probably also the finding of a significantly lower elasticity in developed countries, see Colen and Swinnen (2011).

To examine the effects of growing income on the different types of beers, we estimate the following equation (2) allowing for non-linear relationship and with a log transformation of the variable. Q_{jik} is quantity consumed of the k type of beer in country j at time i. G_{ij} is GDP per capita in country j and X_{ij} is other controlling variable. β_k is the estimated income elasticity of the k type of beer and δ_k control for income variance of the elasticity. λ_j is a fixed effect for countries picking up differences in drinking habits across countries and μ_{ijk} is the normal stochastic term.

$$\text{Log}\,(Q_{ijk}) = \alpha + \beta_k\,\text{Log}\,(G_{ij}) + \delta_k\,(\text{Log}\,(G_{ij}))^2 + \eta_k\,X_{ij} + \lambda_j + \mu_{ijk} \qquad (2)$$

Table 3 shows the estimated elasticities from 3 regression models building on equation (2) for the period from 2000 to 2010, where model 1 and 2 leave out the squared income variable. GDP per capita is PPP corrected and downloaded from the Penn World Table 2016, and the estimation controls for the openness of the countries. The estimated income elasticities from the pooled regression in model 1 varies a lot in size between the different types of beer, and it is much lower for standard lager compared with the income elasticity of other types of beer, and with the highest income elasticity of specialty beer. Controlling for country heterogeneity in model 2 by a fixed effect estimation reduces the estimated income elasticity dramatically especially for ales & stouts. This verifies a large cross country difference in beer drinking which are positively correlated with the income level of the countries. It also verifies a much higher within-country income elasticity of premium lager than of any of the other types of beer.

The large cross-country differences in beer consumption between developed and developing countries have to be reflected in different size of the income elasticity. To study this, model 3 allows a non-constant elasticity, where the size of the income elasticity varies with the income level of the countries. The non-constant income elasticity is highly significant for most of the beer types except for specialty beer and low alcohol beer, where a constant income elasticity seems more adequate. The inverted u-shape of the income elasticity shows, that the income sensitivity of beer drinking decreases with countries' development. The income elasticity of standard and premium beers is decreasing over the relevant income level and becomes zero at an income level of 19,000 USD per capita for the standard beer whereas the income elasticity of premium beer reaches zero at an income level of 45,000 USD per capita. The high income elasticities in developing countries together with a high growth rate in the period explain the dramatic change in

the regional beer demand in table 2 with fast rising demand in the developing countries and stagnant or decreasing beer consumption in the developed countries. The constant income elasticity of specialty beer reflects a shift from the traditional lager beer to specialty beer in the developing countries.

Table 3. Income elasticities of different types of beer.

	Model 1	**Model 2**	**Model 3**	
	Pooled OLS	Fixed effects	Fixed effects	
Type of beers	β_k	β_k	β_k	δ_k
Standard lager	0.659	0.220	3.297	-0.169
Premium lager	1.140	0.422	3.086	-0.144
Ales and stouts	1.435	0.109	1.423	-0.071
Specialty beers	1.650	0.288	0.020^{+}	0.015^{+}
Low alcohol beers	1.407	0.226	0.731^{+}	-0.027^{+}
Total beer cons.	0.764	0.247	2.791	-0.138

Note: All coefficients significant at $p < 0.001$, except for coefficients marked with + where $p > 0.1$.
Source: Market Lines' Database: Market Data ¤Analytic

3. Global beer branding

Beer branding is an important competitive parameter in the marketing of beer. The large breweries spend around 15% of their sales income on promoting their beers on the market, and the industry ranks among the top advertisers in the consumer industries. Their promotion targets mainly the premium brand which can thereby sell at a large price premium compared with the standard lager selling at discount prices. Table 4 lists the average beer price for different types of beer and regions and the prices vary a lot with significantly lower prices in developing countries. The low price in developing countries reflects lower production cost and the high trading cost for beers reduces the international trade of beers and violates the law of one price. The price also varies across the different types of beers with standard lager as the cheapest and specialty beers as the most expensive.

The higher prices of specialty beers and ales & stout may be the result of higher production costs as well. The production normally takes place at small breweries or the beers are produced in small quantities, where the scale advantages are missing. However, the lager beer constitutes 89.5% of the quantity consumed worldwide in 2016, thereby offers excellent conditions for exploiting scale advantages by using mass production technology. This may be true for standard lager that sells at a very low price. The premium lager, on the other hand, earns a price on average close to the double of the price for standard lager. As the market for premium lager constitutes more than one third of the total market for lager beer in the developed countries, the scale advantages should still work and the price premium may be a result of the heavy branding of the premium lager among the breweries.

Table 4. Prices for different types of beers on the global market, 2016.

World regions	Standard lager	Premium lager	Specialty beers	Ales and stouts	Low alcohol beers	Total beer cons.
Africa & M. E.	2.22	2.46	5.34	2.14	2.01	2.35
Asia	2.10	4.53	5.14	6.76	3.23	2.38
South America	2.09	2.58	2.64	2.06	2.29	2.13
North America	2.51	4.28	5.39	3.70	3.70	3.58
Western Europe	4.93	6.74	6.52	5.81	4.48	5.61
Eastern Europe	2.14	3.95	2.51	1.90	2.07	2.71
All countries	2.40	4.70	5.29	4.14	3.41	2.99

Note: The prices are in USD per liter and calculated as market value divided by market volume.
Source: Market Lines' Database - Market Data Analytic.

Whether the premium beers have a higher quality is an open question. Beers are definitely not homogenous. There are big differences in taste, color, sweetness, bitterness, freshness e.g. The heterogeneity is largest for ales & stout and the specialty beers, whereas the special brands of lager beer are much more homogenous. That is probably why the lager beer out-competed the original top fermented types of beers about 100 years ago as consumers like the more clean and fresh taste of lager beer.

The production processes of beer are very old and have not developed much over time. The technology is therefore well known, and brewing only includes a few raw materials like water, barley, hops and yeast. However, brewing is a chemical process which is both complicated and difficult to control. The taste of the final product not only depends on the quality of the raw materials but also on the cooking time for the malt and hops, the temperature of fermentation, the lager time among other parameters. Most breweries brew different types of beers like pilsner and lager and the production costs do not vary significantly between these types. While the breweries have their own prescription for brewing the different types of beer, they normally do not manage and develop the technology for the brewing process. This is outsourced to special companies which deliver turnkey projects for a brewing plant. Therefore, the technology in the industry is available for all players and does not work as an entrant barrier.

As the breweries use the same technology, the differences in tastes among different beers are very moderate and the recognition of brands is therefore often not significant in blind tests within the same categories of beer, see Almenberg, Dreber and Goldstein (2014) for a recent survey of this topic. In their own study Almenberg, Dreber and Goldstein (2014) used a triangle test where three blind samples are presented for the drinkers, two are identical and one contains a different beer. After testing all three samples, the drinkers are asked to single out the one different, which should happen in more than 33% of the cases if taste differences exist. They use the method to verify whether the beer drinkers can differentiate different brands of beer within the same category of beer. The experiment uses three well known European lager beers: Czechvar from Czech Republic, Heineken from the Netherlands and Stella Artios from Belgium. Their main conclusion is that beer drinkers are unable to distinguish between different European lager brands.

While the real product differences are quite small, the differences in product quality revealed by the beer drinkers are on the other hand very large. Their perception of difference in quality is probably copied from other consumer goods where the consumer learns that he gets what he pays for. This is particularly true for the car market where there is a huge difference in quality and the prices as well, but also for furniture and consumer electronics, there are large differences in quality, just to mention a few other areas.

This price-quality perception of the consumer concerning beers is most forcefully illustrated by McConnell (1968a,b) who made a controlled experiment of the branding effects in the American

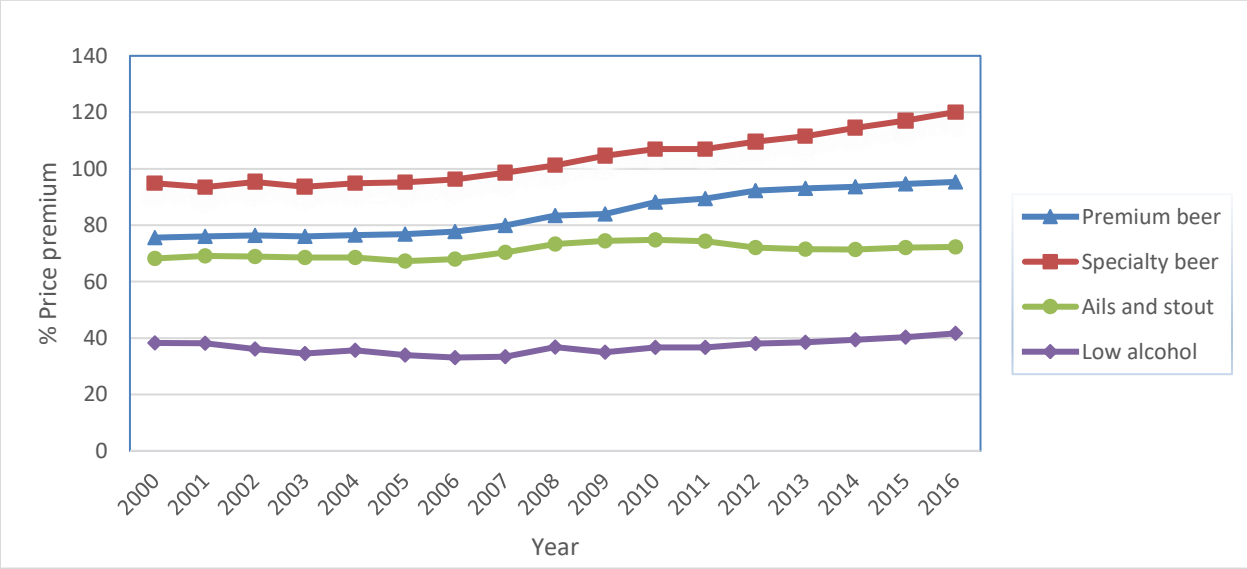
beer market. He made 24 home deliveries of six-packs of beer over two months to a large sample of beer drinkers. All the beers was identical, so there were no quality differences at all, but the beer drinkers did not know this as the regular labels were removed and new labels were added with three different prices corresponding to the average price of a popular, premium and super-premium beer at that time. When assessing the quality of the beers, the panel ranked the high-priced beer higher in quality with a large margin compared to the low-priced beer. One drinker even said about the brand he thought was cheap, "It would poison me – make me ill. I couldn't finish the bottle".

This social cohabit of beer preferences among group member is also verified in a study of international students of McCluskey and Sanatan (2011). They conducted a survey of the beer habits among international students coming from different countries and with quite different beer culture. They find, that the number of years they have been living in the United States has a positive and statistically significant effect on their preferences for US beers. Social groups therefore often consume the same style of beers, and they are open for peer effects through advertising and branding of specific beers in relation to social activities such as e.g. football.

The implication for the breweries is obvious when consumers perceived the quality of the beers by price signals. By segmenting the beer market into a premium and a standard lager by means of labeling the beers and setting a price premium for the high quality branded beer, the breweries can get more money for value, and they then turn to marketing management in their business strategy. Figure 1 tracks the average price premium on the world market of different types of beers in percentages compared with the cheap standard lager. The specialty beers have the highest premium of 120% followed by the premium beer with a price premium close to 100%, and the premium has been increasing in recent years.

The price premium for specialty beers may to a large extent reflect higher production costs in small scale craft and micro-breweries. The easy access to knowledge of brewing and the technology makes entry to the industry easy and keeps profit on the ground. For the premium lager on the other hand, the production costs may be similar to the production costs for the standard lager, and the price premium may be a result of the branding effects. However, the price premium comes at a cost. Breweries have to compete on promoting their premium brands to create a price premium and gain market share, and we will take a look at this competition in the next part.

Figure 1. Development in price premium for different types of beers



Note: Price premium calculated as percentage price increase compared to price of standard lager.
Source: Market Lines' Database - Market Data Analytic.

4. Global competition and marketing of beer

The market of premium beer had a value of 143.8 billion USD in 2016 and has grown 45% since 2000. To keep the market growing and the price premium high, breweries have to invest in branding of the premium beers. Table 4 lists marketing & sales expenses for the largest 8 breweries covering 61 percent of the World market for beer in 2012. SAB Miller does not mention their expenses for marketing and sales promotion in their annual report, but the other 7 breweries accounting for 50% of the World market use 12.4 billion USD. As share of revenue, the marketing and sales expenses vary a lot between the breweries and the largest breweries, except Molson Coors and Yanjing, have reduced their expenses for marketing and sales promotion as share of their return from 2002 to 2012. This may be a result of the merger and acquisition activity which creates economics of scale advantages in marketing and sales costs for the largest fast growing companies in the industry in the period, see Madsen and Wu (2016) for a discussion of this effect.

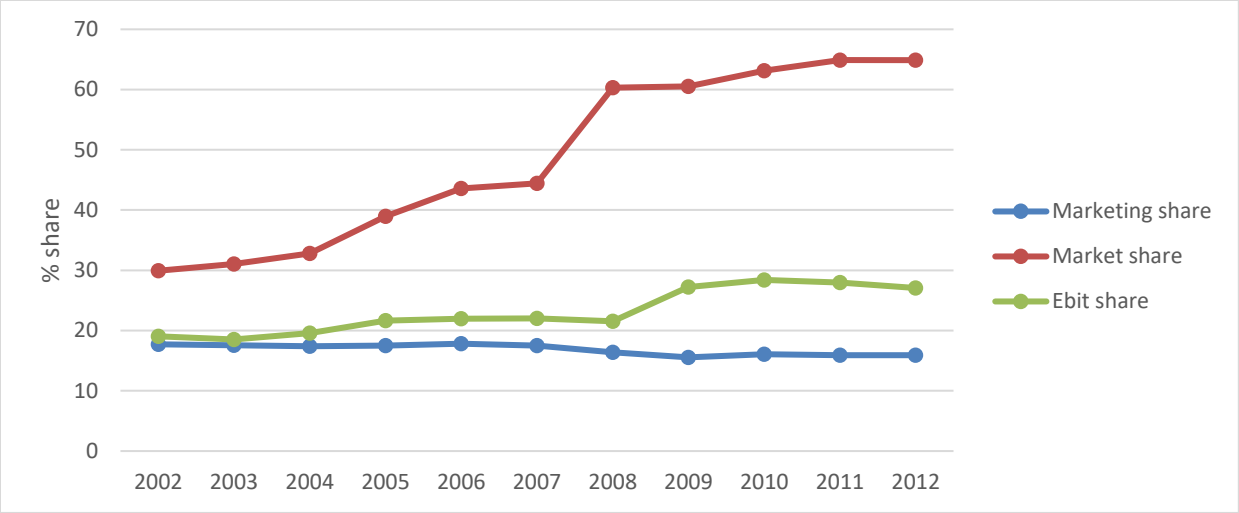
Table 4. World market share and marketing & sales expenses as share of revenue

Company	World Market share 2012	Marketing & sales expenses Billion USD 2012	Marketing and sales cost Share of revenue 2002	2012
AB Inbev	0.195	5.250	0.188	0.132
SAB Miller	0.117			
Heineken	0.101	1.350	0.154	0.122
Carlsberg	0.054	1.238	0.201	0.183
Molson Coors	0.041	1.126	0.280	0.288
Kirin	0.032	2.904	0.192	0.134
Tsing Tao	0.038	0.449	0.162	0.153
Yanjing	0.034	0.157	0.077	0.104
Total	0.612	12.481		
Average	0.077		0.179	0.159

Note: Share of marketing and sales costs in net turnover. Data from Kirin begins in 2006 and there is no information for marketing in the annual report from SAB Miller.
Source: Cost share from companies' Annual Reports and world market share from Market Data Analytics Database.

Figure 2 tracks the development in World market share of the 8 largest breweries and their share more than doubled in the period from 30% to 61%. This dramatic restructuring of the industry may have increased the concentration even more in the regional market for mass produced beer, and thereby affected the market strategy of the breweries. The reduced competition makes it easier for the breweries to collude on a high price scenario and a low marketing and sales cost scenario. The increasing price premium of about 10% and the increased EBIT-share of more than 30% in the period could be a result of the reduced competition in the regional beer markets. Further, the breweries have an interest in reducing the marketing and sales costs as a large part of these costs represent a kind of cannibalism between the breweries, when all breweries use marketing and sales effort, the market shares do not move much. This cannibalism effects enlarge the scale effects on marketing and sales costs of larger breweries mentioned above.

Figure 2. Development in concentration, marketing share and EBIT share.



Note: Share of marketing and sales costs in net turnover. Data from Kirin begins in 2006 and there is no information for marketing in the annual report from SAB Miller. EBIT calculated as sales revenue minus production, distribution, marketing and sales costs.
Source: Cost share from companies' Annual Reports and world market share from Market Data Analytics Database.

Table 5 takes a closer look at the regional market for premium lager in 2016 and the development since 2000. The main market for premium lager is still in Western Europe followed by North America, Asia and Eastern Europe. However, the conditions for the breweries have been tuff in Western Europe with a low and decreasing price premium in the period. Part of the reason for the low premium is the high beer taxes in many of the Western European countries, see the appendix for the average price level of beers in the countries. The high excise tax on beers reduces the size of the relative price premium. Moreover, the excise tax also increases the price elasticity for the breweries, which makes a price increase les profitable. This makes a collusion among the breweries at a high price level less likely and can contribute to an explanation of the low price premium in Western Europe.

Assuming the breweries have the same production cost of producing premium beer as when producing standard lager beer, we have made a rough calculation of the size of the premiums in the regional markets in column 4, table 5. The highest value of the premium is now earned in Asian market with a value of 17.8 billion USD after an increas of 85% since 2000. The size of the premium in Eastern Europe and South America have even grown faster with 375% and 153%, and the regions are thereby catching up on the market in developed countries. The main reason for this

development is the fast growth and high income elasticities in the developing countries as verified above.

Table 5. Development of the premium for premium lager beer, 2016.

World regions	Premium lager Billion USD	Price premium Percent	Price premium increases % 2000-2016	Size of premium Billion USD	Total premium increases % 2000-2016
Africa & M. E.	1.7	10.7	-2.74	0.16	27.4
Asia	33.2	106.1	4.59	17.81	84.52
South America	4.0	23.6	-9.54	0.76	153.2
North America	33.6	70.2	16.36	13.90	48.2
Western Europe	46.2	36.9	-7.14	12.44	-7.8
Eastern Europe	25.2	84.4	17.29	11.52	375.6
All countries	143.8	95.8	11.25	56.56	64.5

Note: The prices are in USD per liter and calculated as market value divided by market volume. Price premium calculated as percentage price increases compared to the price of standard lager.
Source: Market Lines' Database - Market Data Analytic.

The figures from the regional market also highlight both a pull and push effect behind the restructuring of the industry. The most aggressive breweries behind the wave of merger and acquisitions in the period were breweries with headquarters and their main market in Western Europe, a market with tough competition for the premium lager brands. These market conditions can have pushed the breweries into other and more profitable markets. The developing countries with their high growth in beer consumption and high premium for lager beer are strong pull forces, and the large breweries rush to acquire local breweries in Asia and East Europe.

The total premium of 56.6 billion USD earned on the global market has increased in the period, but it comes with a cost to marketing and sales efforts. However, the share of marketing and sales costs has decreased in the period with about 15%, and the size of the premium has increased with 11.3% which make the breweries more profitable, as reflected in the development of the EBIT share in figure 2. But also the acquisition of local breweries comes at a cost as the acquirers have to pay a premium to the owner of the acquired breweries. The acquisitions therefore load the acquirers with goodwill capital that has to be recouped by interest payment on the debt. For the

largest breweries, the higher EBIT seems to match the higher capital cost in the short run and leave the return on equity unchanged, see Madsen, Pedersen and Lund-Thomsen (2012, 2013).

5. Conclusion

Based on a database with prices and consumption of different types of beers, the paper studies the development in the global beer market in recent years. The structure of the world market has changed dramatically in the last 15 years. While the consumption of specialty beer has grown fast in the developed countries, the fast economic growth in the developing countries has increased the lager beer even faster and it now takes up about 90% of the total beer consumption. The development in beer consumption reflects an income elasticity of lager beer that is very high in developing countries, but it decreases with income and becomes zero or negative in the developed countries. Only the specialty beers and low alcohol beers have a constant income elasticity, and they seem to growth with income in the developed countries.

The homogeneity of the main lager beer is very high and the beer is produced in large scaled plants at low costs. However, the breweries spend large amounts of money to promote some of the lager beers as a premium beers and as the consumers perceive it as high quality beers, they are willing to pay a high price premium for the premium beers. We estimate the price premium for premium beers and relate it to the rapid change in the oligopoly structure of the beer market.

The paper points to push and pull effects as a motivation behind the large breweries merger and acquisition strategy in recent years. The increasing concentration in the local beer market has affected the performance of the market for mass produced beer with an increasing profitability for the breweries.

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