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ASSESSMENT OF THE MARKETING ACTIVITIES AT-RETAIL ON THE BEER MARKET IN SLOVAKIA

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Abstract

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The retail sector, more specifically non-specialized food predominating retail outlets, is defined as the area of interest in this study. The main aim is to describe the relationship between the marketing activities in the retail outlets of two subjects (1) beer manufacturer and (2) his competitors. This aim is deducted from the presumption that more than two thirds of shopping decisions are made directly in the store. The manufacturer therefore has to be visible in the retail outlet and perform better than his competitors. Data were observed in the multinational retail chains once a month during one year. The observation was focused on one specific product category – beer. The competitors were observed as one group for the purpose of comparison. Three criteria were included in this study (1) a presence of products' secondary position, (2) a presence of point-of-purchase materials in the main product category area and (3) a presence of point-of-purchase materials outside the main product category area. Data were analysed especially by using a logistic regression, but also other methods of statistical analysis were used. The dependence was identified in all three analyzed criteria. It varies from moderate to strong.

retailing, marketing at-retail, logistic regression, secondary position, point-of-purchase

1 INTRODUCTION AND OBJECTIVE

The retail market in Slovakia as well as in Czech Republic is highly concentrated. It belongs to the most concentrated retail markets in Central Europe (Incoma GfK, 2010). This tendency is particularly caused by a great power of mainly multinational retail companies. They own and operate large number of retail stores in various retail formats. These formats are set to fit different demand of the customers caused, e.g. by different size of the cities or regions, purchasing power differences, different needs of customers etc.

A unique position of multinational retail chains creates their excellent negotiating advantage that can lead to well known practices, e.g. listing prices, back buying of unsold goods or sharing leaflet promotion costs (Kita *et al.*, 2012). These additional costs can decrease a profit of the manufacturers who distribute their products through retail chains. Then for purpose of holding their previous market share or financial results they are forced to enhance turnover, i.e. sell more products or attract customers who are not loyal, increase price of the products and so on. Reaching these goals require inter alia also ensuring an excellent performance of both the product and the producer in the retail outlet. According to many studies (Young, 1983; Agnew, 1987; Behová, 2008) more than two thirds of all purchases are a result of an in-store decision.

The retail outlet is the place where not only retailer but especially manufacturer can influence and persuade the customer to buy specifically his products. Especially in food retail market, customers are attracted by a huge amount of product categories with many alternatives. The number of SKUs in the average grocery store increased 96% from 1980 to 1993 (Ketzenberg, Metters and Vargas, 2000). Then catching customer's attention directly in the store can become inevitable for the manufacturer to reach expected market share or to hold his current market position.

Therefore the companies move their attention to below-the-line communication activities. The share of above-the-line communication expenditures

is in the USA only 30% of all the expenditures on the marketing communication activities nowadays (Boček *et al.*, 2009).

The attention of the customer can be caught by in-store marketing activities, e.g. by locating a product outside the main selling area of the product category, by ensuring a perfect product visibility in a shelf or by using special point-of-purchase materials (abbr. POP materials), e.g. stoppers and wobblers on the shelves, displays, gondolas or floor graphics, etc. Chevalier (1975) says that displays can make customer excited in the store so the average amount of his purchase is increased. Consequently the manufacturer, who attracts a customer before his competitors do so, can sell more products.

The multinational companies usually outsource special teams of merchandisers who are responsible for the accomplishment of merchandising plans and other in-store activities. The other option for the company is to delegate these activities to own teams of sales representatives. There exists a need to solve the issue of rewarding the sales representative for this part of his duties. One of the ways is to reward him better only when he pushes a unique presentation tool to the retail outlet, i.e. the particular manufacturer is the only one who performs that way in the store. We can assume that the effort of pushing such a presentation tool through the retailer has to be much bigger in the situation when the retailer does not have any experience with it.

The main objective of this article is to describe and evaluate the relationship between one specific manufacturer's activities in the retail outlets on one hand and activities of all his competitors on the other. This relation is analysed in three categories (1) the presence of products' secondary position in the retail outlet, (2) the presence of point-of-purchase materials in the main selling area of the product (where the product category is usually presented) and (3) the presence of point-of-purchase materials outside the main area of the product, i.e. secondarily in the retail outlet (e.g. next to the cashier, next to the entrance etc.).

2 METHODOLOGY

2.1 Logistic regression method

Regression models are one of the ways how to describe the relationship between two variables – dependent variable and one or more independent variables. Linear regression with its constraint – continuous response variable that have meaningful numerical values like time, amount, height, etc. is most known and also used (Hosmer and Lemeshow, 2000). But there exist many cases when linear regression method cannot be used, e.g. because dependent variable can be qualitative (categorical) and discrete. Then using of a logistic regression can be preferred.

The logistic regression was early used primarily in biomedical studies (Agresti, 2002). Nowadays its usage is very popular in business applications. For example, a company deciding whether to send an offer to a certain customer identified by annual amount of purchase or not can model probability of a sale (Agresti, 2002). Acock (2006) introduces the statistical software Stata for using the logistic regression, but also other statistical programmes are available.

When using the logistic regression the outcome variable is discrete, taking on two or more possible values (Hosmer and Lemeshow, 2000). The most common situation is that both dependent and independent variables are binary, e.g. the health of a business measured by solvency of the firm dealt as a dependent variable (bankrupt=0, solvent=1) and various financial characteristics associated with the firm dealt as an independent variable (Chatterjee and Hadi, 2006). The main goal of the analysis is usually to find the best fitting model to describe the relationship between two variables – independent and dependent.

2.2 Logit model

Suppose that explanatory variable is binary and can reach values $Y_i = 1$ (if event occurs), $Y_i = 0$ (if event does not occur) for $i = 1, \ldots, N$, where N is number of observations. Each observation can be characterized by the vector $x_i = (1, x_{1i}, x_{2i}, \ldots, x_{Ki})$ that includes K elements (Pecáková, 2007). The probability of a positive occurrence in i-observation $P_i = P(Y_i = 1)$ characterized by vector x_i can be expressed by the function $F(\beta; x_i)$. This function is according to Gujarati and Porter (2009) ascending ($F'(\beta; x_i) \geq 0$), has domain of a function $(-\infty; +\infty)$ and a range (0; 1). It holds generally that $F(-\infty) = 0$ and $F(+\infty) = 1$, and probability function (if event occurs) is

$$P_i = F(\beta; x_i), \tag{1}$$

where β is vector of parameters $(\beta_0, \beta_1, \ldots, \beta_K)$.

The probability function of a positive occurrence ($Y_i = 1$) can be denoted in a cumulative distribution function as

$$P_i = P(Y_i = 1) = F(\beta; x_i) = \frac{e^{\beta' x_i}}{1 + e^{\beta' x_i}}. \tag{2}$$

Odds as the ratio of probability that the occurrence is positive and probability that occurrence is negative can be written as

$$\frac{\pi}{1-\pi} = \frac{P(Y_i = 1)}{P(Y_i = 0)} = e^{\beta' x_i}. \tag{3}$$

Odds ratio is the ratio of probability of positive occurrence and probability of negative occurrence for binary explanatory variable and can be expressed as

$$OR(1,0)=\frac{\dfrac{\pi(x_j=1)}{\left[1-\pi(x_j=1)\right]}}{\dfrac{\pi(x_j=0)}{\left[1-\pi(x_j=0)\right]}}=\exp(\beta_j). \quad (4)$$

In logistic regression, the method of maximum is used for estimating unknown parameters. At first likelihood function $l()$ is constructed. The likelihood of a positive occurrence in i-observation characterized by vector x_i is then

$$P(Y_i=1 \mid x_i)=\pi(x_i). \quad (5)$$

The associated probability can be described

$$P(Y_i \mid x_i)=\pi(x_i)^{Y_i}[1-\pi(x_i)]^{(1-Y_i)}. \quad (6)$$

For independent observations generally holds

$$l(\beta)=\prod_{i=1}^{N}\pi(x_i)^{Y_i}\left[1-\pi(x_i)\right]^{(1-Y_i)}, \quad (7)$$

expressed as conjunction of probabilities for all observations.

The estimated parameters can be obtained according to Hosmer and Lemeshow (2000) by taking a logarithm (7) and maximizing it

$$L(\beta)=\ln l(\beta)=\sum_{i=1}^{N}Y_i\times\ln(\pi(x_i))+(1-Y_i)\times\ln(1-\pi(x_i)). \quad (8)$$

2.3 Analysed dataset

Data used for analysis were obtained by a research agency for its own purposes and provided to the author of this article for further analysis. The author of this article took part in the similar researches in the past. Because of a great extent of the research (especially geographical) it was not possible to get the data by author herself. Each retail outlet was visited by a well-trained observer once a month. The time and day of the observation were not specified in advance, but the observers were required to visit a store during the first week of the month. Total number of the observers was around 40. The research aimed to evaluate the field work of the sales representatives in the retail outlets in general (how they can arrange specific requirements of the manufacturer, for instance the secondary position of the products and the presence of the POP materials in the retail outlet).

The research was focused on the multinational retail chains[1] in Slovak Republic. The object of the observation was one particular product category – beer. The beer products of one specific manufacturer were observed in the first place; secondly all the competitors were handled and observed as one group. The total number of analysed observations was 2403. For data distributed by month, retail chain and retail format see Tab. I.

I: *Number of observations by month, retail chain and retail format*

Month	Frequency	Retail chain	Frequency
January	190	Ahold	303
February	196	Billa	1055
March	196	Carrefour	48
April	197	Kaufland	337
May	201	Metro	59
June	201	Tesco	601
July	202	**Total**	**2403**
August	202		
September	204	**Retail format**	**Frequency**
October	203	Hypermarket	1256
November	204	Supermarket	1088
December	207	Cash&carry	59
Total	**2403**	**Total**	**2403**

Each observation was recorded into the data sheet that included all the observed criteria (see Tab. II). These criteria were split into three groups. The first one was focused on observing inventory level of the products, the second included criteria evaluating the position of the products and the third group was focused on the level of presentation. Three partial indices (inventory, position and presentation index) can be counted by using arithmetic mean of all criteria scoring. Then by arithmetic mean of the indices (or by multiplying their values) Total Shopscore Index (abbr. TSI) can be calculated. Its level can show how good sales representative's work is or how good the competitive position of the manufacturer in the specific retail formats, regions or during the year is. The analysis of these issues is not a focus of this article, see Spáčil (2003), Spáčil (2005) and Krbová (2012) for more information about TSI.

Some criteria were scored directly in the store, other were scored after comparing with the competitors etc. The scoring was always based on binary basis, i.e. if the condition was fulfilled criterion was evaluated by value 1, otherwise it got value 0. Each criterion was strictly defined and explained to the observers during the training.

For the purpose of this article, only several criteria are analysed. It is the secondary position of the product in the retail outlet, the primary position of point-of-purchase materials and the secondary position of POP materials in the retail outlet.

The secondary position in the retail outlet is very attractive way how to increase number of customers and turnover. Therefore many manufacturers

1 Metro is originally classified as a wholesale format (cash&carry), but for the purposes of this research it was taken as a retail format because of its special features.

II: *All criteria included in the observation*[1]

	Observed variables	Scored 1, if
Inventory Index	Space	at least certain % of products are those of manufacturer
	Shelf fulfilment	shelf is fulfilled
	Key assortment	key assortment is present
	Image of leader	manufacturer's product is on the beginning of the aisle
	Brands order (main section)	products are ordered as required in the main section
	Brands order (shelf)	products are ordered as required
	Retailer'refrigerator	product is available in the retailer's refrigerator
Position Index	Manufacturer'refrigerator	product is available in the manufacturer's refrigerator
	Stock rotation	older products are located in front of the shelf.
	Extra position (central)	products have extra position negotiated centrally.
	Extra position (local)	products have extra position negotiated locally.
	Secondary position	product is located outside the main product category area.
	Special price sign	product is signed by special price.
	Equal prices	all price signs of one product show the same amount.
Presentation Index	Individual pricing	product price is visible.
	Clean selling area	main selling area is clean.
	POP primarily (main area)	POP materials are located in the main product area.
	POP secondarily	POP materials are located secondarily in the store.

decide to pay for products extra positioned in the store. The POP materials are according to POPAI Central Europe (2010) defined as "a set of advertising materials and products used at retail outlet with the aim to promote specific product or product set". POP are usually delivered and paid by a manufacturer. These materials are used directly in the main area of the product to attract customers (e.g. in the aisle between stacks where the product category is presented). The other way is to use POP materials anywhere else in the retail outlet (in a secondary position) to remind the customer the existence of the product or to show him a special price or a discount.

In order to reach the goal of this article, three hypotheses were formulated. They are evaluated further in chapter 3 and the results are used for the formulation of findings.

H1: The presence of manufacturer's secondary position does not depend on the presence of competitors' secondary position.

H2: The presence of manufacturer's POP materials in the main product category area does not depend on the presence of competitors' POP materials in the main product area.

H3: The presence of manufacturer's POP materials secondary in the retail outlet does not depend on the presence of competitors' POP materials secondarily in the retail outlet.

The logistic regression and also other statistics were used for analysing data. In the analysis the fulfilment of the criterion on the competitors' side was handled as explanatory variable (independent variable). The fulfilment of the criterion on the manufacturer's side was set as a dependent variable.

3 RESULTS AND DISCUSSION

As shown in Tab. III the fulfilment of criteria analysed in this article was very similar by both the manufacturer and the competitors. This result can indicate that both groups can expect similar conditions set by the retailer. It can also indicate the existence of the relationship between analysed variables. These assumptions are analysed further in the article with using various statistical tools.

3.1 Secondary position

Any position outside the main product category area was considered as the secondary position of the product. The number of those positions was not taken into an account, only the existence of at least one occurrence on both the manufacturer's and competitors' side was evaluated.

There exists a relationship between the secondary position occurrence of the manufacturer's products and those of competitors. Pearson's χ^2 coefficient is statistically significant because all values (see Tab. IV, column Asymp. Sig.) are lower than 5%.

The strength of dependence can be indicated as moderate (according to the results of φ and Cramer's V; see Tab. V). The hypothesis H1 can be rejected.

The findings presented above were confirmed also by the results of the logistic regression analysis. β-coefficient is statistically significant on the 5% level. The odds of manufacturer's secondary position presence are 7.42 times higher when there exists the competitors' secondary position than when there does not exist the competitors' secondary position (Tab. VI and VII).

III: *The fulfilment of selected criteria by manufacturer and competitors*

Criteria		Manufacturer		Competitors	
		Not fulfilled	Fulfilled	Not fulfilled	Fulfilled
Secondary position	Frequency	1102	1301	1096	1307
	Percent	45,9	54,1	45,6	54,4
POP primarily	Frequency	1112	1291	1151	1252
	Percent	46,3	53,7	47,9	52,1
POP secondarily	Frequency	2358	45	2362	41
	Percent	98,1	1,9	98,3	1,7

IV: *Secondary position (manufacturer vs. competitors; Pearson's χ^2 test)*

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	512,373[a]	1	,000		
Continuity Correction[b]	510,514	1	,000		
Likelihood Ratio	530,693	1	,000		
Fisher's Exact Test				,000	,000
N of Valid Cases	2403				

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 502,62.

b. Computed only for a 2x2 table

V: *The strength of dependence (secondary position; manufacturer vs. competitors)*

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	,462	,000
	Cramer's V	,462	,000
N of Valid Cases		2403	

The equation of estimated model is formulated as:

$$P_i = P(Y_i = 1) = \frac{e^{-0.8946751+2.004541x_i}}{1+e^{-0.8946751+2.004541x_i}}, \quad (9)$$

where P_i is a probability of the manufacturer's secondary position presence for i-observations for i = 1, …, N. The probability of manufacturer's secondary position when the competitors pushed through the secondary position of their products is 75.2%.

The secondary exposure of the products in the store usually contributes to an increase of turnover. The sales representative, who is able to negotiate it and then also preserve and take care of it, deserves higher financial benefits. But also the initial position of the manufacturer in the store should be taken into an account. If the secondary position of a particular product category in the store is usual for the competitors, it cannot be a problem to negotiate such a presentation for own products of a specific manufacturer. The results of the analysis confirmed this argument.

On the other hand, if the secondary position as a presentation tool is brand new for the retailer, the

VI: *Estimation of logistic regression for secondary position of the competitors*

```
Logistic regression                                     Number of obs   =       2403
                                                        LR chi2(1)      =     530.69
                                                        Prob > chi2     =     0.0000
Log likelihood = -1392.0368                             Pseudo R2       =     0.1601
------------------------------------------------------------------------------
sek_pozici~a |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
sek_pozici~t |   2.004541   .0923781    21.70   0.000     1.823483    2.185598
       _cons |  -.8946751   .0665583   -13.44   0.000    -1.025127   -.7642234
------------------------------------------------------------------------------
```

VII: *Odds ratio for secondary position of the competitors*

```
Logistic regression                                     Number of obs   =       2403
                                                        LR chi2(1)      =     530.69
                                                        Prob > chi2     =     0.0000
Log likelihood = -1392.0368                             Pseudo R2       =     0.1601

------------------------------------------------------------------------------
sek_pozici~a | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
sek_pozici~t |   7.422684   .6856934    21.70   0.000     6.193393    8.895971
------------------------------------------------------------------------------
```

VIII: *POP materials in the product category area (manufacturer vs. competitors; Pearson's χ^2 test)*

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1168,399[a]	1	,000		
Continuity Correction[b]	1165,601	1	,000		
Likelihood Ratio	1287,121	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	1167,913	1	,000		
N of Valid Cases	2403				

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 532,63.

b. Computed only for a 2x2 table

IX: *The strength of dependence (POP materials in the main product category area; manufacturer vs. competitors)*

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	,697	,000
	Cramer's V	,697	,000
	Contingency Coefficient	,572	,000
N of Valid Cases		2403	

sales representative has to be much more persuasive toward the retailer to push the secondary position of his products through. Then the probability of manufacturer's secondary position is only 29%. It is obvious that the field work of the sales representative is much more difficult in the second situation. The financial benefits should adapt it.

3.2 POP materials in the main product category area

The criterion POP materials in the main product category area is fulfilled if at least one POP material exists in the store, i.e. it does not matter whether it is a wobbler, a stopper, an extra display etc. It just has to be placed in the area (aisle or the part of the aisle) where beer as a product category is exposed.

According to the results (see tab. VIII, column Asymp. Sig) the presence of the manufacturer's POP materials in the main product category area depends on the presence of competitors' POP materials. Pearson's χ^2 coefficient is statistically significant.

The values of the Cramer's V and φ (0,697; Tab. IX) also confirmed this relation which is even stronger than in the case presented in chapter 3.1. The hypothesis H2 can be rejected. We can identify the strength of the relationship as strong, i.e. if POP materials of the competitors are exposed in the store, it is highly probable that also POP materials of the manufacturer are available (the probability of this situation is presented further). This also holds vice versa.

The odds of the presence of the manufacturer's POP materials in the store are 31.8 times higher when also the competitors' POP materials are placed (for the results see Tab. X and XI). This result confirms very strong relation which Cramer's V and φ have indicated earlier.

The equation of estimated model is defined as:

$$P_i = P(Y_i = 1) = \frac{e^{-1.553157+3.459494x_i}}{1+e^{-1.553157+3.459494x_i}}, \qquad (10)$$

where P_i is a probability of the presence of the manufacturer's POP materials in the main product category area for i-observations, where $i = 1, \ldots, N$. The presence of both the manufacturer's and competitors' POP materials is highly probable

X: *Estimation of logistic regression for the presence of competitors' POP materials in the main area*

```
Logistic regression                               Number of obs   =       2403
                                                  LR chi2(1)      =    1287.12
                                                  Prob > chi2     =     0.0000
Log likelihood =  -1015.399                       Pseudo R2       =     0.3879

------------------------------------------------------------------------------
  pop_znacka |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
pop_konkur~t |   3.459494   .1145339    30.20   0.000     3.235011    3.683976
       _cons |  -1.553157   .0776386   -20.00   0.000    -1.705326   -1.400988
------------------------------------------------------------------------------
```

XI: *Odds ratio for the presence of competitors' POP materials in the main area*

```
Logistic regression                               Number of obs   =       2403
                                                  LR chi2(1)      =    1287.12
                                                  Prob > chi2     =     0.0000
Log likelihood =  -1015.399                       Pseudo R2       =     0.3879

------------------------------------------------------------------------------
  pop_znacka | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
pop_konkur~t |   31.80087   3.642279    30.20   0.000     25.40666    39.80435
------------------------------------------------------------------------------
```

XII: *POP materials outside the product category area (manufacturer vs. competitors; Pearson's χ^2 test)*

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1402,883[a]	1	,000		
Continuity Correction[b]	1359,696	1	,000		
Likelihood Ratio	255,967	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	1402,299	1	,000		
N of Valid Cases	2403				

a. 1 cells (25,0%) have expected count less than 5. The minimum expected count is ,77.
b. Computed only for a 2x2 table

XIII: *The strength of dependence (POP materials outside the product category area; manufacturer vs. competitors)*

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	,764	,000
	Cramer's V	,764	,000
	Contingency Coefficient	,607	,000
N of Valid Cases		2403	

(87.1 %). The sales representative can expect fewer barriers in the placement of the POP materials if at least one already exists in the store. For the sales representative this can mean less time spent on negotiating with a particular retailer and higher performance during a specified period.

The opposite situation (if POP materials of the manufacturer are positioned and those of the competitors' are not present) is much less probable (17.5 %). If the manufacturer's sales representative is the first one who tries to persuade the retailer to locate POP materials in the retail outlet, he has to make a great effort to push this presentation tool through. This implies more time of the sales representative spent with handling and negotiating. In this situation the sales representative can serve fewer retailers, so the manufacturer should count with it when he sets the financial benefits system. A time-motion study can be a good guide for it.

3.3 POP materials outside the main product category area

A secondary position of the POP materials means that they are available anywhere outside the main product category area, e.g. a bottle of water in a special display near to the counter instead of in the area where all the beverages are displayed or a beer exposed in a special refridgerator. As in the previous criterion the occurrence of any POP material was taken into an account. The findings were very similar to the results presented above.

The secondary presence of the manufacturer's POP materials is highly influenced by the secondary presence of the competitors' POP materials. The Pearson's χ^2 coefficient is statistically significant because all values are lower than 5% (see Tab. XII, column Asymp. Sig.).

The strongest relationship of three analysed relations in this article was indicated (see Tab. XIII). This can be caused also by the lowest number of fulfilment of this criterion. The retailers probably do not want to overload the retail outlet and therefore the number of POP materials placed secondarily is smaller. The hypothesis H3 can be rejected.

The odds of the presence of the manufacturer's POP materials are 807.8 times higher if the competitors put through their own POP materials than if they do not. For the results see Tab. XIV and XV.

The equation of estimated model is formulated as:

$$P_i = P(Y_i = 1) = \frac{e^{-5.277264+6.69433x_i}}{1+e^{-5.277264+6.69433x_i}}, \quad (11)$$

where P_i is a probability of the secondary presence of the manufacturer's POP materials for i-observations, where $i = 1, \ldots, N$. If the competitors' POP materials are secondarily performed in the store, the probability of the presence of the POP materials in both analysed groups was calculated as 80.5%. The probability of the opposite situation (at once the presence of the manufacturer's POP materials and no presence of the competitors' POP materials) was calculated only as 0.5%. The reasons are probably the same as in the criterion POP materials presented in the main product category area.

4 CONCLUSION

This article was focused on the evaluation of the marketing at-retail activities. The main aim was to describe and evaluate the relation between the marketing activities at-retail of one subject represented by a specific beer producer and the marketing activities of other subject represented by all his competitors. Only several marketing activities directly in the retail outlets were considered, i.e. (1) placing the products outside the main product category area, (2) placing the POP materials in the main product category area and (3) placing the POP materials outside the main product category area. Three hypotheses were set (see chapter 2.3) and they were all rejected after analysis. The relationship was

XIV: *Estimation of logistic regression for the presence of competitors' POP materials secondarily*

```
Logistic regression                                     Number of obs   =       2403
                                                        LR chi2(1)      =     255.97
                                                        Prob > chi2     =     0.0000
Log likelihood = -95.593927                             Pseudo R2       =     0.5724

------------------------------------------------------------------------------
sek_pop_zn~a |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
sek_pop_ko~t |    6.69433   .4889363    13.69   0.000     5.736032    7.652627
       _cons |  -5.277264   .2894062   -18.23   0.000     -5.84449   -4.710038
```

XV: *Odds ratio for the presence of competitors' POP materials secondarily*

```
Logistic regression                                     Number of obs   =       2403
                                                        LR chi2(1)      =     255.97
                                                        Prob > chi2     =     0.0000
Log likelihood = -95.593927                             Pseudo R2       =     0.5724

------------------------------------------------------------------------------
sek_pop_zn~a | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
sek_pop_ko~t |   807.8125   394.9688    13.69   0.000     309.8327    2106.172
------------------------------------------------------------------------------
```

indicated in all analysed criteria and its strength varies from moderate to strong.

The presence of the manufacturer's secondary position is highly probable if also at least one competitor has his products placed secondarily in the store.

Even stronger relations were identified also in analysing two other criteria – POP materials positioned (1) in the main product category area and (2) outside this product category area. Especially the occurrence of the POP materials that are positioned secondarily is very rare. This criterion was fulfilled by the manufacturer only in 45 observations (from 2403) and by the competitors only in 41 observations. This result indicated already on the beginning of the analysis that the retailers are not very interested in allowing his suppliers to perform in the retail outlet any different way than usual. The analysis confirmed this presumption.

These results can be useful especially for the sales representatives, who negotiate with the retailers. At first the competitors should be evaluated, i.e. which presentation tools they use and where they place them in the store. Then the sales representative can forecast the probability of how successful he can be when he tries to place POP materials or his products secondarily.

The manufacturers can use the results presented in this article as well, especially when they set a system of financial benefits for the sales representatives. The system should be constructed with considering the real ability of the sales representative to achieve planned goals. His role in the negotiating process with the retailer will probably vary. If the retailer refuses any kind of extra presentation in the store, sales representative's effort has to be much bigger than in the opposite situation.

Data used for analysis in this study were observed only in the multinational retail chains so the results can be applicable in this field. Therefore the further research should concern on the group of national retail chains and also on the independent retailers. We can predict that for the national chains the results can differ from multinational chains only a little, because they are usually centrally operated too, fight for the same customer and can have similar suppliers. The independent retailers are completely different. They are usually smaller, operate in less number of regions, offer different variety of products etc. The negotiating process will probably be more personal in this part of the retail market. So the skills of the sales representative will decide about the success in enforcing the marketing activities of a specific manufacturer at-retail.

SUMMARY

The retail market in Slovak Republic belongs to the most concentrated retail markets in Central Europe. Therefore, the multinational retail chains can influence not only their competitors but also the suppliers at a large scale. The conditions of the cooperation between the retailer and the supplier can sometimes be adapted, especially by the activity of the supplier's sales representative. Because almost two thirds of purchase decisions are made directly in the store, it is necessary for the suppliers to attract customers directly in the retail outlet. Many tools can be used, e.g. a products' exposure in a place where they are not usually presented is very common. Also in-store presentation tools are frequently used, e.g. POP materials that can catch attention of the customer all his way along the store. The main aim of this study was to describe and evaluate the relationship between the marketing activities at-retail of both the beer producer and his competitors. The occurrences of three main

criteria were analyzed – the secondary position, POP materials placed primarily and POP materials placed secondarily in the retail outlet. In all of the analyzed relations the dependence was found out. The strongest relationship was identified between the occurrence of the secondarily positioned POP materials of the manufacturer and the competitors. The probability of successful allowing these POP materials secondarily in the store is very low (0.5%) if competitors have not placed their POP before. The dependence was found out as moderate in the criterion POP materials placed in the main product category area. In this criterion the probability of placing the POP materials in the retail outlet was 17.5%. The highest probability (29%) and at the same time the weakest dependence was identified in the criterion the secondary position of the products, i.e. products placed outside the main product category area.

The results presented in this study are applicable only for the multinational retail chains and one product category. Further studies should focus on the national chains or independent retailers and can result in the more comprehensive findings. The other way of further research could be the comparison among more countries or more product categories.

REFERENCES

ACOCK, A., 2006: *A gentle introduction to STATA*. College Station: Stata Press, 298 p. ISBN 1-59718-009-2.

AGNEW, J., 1987: P-O-P displays are becoming a matter of consumer convenience. *Marketing News*, 21, 21: 14–16. ISSN 0025-3790.

AGRESTI, A., 2003: *Categorical Data Analysis,* 2nd ed. New Yersey: John Wiley & Sons. 710 p. ISBN 9780471249689.

BEHOVÁ, Z., 2008: Jací jsou Češi v roce 2008. *Regal. Marketing, management a logistika v obchodu*, 3, 6: 1–4, ISSN 1801-4453.

BOČEK, M. et al., 2009: *POP in – store komunikace v praxi: Trendy a nástroje marketingu v místě prodeje.*1. vyd. Praha: Grada Publishing, 224 s. ISBN 978-80-247-2840-7.

CHATTERJEE, S. and HADI, A. S., 2012: *Regression Analysis by Example.* 5th ed. Hoboken: Wiley, 393 p. ISBN 978-0-470-90584-5.

CHEVALIER, M., 1975*:* Increase in sales due to in-store display. *Journal of Marketing Research*, 12, 4: 426–431. ISSN 0022-2437.

GUJARATI, D. N. and PORTER, D. C., 2009: *Basic Econometrics*. 5thed. New York: McGraw-Hill, 922 p. ISBN 978-007-127625-2.

HOSMER, D. W. and LEMESHOW, S., 2000: *Applied logistic regression*. 2nd ed. New York: Wiley, 375 p. ISBN 0-471-35632-8.

INCOMA GfK, 2010: *Majority of the Central and Eastern European retail markets is showing increasing consolidation of FMCG chains*. [online]. [cit. 2012-02-20]. Available at: http://www.retailinfo.cz/system/files/SM_CEE_2010_press_release__CONCENTRATION_Eng.pdf.

KETZENBERG, M., METTERS, R., VARGAS, V., 2000: Inventory policy for dense retail outlets. *Journal of Operations Management*, 18, 3: 306–316. ISSN 0272-6963.

KITA, J. et al., 2012: Trade practices of retail chains as far as the transaction cost. *Business: Theory&Practice*, 13, 1: 57–66. ISSN 16480627.

KRBOVÁ, P., 2012: *Analýza aplikace metody TSI jako nástroje hodnocení práce obchodních zástupců v maloobchodě*. Ostrava: Vysoká škola báňská – Technická univerzita Ostrava, Ekonomická fakulta, katedra marketingu a obchodu. Disertační práce.

PECÁKOVÁ, I., 2008: *Statistika v terénních průzkumech.* 1.vyd. Praha: Professional Publishing, 231 p. ISBN 978-80-86946-74-0.

POPAI CENTRAL EUROPE., 2010: *Výzkumné projekty*. *Typologie POP* [online]. [cit. 2011-08-15]. Available at: http://www.popai.cz/1-133/Nazvoslovi-POS.aspx.

SPÁČIL, V., 2003: *Marketingové* řízení: sylaby a případové *studie*. Ostrava: Repronis, 126 p. ISBN 80-7329-048-0.

SPÁČIL, V., 2005: Do we perform well? Building the position of brands in retail outlets. In: *Esomar Publication Series. Retailing Industry. Store Wars*. Amsterdam: Esomar, 297, 125–142. ISSN 1336-1716.

YOUNG, E., 1983: Packaging research probes stopping power, label reading, and consumer attitudes among the targeted audience. *Marketing News*, 17, 15: 8. ISSN 0025-3790.

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