Analysing the Effectiveness of Ambush Marketing With Google Search Data

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Abstract

This paper provides a quantitative approach to measuring the effectiveness of ambush marketing by using Google data. To our knowledge, it is one of the first studies that develop an empirical approach that directly measures the attention effect of ambush marketing in sports. The new data consists of 14 ambushers (treatment group) and 26 official sponsors (control group) and covers the time period of 2004 to 2012. These firms conducted marketing activities during the past football World Cups and European Championships. The innovation in our paper is the measurement method of attention by means of Google. The results are as follows: First ambush marketing increases product attention significantly. Second the product awareness of ambushers is greater or the same to that of official sponsors. Finally, we demonstrate that ambush marketing has positive impacts on the company's performance. Overall, we conclude that Google provide new insights for the analysis of ambush marketing.

Keywords
Google Data, Ambush Marketing, Economic Modelling, Sport Marketing

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1. Introduction

International sporting events, in particular the football World Cups, the football European Championships or the Olympic summer and winter Games, constitute the ideal platform for target specific marketing activities. Therefore, sporting event organisers sell exclusive marketing rights for their events to official sponsors. In return, these sponsors acquire exclusive opportunities to utilise the event for their own advertising purposes.

Ambush marketing is the method used by companies that do not actually hold marketing rights to an event, but still use marketing activities in diverse ways to establish a connection to it. The philosophy of ambush marketing consists in achieving conventional marketing objectives with unconventional methods. The general intention is often that a relatively small investment generates the greatest possible impact. This is certainly a financially and economically efficient opportunity. However, it creates the risk of huge fines or punishments for companies that do not have sponsoring rights.

This paper studies the impact of ambush marketing and is structured as follows: Section 2 demonstrates the theoretical foundation of ambush marketing including a literature review. Next, section 3 describes the research method including the data. Section 4 discusses the empirical evidence. Finally, section 5 concludes the paper.

2. Theoretical foundation of ambush marketing

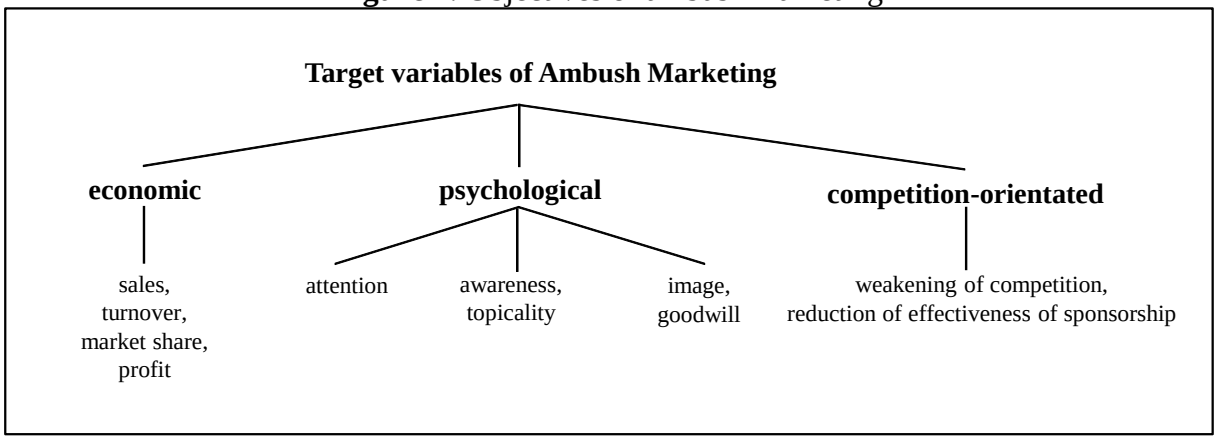
The phenomenon of ambush marketing is not new, but in recent years it has become significantly more sophisticated. The growing aggressiveness in the communication and sponsorship markets has resulted in the growth of such practices.

Ambush marketing was first mentioned by Bayless [1] as “a popular tactic […] to take advantage of […] an event”. This simple, unambiguous definition describes the false association by a company not sponsoring an event, with a view to derive similar benefits as the official sponsors. Another early definition of ambush marketing originates from [2]. He describes ambush marketing as “the practice whereby another company, often a competitor, intrudes upon public attention surrounding the event, thereby deflecting attention toward themselves and away from the sponsor”. More than a decade later, Farrelly, Quester and Greyser [3] define ambush marketing as “a quasi-parasitic appropriation of the brand value of

an event by competitors who time a purposeful use of the sport theme during and around the event they seek to ambush". A very recent definition originates from Chadwick and Burton [4]: "Ambush marketing is a form of associative marketing which is designed by an organization to capitalize on the awareness, attention, goodwill, and other benefits, generated by having an association with an event or property, without the organization having an official or direct connection to that event or property." In summary, ambushers want to promote and sell products via an association with the (sport) event in the same manner as official sponsors that have paid to do so.

In public, ambush marketing is frequently used synonymously with terms such as 'coattail marketing', 'parasitic marketing' and 'free-rider marketing'. Official sponsors define these ambushers on high-priced advertising rights as 'theft' and emphasise the illegal aspects of ambush marketing [5, 6]. However, there are also proponents who see ambush marketing as a legitimate power that facilitates more efficiency in the sponsorship market. "All this talk about unethical ambushing is […] intellectual rubbish and postured by people who are sloppy marketers" [7]. In achieving the above mentioned goals, the objectives of ambush marketers are therefore to some extend identical to those of the sponsors, but they are attained with reduced financial expenditures. The objectives of ambush marketing can thus be deduced from the objectives of sponsorship. Their primary aim is either economical or psychological (Figure 1).

Figure 1: Objectives of ambush marketing



Source: Authors.

Ultimately, the exploitation of the marketing potential of a sporting event implies pursuing economic objectives such as sales, revenue, market share and profit. This is to be understood as directly related to the range of event-related products and services. The pre-economic (psychological) objectives are situated primarily in the area of communication. Like sponsors,

ambushers target psychological objectives such as getting attention for their own advertising, i.e. increasing customer awareness levels, as well as providing a sense of being up to date. They aspire to achieve image enhancements through their (supposed) sponsorship, as well as an image transfer from positive attributes of the sporting event to the image of their product or company. In addition to these goals, ambush activities feature explicit competition-oriented objectives. The intent is to diminish the communication effectiveness of the sponsorship, thereby weakening the competition (e.g. by obviating the exclusivity of the sponsorship, the reduction of the share of voice of the sponsors or obstructing the sponsors' advertising).

In general, three basic categories of ambush marketing can be differentiated. We distinguish between direct ('blatant') and indirect ('subtle') ambush marketing [8]. A characteristic of direct ambush marketing is that the activities directly target the marketing rights of the event organiser or the official event sponsor. Ambushers offer products that have not been authorised by the organisers, and thus have a share in the marketing potential of the event. Indirect ambush marketers, on the other hand, use the sporting event as the motive for their own marketing activities without necessarily generating event-associated products, which is why indirect ambush marketing is prevalent in the area of marketing communications. The aforementioned dichotomy is complemented by a third category that can best be defined as destructive-aggressive ambush marketing. The essential objective of actions in this category is to diminish the effectiveness of official sponsorships with predatory methods. The obstruction of sponsors' measures is generally an attack on a direct competitor by the ambusher: in effect weakening the competition. These three categories are directly linked to the target variables of ambush marketing (Figure 1).

In addition, these three categories of ambush marketing are further broken down into case groups which contain similarities. Within the scope of the first case group, event-associated products are created and marketed in an unauthorised manner. The scope of direct ('blatant') ambush marketing is twofold: First, it is motivated by product policy and predominantly pursues (mainly short term) economic objectives. Second, the direct ambushing activities are focused in the realm of communication policies and therefore prioritise (mainly medium term) psychological objectives. The second case group involves communicative pretence to a sponsorship that, in reality, does not exist. Initially, indirect ('subtle') ambush marketing is subdivided into ambush marketing by intrusion and ambush marketing by association. Whereas under ambush marketing by intrusion all ambush activities that can be characterised

as ‘capitalising on the opportunity’, are incorporated within the scope of a sporting event. Many ambush activities have multiple characters, i.e. a clear differentiation is not always possible, and overlaps commonly occur.

In order to understand *why* ambush marketing works, one has to look at *how* it works in the mind of the customer. Schemes help to explain the cognitive mechanisms behind successful ambush marketing, as well as the potential pitfalls of certain preventive strategies [9]. One possible scheme is to establish a cognitive framework for understanding and remembering information. Expectations based on this framework affect the judgement, memory, and use of new information; hence consumer attitudes are affected but always ambivalent. Ambivalence is defined as the concurrent existence of strong positive and negative evaluations regarding the same object. Finally, a good deal of ambush marketing relies on salience that weighs more heavily than ethics in consumers´ perceptions of ambush marketing. Saliency detection is a key attention mechanism that drives people to focus their finite cognitive resources on the most pertinent subset of the available sensory data. These mechanisms could lead consumers to assign the status of official sponsors to ambushers.

The main purpose of this paper is to analyse the quantitative ‘attention’ effect of ambush marketing by means of Google data. The following literature review is focusing on the effects of ambush marketing that has been quantified in earlier studies. There are a number of empirical research studies on sponsorship in general and sporting events in particular. However, empirically we are still in early stages of understanding the impact of ambush marketing. Apart from analysing the effectiveness of official sponsors, various studies examine – sort of ‘by the way’ – the efficiency of ambush marketing. In contrast, studies that focus specifically on the purpose of ambush marketing are relatively rare. Moreover, it is remarkable that up to now empirical research on ambush marketing has been focussed primarily on the Olympic Games. Table 1 contains a compilation of empirical studies that have addressed ambush marketing.

The majority of these studies take the view that official sponsors are perceived more favourably than ambushers [10, 11, 16]. However, [12, 13] demonstrate that the recall of official sponsors does not differ significantly from the values for ambushers in all product categories. Case studies document confusion among consumers when differentiating sponsors from ambushers as well as with regard to their knowledge concerning existing sponsorship

categories [11, 12, 14, 16, 17]. The attitude towards ambush and sponsorship activities is predominantly one of indifference. There are also varying results with regard to the influence of sponsorships on purchase intentions [12]. Overall, the existing research results on ambush marketing are ambiguous.

Table 1: Overview of empirical research on ambush marketing

Authors (year)	**Sporting event analysed (sample size)**	**Main results**
[10] Sandler and Shani (1989)	1988 Winter Olympic Games (n = 210)	▪ Ambushers are perceived more poorly than sponsors ▪ Ambushers are perceived as not superior to dummies ▪ Positive correlation between perception of sponsors and frequency of following reporting of the event
[11] Sandler and Shani (1993)	1992 Summer Olympic Games (n = 400)	▪ Ambusher are perceived more poorly than most of the sponsors ▪ Ambusher are seen as superior to dummies ▪ More positive attitude towards sponsorship than ambush marketing
[12,13] McDaniel and Kinney (1996, 1998)	1994 Winter Olympic Games (n = 215)	▪ Per product category, ambushers are perceived more poorly than sponsors ▪ In the post test, sponsors are perceived as better than in the pretest in all product categories ▪ Attitudes concerning brands do not depend on whether they represent a sponsor or an ambusher
[14] Shani and Sandler (1998)	1996 Summer Olympic Games (n = approx. 13 % of 1,500)	▪ Knowledge of usage rights for the Olympic logo but not of the advertising rights for television coverage ▪ Great confusion concerning the categorisation of sponsors ▪ Indifferent attitude to sponsorship vs. ambush marketing ▪ No correlation between involvement and attitude of ambush marketing ▪ No correlation between involvement/viewing behaviour and knowledge of sponsorship rights/ambushing
[15] Lyberger and McCarthy (2001)	1998 Super Bowl (n = 486)	▪ Knowledge of usage rights for the Super Bowl logo but not about the advertising rights for television coverage ▪ Ambushers are perceived in superior fashion to sponsors ▪ Low level of knowledge about degree/type of sponsors' support ▪ Indifferent attitude toward sponsorship vs. ambush marketing ▪ No correlation between knowledge of degree/type of sponsorship and involvement/interest in the event
[16] Zanger and Drengner (2005)	2004 Football European Championship and 2004 Summer Olympic Games (n = 364+141)	▪ Ambushers are more poorly perceived than sponsors ▪ Men can differentiate better between sponsors and ambushers than women ▪ Correlation between involvement/viewing behaviour and degree of confusion regarding sponsorship/ambush marketing ▪ No correlation between degree of confusion regarding sponsorship/ambush marketing and knowledge of sponsorship rights/ambushing ▪ Indifferent attitude towards sponsorship vs. ambush marketing
[17] Nufer (2013)	2006 Football World Championship (n = 2.109)	▪ Confusion among girls more prevalent than among boys ▪ The lower the level of education, the more frequent the confusion ▪ The greater the interest in football, the rarer the confusion ▪ The more games watched live on television, the less confusion occurs ▪ The greater the knowledge of the event, the rarer the confusion ▪ The greater the knowledge of sponsorship rights, the rarer the confusion

Source: Authors.

3. Data and research method

Our data set contains 40 international companies which have implemented marketing initiatives during the past football World Cups as well as football European Championships. In total, 14 out of 40 companies are ambushers. These companies represent our treatment group and research target. The remaining 26 companies are official sponsors and they are included for control purposes.

We argue that the use of Google is an important step towards a quantitative identification of ambush marketing. Without doubt this is a challenging task because you hardly find company information regarding attention. However, Choi and Varian [18] propose that search data has the potential to forecast and analyse economic variables in future. This idea should be strengthened in a so-called mobile age, where almost everyone has wireless access. Furthermore, Da, Engelberg and Gao [19] suggest a direct measurement of attention with the usage of Google. Following this idea, we measure the effect of (ambush) marketing activities by Google, too. In contrast to [19], we apply Google data to the field of sports management and ambush marketing. We are convinced that search data provide a unique source for the identification of (ambush) marketing activities. In light of these facts, the paper contributes to a small but growing literature on Google data and combines it with the new field of ambush marketing.

Our analysis includes Google data from 2004 to 2012. We focus on the FIFA World Cups in 2006 and 2010 as well as the UEFA European Championship in 2008. Google data were not available before 2004. Theoretically ambush marketing could also be studied outside of sports. But up to now, the most sensational cases of ambush marketing occurred in football. Table 2 summarises several ambush events. The first column in Table 2 covers the Google searches or expressions. For each expression we have a weekly time-series. In order to obtain a measurable result, we compare the data of ambushers' (treatment group) with the official sponsors' (control group).

Table 3 illustrates all official sponsors in our sample. In addition, we distinguish between sponsors that are active or inactive in a respective football event. The active ones are indicated by a cross in Table 3.

Table 2: Ambush marketing events in the data set

Brand / Company	Periode	Event	Ambush Project
Actimel	2nd and 3rd Quarter 2010	FIFA World Cup 2010	Cooperation with tipp3 sports betting
AOL	1st to 3rd Quarter 2006	FIFA World Cup 2006	AOL-Arena Hamburg
Bavaria	16.06.2006 (special offer) 2nd and 3rd Quarter	FIFA World Cup 2006	Lederhosen imitations
Bavaria	14.06.2010 (special offer) 2nd and 3rd Quarter	FIFA World Cup 2010	Beer Babes
Beate Uhse	1st to 3rd Quarter 2006	FIFA World Cup 2006	Boys removing clothes
Burger King	2nd and 3rd Quarter 2006	FIFA World Cup 2006	FIFI Wild Cup
Burger King	1st to 3rd Quarter 2006	FIFA World Cup 2006	Testimonial Oliver Kahn
Hanuta	1st to 3rd Quarter 2006	Every 2 years FIFA World & European Cup	Player trading cards
Kulula & Sepp Blatter	2nd and 3rd Quarter 2010	FIFA World Cup 2010	Sepp Blatter on board
Lufthansa	1st to 3rd Quarter 2006	FIFA World Cup 2006	Check-in with football carpet
Media-Markt	4th Quarter 2005 until 3rd Quarter 2006	Every 2 years FIFA World & European Cup	Advertising Slogan
Persil	2nd and 3rd Quarter 2006	FIFA World Cup 2006	New colours
Puma	2nd and 3rd Quarter 2006	FIFA World Cup 2006	Velo-Taxi in Berlin
Soccerade	1st to 3rd Quarter 2010	FIFA World Cup 2010	Product start

Source: Authors.

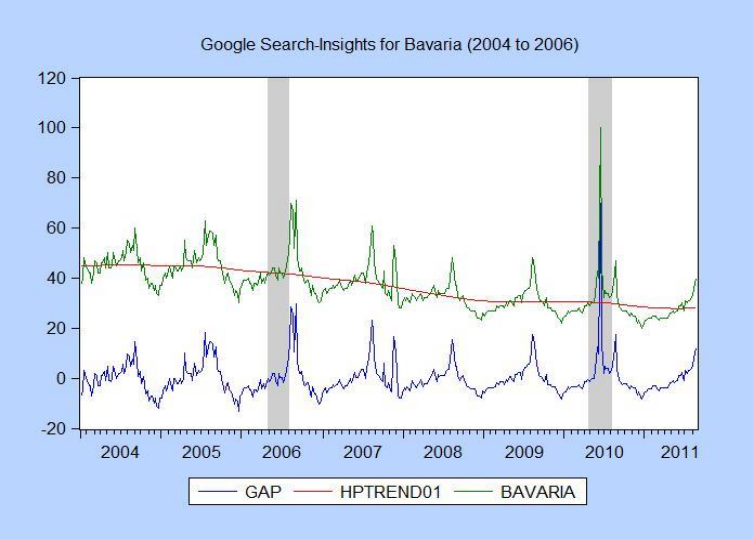
Table 3: Official sponsors in the data set

	Official Sponsors during Soccer Events				
	2004	2006	2008	2010	2012
Adidas	X	X	X	X	X
Aral			X		
Budweiser	X	X	X	X	X
Canon	X	X	X	X	X
Carlsberg					X
Castrol				X	
Coca cola	X	X	X	X	X
Continental	X	X	X	X	X
Deusche-Telekom	X	X	X	X	X
Emirates	X	X	X	X	X
Fujifilm	X	X	X	X	X
Gillette	X	X	X	X	X
Hyundai	X	X	X	X	X
JVC			X		
Mahindara				X	
MasterCard	X	X	X	X	X
McDonlads	X	X	X	X	X
MTN				X	
Orange					X
Philips	X	X	X	X	X
Seara				X	
Shpar	X		X		X
Sony				X	
Toshiba	X	X	X	X	X
VISA	X	X	X	X	X
Yinglisolar				X	

Source: Authors.

At first, let us demonstrate that Google data offer interesting insights on our research object. First example: FIFA imposed a fine on Bavaria beer because of an ambush attack during the FIFA World Cup in South Africa in 2010 (Figure 2). This case is one of the most instructive examples of ambush marketing. During the Netherlands versus Denmark match in Johannesburg, 36 young and beautiful ladies showed up in the audience wearing orange mini dresses from the brewery. The brand name Bavaria appeared on a small label at the seams of the dresses. However, FIFA took drastic actions against this campaign, escorting the ladies out of the stadium, and even temporarily putting them under arrest. While inside the stadium the initiative was not recognised as ambush marketing, the campaign would not have reached media attention without FIFA's intervention.

Figure 2: Google search data for Bavaria



Source: Authors.

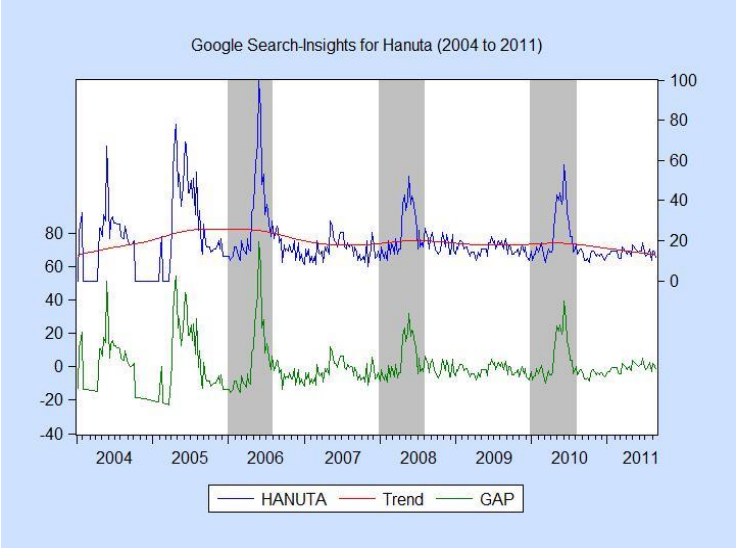
In fact, in terms of media coverage this ambush campaign was highly effective. The search data for Bavaria beer represented by the green line peaked on June 16, 2010 (Figure 2). The grey areas represent the World Cups. This example demonstrates that Google is an effective measure of exceptional attention. In the next section, we are going to assess this evidence with statistical measures. The red line in Figure 2 depicts the long-run search trend which is computed by the Hodrick-Prescott filter (HP-filter). The blue line is the difference between the instant Google search and the long-run trend. We label this difference as 'GAP'. We are going to use the 'GAP' variable in our econometric model.

The idea of the HP-filter is as follows: it extracts out of a time-series the so-called cyclical and trend component [20]. This enables us to study both time-series components in a separate manner. Suppose $s_i(t)$ for $t = 1,2,3, \dots, T$ is a time-series related to company i. The HP-filter postulates that $s_i(t) = \tau_i(t) + c_i(t)$, where $\tau_i(t)$ denotes the trend component and $c_i(t)$ the deviation from trend or 'cyclical' component; – we already labelled this the 'GAP'. The trend component is chosen to minimise the following loss function

$$L = \sum_{t=1}^{T} c_i^2(t) + \lambda \sum_{t=1}^{T} [(\tau_i(t+1) - \tau_i(t)) - (\tau_i(t) - \tau_i(t-1))]^2 \qquad (1)$$

where $c_i(t) = s_i(t) - \tau_i(t)$. The parameter λ is pre-specified and depends on the frequency of observations. For weekly data λ is commonly set to $270{,}400$. A cyclical component $c_i(t) > 0$ represents a higher search activity than in the long-run; and vice versa. Consequently, we are able to analyse the positive and negative attention effects by using the filter technique.

Figure 3: Google search Data for Hanuta



Source: Authors.

A second example: we have Google data for the food company Ferrero which produces a famous chocolate cookie called 'Hanuta'. During the past FIFA World Cups in 2006 and 2010 as well as the European Championship in 2008, the company initiated a tricky ambush initiative. They sell each 'Hanuta' cookie with pictures of active football player's. Figure 3 depicts Google search for Hanuta and the grey areas highlight the three football events. The blue line is Google and the green line the 'GAP'. Again there is no doubt that the ambush strategy has affected the product attention during the football events.

In addition to Google data, we collect other business variables related to the companies. These control variables comprise data about 'ambush marketing', 'world cup sponsors' and performance measures, such as return on investment or GDP. Finally, we design dummy variables related to the events. These variables equal one during the event and zero otherwise. Later on, we use these data to study the relationship of ambush marketing and corporate performance. In this case, the data sample consists of only nine ambushers due to data constraints. We estimate the following equation

$$\Pi_{i,t} = \alpha + \beta_1 GDP_t + \beta_2 CIndex_t + \beta_4 A_{i,t} + \beta_5 E_t + \beta_6 A_{i,t} E_t + \epsilon_{ij} \quad (2)$$

where $\Pi_{i,t}$ is the revenue of company i in period t, α is a constant and is measuring the companies fixed effects, *CIndex* is controlling for the overall demand factors especially the ISM Manager Index. In addition, we include the gross domestic product (GDP) of the Euro area and the World. Variable *A* denotes Google search, *E* is an event dummy, and finally the product $A_{i,t}E_t$ is an interaction variable. The interaction term is of our special interest because it measures the impact of attention during the event on corporate revenue. Finally, ϵ_{ij} describes the unobserved variation. The unobserved variation might be of some interest because of data limitations especially in respect to company related marketing expenditures. Unfortunately, none of the 40 companies provide public data on the marketing budgets from 2004 to 2012 and least of all on a weekly frequency. Thus, we have to accept this limitation. Moreover, we use log-variables because of non-linearity and stationarity.

In general, our paper sheds light on the effectiveness of ambush marketing. But the innovation in our study is the usage of Google. Google has three advantages: (i) it is publicly available; (ii) Google has dominated the market for search engines in this time period; and (iii) the data can be used as a direct measure of attention especially in a mobile age. The structure of the empirical section is as follows: In the first part, we study the linkage of ambush marketing and attention. We evaluate this point by applying statistical measures such as the mean search activity. In doing so, we compare the attention effect of official sponsors to ambushers. We address two hypotheses: (i) Is there a link of ambush marketing and attention during the sport events and in normal times? (ii) How does ambush marketing in comparison to official sponsoring affect attention? The second part is devoted to the analysis of the relationship between ambush marketing and corporate performance.

4. Empirical results and discussion

At first we study the general impact of ambush marketing on product or firm attention. Table 4 summarises the average search activity for the World Cups (WM) in 2006 and 2010 and for the European Championship's (EM) in 2004, 2008 and 2012. All football events took place in June and July. Therefore we study this time window. We compute always the average attention of all ambushers (n = 14) and official sponsors (n = 26) at these events. We apply both a normal t-test and the Satterthwaite-Welch t-test for equality of means. Interestingly, all numbers in Table 4 are significant at 5 per cent.

In average, the product awareness is of 6.6 for ambushers during the European Championship in 2004 (Table 4). This number implies more attention for ambushers than in the long-run. Moreover, the number is greater than the attention for all active sponsors of -0.1. Furthermore, both means are significantly different. Consequently, ambush activities led to more attention during the football event in 2004. In that sense ambush marketing is at least as effective as official sponsoring because average attention is higher (Table 4). The same pattern appears during the events in 2006 and 2008. An exception is the World Cup in 2010. Both ambushers (+1.1) and official sponsors (+5.8) have significantly higher attention in comparison to the mean value. However, there are more searches for official sponsors than for ambushers. Despite the t-tests suggest a significant difference between both means, the search data in 2010 is significantly biased towards the official sponsors. The reason is the detection of the ambush attack by Bavaria beer. The detection of this attack has created a massive Google search for the official sponsors during this football event. The advantage of official sponsors in comparison to ambushers is that they are publicly known. Therefore, the average attention is higher for official sponsors. Actually, to identify ambushers is far more difficult. For the football event in 2012, there is no ambush information available.

Remarkably, we also find that active ambushers have in average higher attention than all ambushers. Again this points evidence on the effectiveness of ambush marketing within the group of ambushers. In 2004, the ambushers have an attention of 6.6 in average. The average of all ambushers is just of -0.6. The two means are significantly different according to a t-test. In 2006, we obtain 2.2 versus 0.6 (Table 4). We observe this pattern in all years. On the contrary, this pattern does not hold for official sponsors.

Table 4: Comparison of the attention effect – official sponsors vs. ambushers

Product/Firm attention of official and ambush sponsors during Soocer Events					
		Ambush Sponsors		Official Sponsors	
	Event Period	All	Only Active Firms during the event	All	Only Active Sponsors during the event
EM 2004	2004-06-06 - 2004-06-12	-1,943	7,427	-0,957	-1,682
	2004-06-13 - 2004-06-19	-0,679	6,251	2,568	0,102
	2004-06-20 - 2004-06-26	0,494	7,575	0,785	-0,115
	2004-06-27 - 2004-07-03	-0,362	6,401	1,156	-0,144
	2004-07-04 - 2004-07-10	-0,316	7,226	-0,473	-0,735
	2004-07-11 - 2004-07-17	-0,755	6,053	1,130	-0,014
	2004-07-18 - 2004-07-24	-1,021	5,880	1,310	0,708
	2004-07-25 - 2004-07-31	-0,517	6,208	1,182	1,304
	Average	**-0,6**	**6,6**	**0,8**	**-0,1**
WM 2006	2006-06-04 - 2006-06-10	1,555	3,437	0,431	0,112
	2006-06-11 - 2006-06-17	-1,009	0,102	0,806	1,231
	2006-06-18 - 2006-06-24	2,139	4,526	1,218	1,287
	2006-06-25 - 2006-07-01	-0,532	1,617	0,131	0,406
	2006-07-02 - 2006-07-08	1,604	3,361	0,735	1,337
	2006-07-09 - 2006-07-15	0,762	2,799	0,839	1,955
	2006-07-16 - 2006-07-22	-0,648	0,878	-0,134	0,261
	2006-07-23 - 2006-07-29	-1,263	0,150	0,123	0,129
	2006-07-30 - 2006-08-05	2,578	2,980	1,225	1,248
	Average	**0,6**	**2,2**	**0,6**	**0,9**
EM 2008	2008-06-01 - 2008-06-07	1,754	9,378	0,432	-0,035
	2008-06-08 - 2008-06-14	0,927	6,340	1,649	-0,484
	2008-06-15 - 2008-06-21	0,737	4,801	1,135	-0,211
	2008-06-22 - 2008-06-28	-0,060	6,263	0,544	-0,160
	2008-06-29 - 2008-07-05	-1,879	-5,774	-0,240	-0,721
	2008-07-06 - 2008-07-12	0,094	-2,811	0,053	0,161
	2008-07-13 - 2008-07-19	-0,768	-4,348	1,846	2,377
	2008-07-20 - 2008-07-26	1,034	-2,385	0,716	0,703
	2008-07-27 - 2008-08-02	1,859	-4,422	0,662	1,251
	Average	**0,4**	**0,8**	**0,8**	**0,3**
WM 2010	2010-06-06 - 2010-06-12	0,549	1,586	5,688	5,788
	2010-06-13 - 2010-06-19	9,692	20,200	11,712	13,266
	2010-06-20 - 2010-06-26	1,847	4,417	9,815	11,064
	2010-06-27 - 2010-07-03	-1,213	-1,965	6,420	7,592
	2010-07-04 - 2010-07-10	-1,438	-2,344	2,910	3,576
	2010-07-11 - 2010-07-17	-2,764	-5,122	3,326	4,244
	2010-07-18 - 2010-07-24	-2,572	-6,098	0,974	0,642
	2010-07-25 - 2010-07-31	0,283	-1,673	0,239	0,450
	Average	**0,5**	**1,1**	**5,1**	**5,8**
EM 2012	2012-06-03 - 2012-06-09	-1,314	-	0,313	0,499
	2012-06-10 - 2012-06-16	-1,495	-	1,090	1,211
	2012-06-17 - 2012-06-23	-1,067	-	0,753	0,701
	2012-06-24 - 2012-06-30	-0,901	-	0,492	0,357
	2012-07-01 - 2012-07-07	3,463	-	-0,037	-0,264
	2012-07-08 - 2012-07-14	-0,882	-	1,512	1,226
	2012-07-15 - 2012-07-21	-0,230	-	0,214	-0,227
	2012-07-22 - 2012-07-28	-1,689	-	0,225	-0,181
	2012-07-29 - 2012-08-04	-1,388	-	0,428	-0,024
	Average	**-0,6**		**0,6**	**0,4**

The numbers in this Table depict the average product/firm attention measured by google search in comparison to the long-run search. The numbers are computed as follows: Firstly we calculate the long-run google search trends based on the weekly search data. We apply the Hodrick-Prescott Filter for weekly time-series data. Secondly we calucalte the gap between the search data and the trend data. The gap identifies the deviation of product attention in comparison to the long-run trend. Thridly we compute the average of the gap data for all sponsors at all time periods.

Source: Authors.

In summary, we confirm both hypotheses: (i) ambush marketing is positively linked to product or company attention. We even find higher attention during the ambush event than in normal times. (ii) ambush marketing is at least as effective as official sponsoring in respect to the creation of (Google measured) product attention.

Of course, so far we have not considered the level of marketing expenditures over the period 2004 to 2012. Thus, there is some risk to obtain biased results. But we think that the bias is small and acceptable: 1) there is no weekly or monthly data available for companies´ specific marketing expenditures; and 2) even more importantly, the ambusher is per se small (true in our sample) in comparison to the official sponsors. Consequently, the overall marketing budget of ambushers in relation to official sponsors is expected to be small, too. Even if the ambusher spend more money during the event it should be less than the sponsoring fee, otherwise the ambusher would not act in secret.

Next, we estimate a probit regression to confirm this hypothesis again. In fact, we find further evidence that ambush marketing is related to attention. The probit regression measures the probability that attention is high (positive) or low (negative) during the five football tournaments. Before doing so, we check the time-series properties of the data. We apply two different unit root tests: the augmented Dickey-Fuller test which focuses on autocorrelation and the Phillips-Perron test which takes into consideration heterogeneity. All unit root tests confirm the stationarity of the search data. Thus, we reject the null hypothesis of a unit root. The probit regression is specified as follows: the dependent variable is an event dummy which is equal to one for all World Cups and European Championships. The independent variables are the mean searches of the ambushers and official sponsors.

Table 5 depicts the estimation results. All coefficients are positive and significant. Consequently, the average attention which is measured by Google is higher during the football events. Again, this confirms our hypotheses. In summary, marketing activities increase attention and the impact of ambushers' with a value of 0.301 is greater than for official sponsors of 0.139 (Table 5). Both coefficients are significant at 1 per cent.

Table 5: Probit regression with average numbers

Dependent Variable: EVENT_DUMMY Method: ML - Binary Probit (Quadratic hill climbing)			
Variable	Coefficient	Std. Error	Prob.
Average Cyclical Component - Ambush Sponsors	0.301	0.057	0.0000
Average Cyclical Component - Official Sponsors	0.139	0.031	0.0000
Constant	-1.49	0.093	0.0000

Source: Authors.

For control purposes we estimate a second probit regression to the search expressions 'ambush marketing' and 'official sponsors'. We find that the search activity is higher in both cases 0.055 and 0.034 respectively. However, only Google searches for official sponsors are significant at 1 per cent. The coefficient for ambush marketing is insignificant (Table 6). This confirms that the absolute level of search is greater for official sponsors than ambushers. In fact, ambushers often act in secret and they are relatively small in comparison to official sponsors.

Table 6: Probit regression with time series data

Dependent Variable: EVENT_DUMMY Method: ML - Binary Probit (Quadratic hill climbing)			
Variable	Coefficient	Std. Error	Prob.
Ambush Marketing	0.055	0.036	0.126
Official Sponsors	0.034	0.007	0.000
Constant	-1.41	0.087	0.000

Source: Authors.

Finally, we continue with the second part of our empirical study. We test the hypothesis whether ambush marketing has an effect on corporate performance. We estimate equation (2) with data from 2004 to 2012. The Haussmann test indicates that the fixed effect model is better.[2] An empirical test of this hypothesis requires a positive interaction term between Google search and the event dummy $A_{i,t}E_t$. The panel data consists of 30 quarters and nine ambushers. Table 7 illustrates that World GDP increase corporate revenue of the respective ambusher. This is an expected economic relationship. Surprisingly, this relationship is not valid for domestic GDP. Even the impact of Google search seems to be contradictory to expectations. However, this unexpected relationship covers the whole time period and not just

[2] More details upon request from the authors.

the period of interest – the football events in June and July. But the variable of interest is *'Google x Event Dummy'* $(A_{i,t}E_t)$. The estimated coefficient for this term is of 0.348 and significant at one per cent. Consequently, the level of attention increases the revenue significantly during the football events. Indeed that confirms our final hypothesis.

Table 7: Panel regression with fixed effects

Panel Regression: Fixed Effects Dependent Variable: Revenues of Ambush Sponsor Firms			
Variable	Coefficient	Std. Error	Prob.
Constant	-2.143***	0.405	0.000
World GDP	0.032***	0.009	0.000
Domestic GDP	-0.025***	0.008	0.002
ISM Manager Index	-0.000	0.000	0.887
Google Search	-0.351***	0.000	0.000
Event Dummy	-0.000	0.000	0.111
Google x Event Dummy	0.348***	0.066	0.000
R-squared	0.230		
Adjusted R-squared	0.187		
S.E. of regression	0.083		
Sum squared resid	1.762		
F-statistic	5.381		
Asterisk indicate: *=10%, **=5%, and ***=1% significnace.			

Source: Authors.

Obviously, the regression is not free of difficulties due to a small R-squared. However, the low R-squared can be explained by the use of average data and the fact that we have not included company fundamentals. But it is almost impossible to avoid this problem because corporate data are only available on a bi-annual frequency. Transformations of search data to a lower frequency reduce the variance and thus results in a low R-squared per definition. Overall, our empirical approach rests on the assumption that Google provides valuable information on the product or firm attention in general. Thus, we do not consider other factors or distinguish between online and physical attention. It may be the case that online and physical attention is not the same. But we think that both may converge in a mobile age. But this is a topic of future research.

At the end, let us address more future research topics. One problem is the limited data in respect to the number of events and that corporate numbers are only available at a bi-annual frequency. Moreover, in our econometric approach we have not controlled for marketing

expenditures because there is no data available. These issues are challenges of future research. We also recommend the collection of disaggregated financial data for case studies in future.

5. Conclusion

Ambush marketing is at the intersection of two opposing spheres of interest. On the one hand we have the organisers and official sponsors and on the other hand, the ambushers. From the perspective of the event organisers, ambush marketing represents an understandable threat, while from the perspective of the ambushers it offers the opportunity to reach their target audience at affordable cost. As a non-sponsor the ambusher may achieve comparable or even greater impact than the official event sponsor. Therefore, ambushing campaigns compromise the effectiveness of sponsorship and reduce the attention of the target group due to free-riders. Our empirical results confirm this hypothesis in general. Moreover, we find that ambush marketing, despite it is conducted in secret, increase product or firm attention. Furthermore, we find that ambush marketing is positively related to corporate revenues. Despite the still controversial discussion about the impact of ambush marketing, we provide empirical evidence on the effectiveness. Thus, event managers and official event sponsors should be alerted.

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