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## Article

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# IMPACT OF CORPORATE SOCIAL RESPONSIBILITY ON OTC MEDICINES CONSUMERS

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## Abstract

In the article is presented the case of trust-based marketing of over-the-counter (OTC) medicines. The relationship between the hypotheses was tested by means of structural equation modelling. The results of the first model show that the predictor variable (consumer satisfaction with safety and information) has a significant effect on the mediator variable (consumer trust). The results of the second model show that the consumer trust also has a significant effect on virtual brand loyalty (dependent variable). Model 3 was developed by including consumer perception of corporate social responsibility (CSR) and consumer trust as independent predictor variables and virtual brand loyalty as the mediator variable with the specific intention to determine whether the effects of consumer perception of CSR on virtual brand loyalty became insignificant or less significant. The results of Model 3 show a partial mediator effect of consumer trust regarding the relationship between consumer perception of CSR and virtual brand loyalty.

**Keywords:** Consumer trust, corporate social responsibility, structural equation modelling, OTC medicines, social media, marketing, pharmaceutical companies

**JEL Classification:** D12, L51, M14, M15, M38

## Introduction

In the article we focus on the impact of corporate social responsibility of pharmaceutical companies on buyers of OTC medicines on social media websites. When implementing new marketing strategies, it is extremely important that pharmaceutical companies establish a trust - based relationship with consumers which will affect their brand or company loyalty. It has to be noted that increases in value added in the marketing OTC medicines can be influenced by various regulation standards. By marketing OTC medicines through traditional as well as social media, pharmaceutical companies can avoid strict regulations. In the United States, the control over sales and advertising of OTC medicines is not under the jurisdiction of the Food and Drug Administration (FDA), but the Federal Trade Commission (FTC). In this way, OTC medicines are equated with other consumer products. Studies on the advertising of OTC medicines have shown that whenever control over advertising falls under the jurisdiction of the FTC, there is a reduction in the presentation of

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medicines risks in ads. Thus, pharmaceutical companies (Schering-Plough: Loratidine; AstraZeneca: Omeprazole; GSK: Orlistat in McNeil: Cetizirine) have increased the presentation of benefits in ads from 83% to 97%, and reduced the presentation of possible risks from 70% to 11%. The authors of the study observe that this leads to consumers being less informed of the potential risks involved in taking medicines, which has an influence on the fact that the consumption of OTC medicines remains the main cause for urgent medical attention, hospitalization, and even death (Greene et al., 2012).

Consumer trust in pharmaceutical companies is thus formed on the basis of brand assessment and views on company credibility, company reputation, distribution channels, and transparent and independent information about company products (Fisher 2009, Kietzmann et al., 2001).

In the study, we focus on studying the relationship which is established between consumers and pharmaceutical companies when marketing OTC medicines over social media. We were especially interested in how corporate social responsibility affects the formation of consumer trust in pharmaceutical companies and their OTC medicines. For this purpose, we constructed a structural model and tested our hypotheses by means of structural equation modelling.

### **1. Corporate social responsibility and consumer trust**

Corporate social responsibility (CSR) is a key factor of corporate success and reputation in a business and social environment. Companies do not operate independently of society, but in a social environment influenced by both state and community (Dragomir and Anghel, 2011). Harrison (2000) defines CSR as the corporate obligation to plan and manage relations with stakeholders. Daft (1994) understands it as the obligation of company management to make decisions and function in ways which will increase the welfare of society and the organization.

In the article, we discuss the impact of CSR on increasing consumer trust in the case of pharmaceutical companies which produce and sell products which have a direct effect on human health.

The basic construct on which the study is based is trust. Trust can be understood as a psychological state based on the positive expectations and intentions of an individual's actions (Rousseau, 1998). Mayer (1995) defines trust as the willingness of an individual (trustor) to cooperate with others. The cooperation is based on the theory of positive expectations of the actions of others (Mare et al., 201). The cooperative partner performs independent actions to monitor and control actions performed by the trustor. The importance attributed to trust as a situational factor in organizations coincides with the development of organizational theory. Trust is seen as having a positive influence on planning capability (Sako, 1994), adaptability (Lorenz, 1998), and strategic flexibility and direction (Young, Ybarra in Wiersema, 1998). Higher levels of trust are also considered to reduce transaction, management, and internationalization costs (Bidault and Jarillo, 1997), and assist in the formation of organizational identity (Hatch and Schultz, 2004; Hernaus, 2011).

In the case of pharmaceutical companies, corporate responsibility is primarily the need for pharmaceutical companies to observe OTC marketing regulations of countries in which they operate, and to be responsible for their activities which affect people, communities,

and their environment (Smeureanu et al., 2011). Companies must act in adherence to ethical standards. Negative effects on society must be identified and corrected, which may include companies having to give up profits if their activities are found to seriously impact particular interest groups. Pharmaceutical companies must be consistent in warning consumers of potential contraindications to OTC medicines. This brings us to Steiner and Steiner's (2003) view that the CSR of a company is its duty to generate profit by avoiding harm, and to protect or increase social wealth. They also define three basic elements of corporate social responsibility: economic aspects, environmental and ecological aspects, and social aspects (Dinu, 2011). Economic aspects are responses to competitors on the market. These actions predominate since it is by responding to happenings on the market, companies fulfil their basic and most important social responsibility: normal market activity. The second element, which is of special significance for pharmaceutical companies, is the duty to adhere to government regulations for the sale of OTC medicines. The third element – social aspects – consists of actions undertaken by companies of their own accord, without external pressure in the form of laws or other regulatory elements.

Clarkson (1995) believes that the concept of CSR is only useful when it functions as a strategic tool for achieving the company's economic goals and increasing its value. Managers should focus on meeting the needs of strategically important stakeholders, and not on the company in its wider, more abstract sense. In our study, we followed Clarkson's recommendation and focused on the relationship between pharmaceutical companies which market their OTC medicines through social media and the consumers which participate in them. By adhering to ethical standards and observing regulations, pharmaceutical companies can improve consumer perceptions of their CSR, increase trust, and build their brand. These three elements were therefore identified in our study as elements which can function as tools for managers to create a value-added chain in the field of marketing OTC medicines through social media.

We can conclude by saying that the concept of CSR involves sustainable business operations which contribute to the improvement of the welfare of society as a whole by taking into consideration stakeholder and company interests, profit-making, and consistent adherence to ethical and moral standards.

## **2. The challenges of using CSR to build consumer trust in social media as a marketing tool for OTC medicines**

The pharmaceutical industry is knowledge-based and therefore deeply involved in research and development and sales and marketing in order to ensure sustained competitive advantage (Zack, 2003). The pharmaceutical industry has been forced to adapt to intense changes in marketing strategies. Patients are becoming increasingly informed about medicines and their characteristics. They have begun to take control over their own health and activities in life (Chetley et al, 2007; Gregorc et al., 2012; Severin, Griffin and Teichner, 2012).

The goal of pharmaceutical companies, therefore, is to meet consumer needs for a higher quality of life. This is achieved through development cycles, which are an essential part of invention and marketing. Activities in the OTC market are regulated with rules and regulations specific to each country.

Organizational changes have led to a focus on interactivity and personalization, which can be seen in on-demand marketing and product development (Dahlström and Edelman, 2013). The internet and technological innovations work together to create new applications for use in marketing.

Virtual marketing emphasizes the significance of supply chain management in providing new knowledge and preparing for changes brought about by the development of social media and their introduction into company operations (Coyle et al., 2008; Li, 2011; Markova and Mirčevska, 2012).

Companies must plan their goals in accordance with external processes which influence management, knowledge creation, and know-how. Companies should develop marketing intelligence systems which would handle relations between companies, consumers, and suppliers. Such systems would make it possible to formulate marketing strategies that would ensure market positioning and build brand trust (Li and Xu, 2011).

These resources constitute social capital which occurs in two forms: as an internal adhesive for the development of organizational culture or as an external relationship agent (Bonabeau, 2009).

Financial results can be seen in greater ROI of social media when compared to traditional media. Greater financial and non-financial performance consequently leads to higher added value in knowledge-based companies (Wirtz, Schilke and Ullrich, 2010; Pejić Bach, 2003). In their study, Schniederjans, Cao and Schniederjans (2013) have proven that while ingratiation, intimidation, organizational performance, and supplication are key financial performance factors in social media usage in impression management, exemplification is not one of them.

In the last few years, pharmaceutical companies have started using social media. Companies such as Pfizer, Johnson & Johnson, Novartis, Merck, Bayer, and GlaxoSmithKline are now present on Twitter, YouTube (Pfizer, Johnson & Johnson, and GlaxoSmithKline) or blogs (Pfizer).

Pharmaceutical companies became aware of the power and influence of social media in August 2001 when Facebook started allowing comments on page walls. Although Facebook makes it possible to delete wall comments, companies such as AstraZeneca and Johnson & Johnson closed their Facebook pages. Pharmaceutical companies were afraid of the potential consequences of negative comments. Companies that decided to stay on Facebook – such as Bayer and Pfizer – decided to increase moderation efforts (Torres, 2011).

### **3. Research methodology**

#### **3.1 Sample**

The sample used in the study is an opportunity sample. It is unrepresentative, consisting of users of Google+, Facebook, LinkedIn, Med.Over.Net, and Quora. The respondents were acquired by using the snowball sampling method (Poyntner, 2010). The sample was restricted to respondents from Slovenia.

Out of 537 respondents, more than half belonged to the 21-40 age group (57%). The second most represented age group was 41-60 years (35%), followed by the 61+ age group (8%).

### 3.2 Research instruments

The questionnaire was based on reviewed literature from the fields of social media, trust, OTC medicines marketing, and corporate social responsibility (Table no. 2). It consisted of 14 groups of closed questions on the use of social media as marketing tools by pharmaceutical companies for the sale of OTC medicines. Closed questions were answered on a seven-level Likert scale upon which the respondents specified their level of agreement to the presented statements.

Question groups 1 to 5 included general questions on internet and/or social media use. Our main interest was whether respondents used the internet and/or social media, for how long, and the amount of hours per day spent using the internet and/or social media.

Question groups 6 to 13 dealt with finding information on OTC medicines on the internet and/or social media. We were interested in the issue of consumer trust in social media as a source of information on OTC medicines and their purchase. Furthermore, we were interested in the level of consumer satisfaction with the information available on social media, as well as the level of consumer trust in pharmaceutical companies which operate social media websites. The 14th group of questions included demographic questions about respondents.

**Table no. 1: Questionnaire design**

<b>Authors</b>	<b>Measuring instruments</b>	<b>Factor</b>
O'Dell and Hubert, 2011; Hoffman and Fodor, 2011; Othman and Sheehan, 2011	Social media websites are an efficient tool for building relationships with pharmaceutical companies. I feel comfortable when searching for information on OTC medicines on social media. I will continue to use social media to find information on OTC medicines and make purchases. I am satisfied with social media services of pharmaceutical companies.	Satisfaction with the safety and quality of information.
Li and Xu, 2011; Xie and Peng, 2009	I generally trust the data on social media websites run by pharmaceutical companies. Pharmaceutical social media websites are safe for making online purchases. I can rely on pharmaceutical social media websites. Pharmaceutical social media websites can be trusted.	Consumer trust in social media websites run by pharmaceutical companies.
Limbu, Wolf and Lunsford, 2012; Ma del Mar Garcí'a de los Salmones et al., 2005	Pharmaceutical companies follow regulations when using social media as marketing tools. Pharmaceutical companies behave ethically towards online consumers. Pharmaceutical companies prioritize ethical standards over business efficiency.	Consumer perception of corporate social responsibility of pharmaceutical companies.

### 3.3 Research Process

The survey began on 15 June 2013 and ended on 15 August 2013. We started by formulating an online questionnaire with Ika, a web survey tool, and linking to it on different social media websites (Google+, Facebook, LinkedIn, Twitter, Med.Over.Net, and Quora). Ika, which was developed by the Faculty for Social Sciences of the University of Ljubljana, allows for respondent anonymity.

The limitations of the survey were as follows:

- Comprehensiveness and complexity of the subject,
- Limited access to sensitive financial and statistical data of social media websites run by pharmaceutical companies,
- Restriction of the survey to internet and social media users
- Non-representativeness of the sample due to the use of a web survey
- Limitation of the survey to Slovenia.

## 4. Results

### 4.1 Testing the reliability of the questionnaire and data

The data collected through the questionnaire was analysed in several steps and by several statistical methods. The first step consisted of testing the validity of the research instruments and data. Content validity was ensured by basing the items on secondary sources and testing the questionnaire. The validity of the questionnaire was tested by using Cronbach's alpha, which is a coefficient of reliability or consistency used to determine how well a set of items or variables measures a single one-dimensional latent construct. Cronbach's alpha was therefore used to measure the internal consistency of the items. Its value ranged from 0.819 for the sequence of questions on satisfaction with the safety and quality of information to 0.924 for the sequence on detecting corporate social responsibility of pharmaceutical company. The conclusion was that the construct validity was good: the alpha values were high, some even higher than 0.900.

The model was assessed to wholly match the data, reliability, convergence, and discriminant validity.

Discriminant validity was evaluated by employing confirmatory factor analysis (CFA). CFA was performed using AMOS 18.0 to determine how uniquely the measurements of different latent variables varied from other factors (Costello and Osborne, 2005).

On the basis of CFA, a significant level of difference between measurements of different latent variables can be determined. The indices fitted the measurement model and showed that the entire confirmatory factor model fitted the data (chi-square value = 132.264, df = 49,  $p = 0.000$ , CFI = 0.973, TLI = 0.970, NFI = 0.968, RMSR (standardized RMR) = 0.019, RMSEA = 0.071).

Convergent validity was evaluated by running the t-test and using Average Variance Extracted (AVE) (Fornell and Larcker, 1981). The T-values of the Lambda ( $\gamma$ ) loadings of each measure were significant ( $p, 00:01$ ) and the AVEs for each construct were greater than 0.70. In general, the proposed measurement model exhibited good convergent validity, as can be seen in Table no. 3.

**Table no. 2: Summary of measurement results**

Items	Measurement items	Factor loading	t-values	Composite reliability <sup>a</sup>	Average variance extracted (AVE) <sup>b</sup>
Satisfaction with safety and quality of information	V1	0.911	23.709	0.963	0.909
	V2	0.926	24.110		
	V3	0.952	26.359		
	V4	0.968	26.991		
Consumer trust in social media	V5	0.891	21.694	0.971	0.866
	V6	0.901	22.307		
	V7	0.909	22.361		
	V8	0.891	22.343		
Consumer perception of CSR	V9	0.927	24.201	0.934	0.804
	V10	0.961	26.709		
	V11	0.931	24.837		
Virtual brand loyalty	V12	0.914	22.101	0.954	0.837
	V13	0.898	21.801		
	V14	0.886	21.711		

Discriminant validity was assessed by building a confidence interval of  $\psi \pm 2\sigma_e$  for each pair of factors and examining 1 which was incorporated into the confidence interval ( $\psi$  is the correlation between two factors where  $\sigma_e$  is the standard error for two factors).

The upper boundary of the confidence interval did not include 1, which was decisive proof of discriminant validity. Furthermore, as can be seen from Table no. 4, the AVE values were greater than the squares of  $\Phi$  coefficients. On the basis of these results, we were able to confirm the discriminant validity of all the measures in the study (Anderson in Gerbing, 1988).

**Table no. 3: Interconstruct correlations**

Variables	Satisfaction with safety and quality of information	Consumer trust in social media	Consumer perception of CSR	Virtual brand loyalty
Satisfaction with safety and quality of information	-	0.663	0.526	0.517
Consumer trust in social media	0.817 (0.020)	-	0.801	0.836
Consumer perception of CSR	0.718 (0.025)	0.864 (0.012)	-	0.739
Virtual brand loyalty	0.714 (0.025)	0.904 (0.012)	0.872 (0.018)	-

Notes: CSR = Ethical-legal corporate social responsibility; Intercorrelations are presented in the lower triangle of the matrix. Standard errors appear in parentheses. Squared Correlations are given in the upper triangle of the matrix



## 4.2 Hypothesis Testing

The relationship between the hypotheses was tested by using structural equation modelling (SEM). The following hypotheses were tested:

H1: There is a positive relationship between consumer satisfaction with the safety and quality of information on social media and consumer trust;

H2: There is a positive relationship between consumer trust and virtual brand loyalty to OTC medicines;

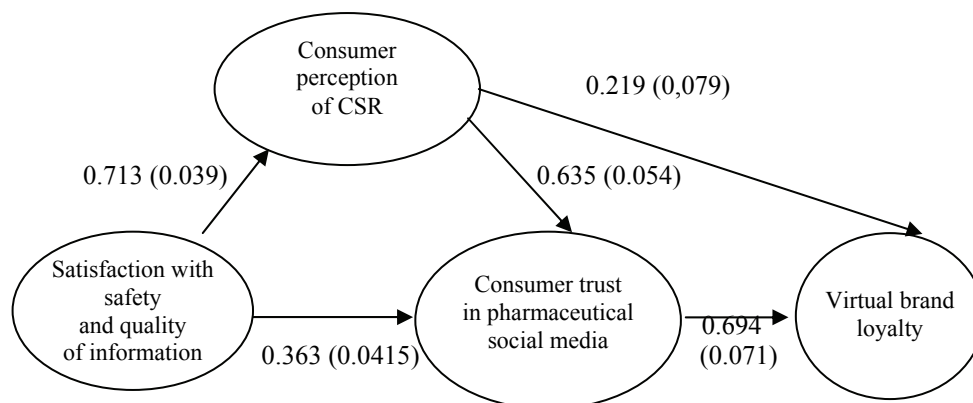
H3: There is a positive relationship between consumer satisfaction with the safety and quality of information on social media and consumer perception of CSR;

H4: There is a positive relationship between consumer perception of CSR and consumer satisfaction with safety and quality of information on social media;

H5: There is a positive relationship between consumer perception of CSR and virtual brand loyalty after consumer satisfaction with safety and quality of information on social media.

In market research, dependence and interdependence analytical techniques are often used. The goal of using dependence techniques is to show which independent variables are the most connected with dependent variables. The use of interdependence techniques, by contrast, aims at identifying a pattern in a large group of arbitrarily selected independent variables. The purpose of structural equation modelling (SEM) is to achieve both goals. SEM combines elements of factor analysis (for the identification of basic constructs or ideas which define an independent variable) with elements of regression analysis. SEM makes it possible to verify reliability – which is of key importance for the evaluation of basic items – and measure direct and indirect effects between variables in a model (Myers in Mullet, 2003).

Our results showed that the suitability of the indices was acceptable (chi-square value = 133.614,  $df = 49$ ,  $p = 0.000$ , CFI = 0.973 TLI = 0.970, NFI = 0.968, RMSR = 0.019, RMSEA = 0.071). We reached the conclusion that the model fitted the data well. The coefficient values are shown in fig. no. 1.



Standardized estimates are shown.  $n = 546$ .

\*  $p \leq 0.05$ .

**Figure no. 1: Hypothesis-based structural model**

Table no. 4 shows the results of hypothesis testing. The parameter values were in line with the proposed hypothesis paths. Hypotheses H1, H2, H3, H4 and H5 were thus confirmed.

Table no. 4: Structural equation model – path coefficients

Hypothesis path	Hypothesis	Standardized coefficients	t-values	Results
Consumer satisfaction with safety and information – Consumer trust	H1	0.363	9.153*	Accepted
Consumer trust – Virtual brand loyalty	H2	0.694	10.044*	Accepted
Consumer satisfaction with safety and information – Consumer perception of CSR	H3	0.714	15.363*	Accepted
Consumer perception of CSR – Consumer trust	H4	0.635	14.216*	Accepted
Consumer perception of CSR – Virtual brand loyalty	H5	0.219	3.476*	Accepted

Notes: \*p<0.01

Hypotheses H1 and H2 correspond to the path from consumer satisfaction with safety and information on social media to virtual brand loyalty, which leads across building consumer trust. During research on whether consumer trust acts as a mediator between safety and information and virtual brand loyalty, we performed mediation analysis using SEM. Doing so made it possible to compare different, mutually competing models, enabling us to measure only the effects (Zhao, Lynch and Chen, 2009). We then analysed three models (Table no. 5 and 6) in order to prove the mediation effect of consumer satisfaction with safety and information on social media and virtual brand loyalty.

Table no. 5: SEM results for mediation effect of consumer trust on the relationship between consumer satisfaction with safety and information and virtual brand loyalty

Models	$\chi^2$	df	$\chi^2$ diff (df diff)	CFI	GFI
Model 1	93.411	23	Comparison base	0.984	0.932
Model 2	12.000	11	0.994	0.986	
Model 3	91.62	22	3.042 (1) <sup>a</sup>	0.984	0.938

Notes: <sup>a</sup> The results of the difference between Model 1 and Model 3. The difference was not significant at p = 0.05

Table no. 6: SEM results for mediation effect of consumer trust on the relationship between consumer satisfaction with safety and information and virtual brand loyalty

	Model 1	Full Mediation model 2	Model 3
Consumer satisfaction→ consumer trust	0,802*		0,809*
Consumer trust→ Virtual brand loyalty	0,914*		0.981*
Consumer satisfaction→ Virtual brand loyalty		0,709*	-0,890

Notes: \* p, 0:01; RS L recovery satisfaction; CT = consumer trust; Model 2 does not include the mediator of consumer trust; Model 3 includes the mediator of consumer trust.

Four conditions must be met to confirm the presence of mediation effect (Baron and Kenny, 1986). Firstly, the predictor variable (consumer satisfaction with safety and information on social media) must have a significant effect on the mediator variable (consumer trust). Secondly, the mediator variable (consumer trust) must have a significant impact on the dependent variable (virtual brand loyalty). Thirdly, the predictor variable (consumer satisfaction with safety and information on social media) must have a significant effect on the dependent variable (virtual brand loyalty). Finally, the impact of the predictor (perceived CSR of pharmaceutical company) should not be significant (in case of full mediation) or should be reduced in strength (in case of partial mediation) after it was controlled for the mediator variable (consumer trust). Model 1 met the first two conditions. The results showed that the predictor variable (consumer satisfaction with safety and information) had a significant effect on the mediator variable (consumer trust), and consumer trust had a significant influence on virtual brand loyalty (dependent variable). Model 2 was developed with the specific purpose of testing condition 3. The results show that consumer satisfaction with safety and information on social media has a significant influence on virtual brand loyalty (dependent variable). Model 3 included consumer satisfaction with safety and information and consumer trust as independent predictor variables and virtual brand loyalty as the mediator variable. The aim was to determine if the effects of consumer satisfaction with safety and information on virtual brand loyalty become insignificant after introducing the mediator variable of consumer trust.

The results of Model 3 show that the effects of consumer satisfaction with safety and information on social media on virtual brand loyalty become insignificant after introducing the mediator variable of consumer trust.

The other hypotheses dealt with the relationship between consumer perception of CSR and factors such as consumer satisfaction with safety and information on social media, consumer trust, and virtual brand loyalty.

Hypothesis 3 confirmed that consumer satisfaction with safety and information on social media has a positive effect on consumer perception of CSR of pharmaceutical companies which market OTC medicines ( $\beta=0.735$ ,  $p<0.01$ ).

Hypothesis 4 can be confirmed because consumer perception of CSR has a significant effect on consumer trust ( $\beta=0.671$ ,  $p<0.01$ ).

The relationship between consumer perception of CSR and virtual brand loyalty is significant ( $\beta=0.242$ ,  $p<0.01$ ), which confirms hypothesis 5. This indicates that positive consumer perception of CSR leads to increased virtual brand loyalty.

The positive relationship between consumer perception of CSR and consumer trust (H4) indicates that consumer perception of CSR has a positive effect on consumer satisfaction with safety and information over SM.

Consumer trust has a significant effect on consumer loyalty (H4), which indicates that consumer trust can have a mediation effect on the relationship between consumer perception of CSR and virtual brand loyalty. As a result, we examined the mediator role of consumer trust on consumer perception of CSR and virtual brand loyalty. To show the mediating effect of consumer trust on the relationship between consumer perception of CSR and virtual brand loyalty, we analysed three models (Tables no. 7 and 8).

**Table no. 7: SEM results for mediation effect of consumer trust on the relationship between consumer perception of CSR and virtual brand loyalty**

Models	$\chi^2$	df	$\chi^2$ diff (df diff)	CFI	GFI
Model 1	82.012	23	Comparison base	0.986	0.943
Model 2	19.614	11		0.993	0.982
Model 3	73.024	22	9.228**(1) <sup>a</sup>	0.988	0.949

Note: <sup>a</sup> The results of the difference between Model 1 and Model 3

**Table no. 8: SEM results for mediation effect of consumer trust on the relationship between consumer perception of CSR and virtual brand loyalty**

	Model 1	Full Mediation	Model 3
Consumer perception of CSR→ Consumer trust	0.903*		0.862*
Consumer trust→ Virtual brand loyalty	0.920		0.731*
Consumer perception of CSR→ Virtual brand loyalty		0.816*	

Notes: \* p, 0:01; CSR = corporate social responsibility; CT = consumer trust; Model 2 does not include the mediator of consumer trust; Model 3 includes the mediator of consumer trust

## Conclusions

In the article we focused on corporate responsibility as the responsibility of pharmaceutical companies to observe OTC marketing regulations of countries in which they operate, and to be responsible for their activities which affect people, communities, and their environment (Nedela, 2008). Companies must follow ethical standards. Pharmaceutical companies must be consistent in warning consumers of potential contraindications to OTC medicines, as this will have an impact on consumer trust and virtual brand loyalty.

The relationship between the hypotheses was tested by means of structural equation modelling. To test for the presence of mediation effect using SEM, four conditions must be met (Baron and Kenny, 1986). Firstly, the predictor variable (consumer satisfaction with safety and information on social media) must have a significant effect on the mediator variable (consumer trust). Secondly, the mediator variable (consumer trust) must have a significant impact on the dependent variable (virtual brand loyalty). Thirdly, the predictor variable (consumer satisfaction with safety and information on social media) must have a significant effect on the dependent variable (virtual brand loyalty). Finally, the impact of the predictor (perceived CSR of pharmaceutical company) should not be significant (in case of full mediation) or should be reduced in strength (in case of partial mediation) after it was controlled for the mediator variable (consumer trust).

Model 1 was developed to test whether the first two conditions were met. The results show that the predictor variable (consumer satisfaction with safety and information) had a significant effect on the mediator variable (consumer trust). Consumer trust also had a significant effect on virtual brand loyalty (dependent variable). Model 2 was used to see whether the third condition was met.

The results show that consumer perception of CSR (predictor variable) has a significant effect on virtual brand loyalty (dependent variable). Model 3 was developed by including consumer perception of CSR and consumer trust as independent predictor variables and virtual brand loyalty as the mediator variable with the specific intention to determine

whether the effects of consumer perception of CSR on virtual brand loyalty became insignificant or less significant.

The results of Model 3 show a partial mediator effect of consumer trust regarding the relationship between consumer perception of CSR and virtual brand loyalty.

The survey is intended for experts in the field of OTC medicines marketing. The study is geographically limited to Slovenia and the sample used in the study is an opportunity and unrepresentative sample, consisting of users of Google+, Facebook, LinkedIn, Med.Over.Net, and Quora.

The aim of further research should be to examine how perceived CSR and consumer trust in social media marketing affect value-added in a value added chain.

## References

- Anderson, J.C. and Gerbing, D.W., 1988. Structural Equation Modelling in Practice: a Review and Recommended Two – Step Approach. *Psychology Bulletin*, 103(33), pp. 411-423.
- Baron Reuben, M. and Kenny, A.D., 1986. Moderator-Mediator Variables Distinction in Social Psychological Research: Conceptual Strategic and Statistical Considerations. *Journal of Personality and Social Psychology*, 51(6), pp. 1173-1182.
- Bidault, F. and Jarillo, C.J., 1997. Trust in Economic Transactions. In: F. Bidault, P.Y. Gomez and M. Gilles, ed. *Trust: Firm and Society*. London: Macmillan Press. Ch. 5.
- Bonabeau, E., 2009. Decisions 2.0: the power of collective intelligence, *MIT Sloan Management Review*, 50(2), pp. 45-52.
- Clarkson M., 1995. A Stakeholder Framework for Analyzing and Evaluating Corporate Social Performance. *Academy of Management Review*, 20(1), pp. 92-117.
- Costello, A. B. and Osborne, J., 2005. Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. *Practical Assessment Research & Evaluation*, 10(7). [online] Available at: <<http://pareonline.net/getvn.asp?v=10&n=7>>[Accessed 24 August 2013].
- Coyle, J., Langlet, J., Gibson, B., Novack, R. and Bardi, E., 2008. *Supply Chain Management: A Logistics Perspective*, 8th ed. Florence: South-Western Cengage Learning.
- Chetley, A., Hardon, A., Hodgins, C., Haaland, A. and Fresle, D., 2007. *How to improve the use of medicines by consumers*. Genève: WHO.
- Dahlström, P. and Edelman, D., 2013. The coming era of on-demand marketing, McKinsey quarterly. [online]. Available at: <[http://www.mckinsey.com/insights/marketing\\_sales/the\\_coming\\_era\\_of\\_on-demand\\_marketing?cid=other-eml-alt-mkq-mck-oth-1304](http://www.mckinsey.com/insights/marketing_sales/the_coming_era_of_on-demand_marketing?cid=other-eml-alt-mkq-mck-oth-1304)> [Accessed 15 May.2013].
- Dinu, V. 2011. Corporate Social Responsibility – Opportunity for reconciliation between economical interests and social and environmental Interests. *Amfiteatru Economic*, XIII(29), pp. 6-7.
- Dragomir, D.V. and Anghel Ilcu, E.R. 2011. Social responsibility practices regarding facilities granted to employees and consumer protection in selected European companies. *Amfiteatru Economic*, XIII(29), pp. 86-103.

- Fisher, T., 2009. ROI in social media: A look at the arguments. *Journal of Database Marketing & Customer Strategy Management*, 16, pp. 189-195.
- Fornell, C. and Larcker, D. F., 1981. Structural Equation Models with Unobservable variables and Measurement Error. *Journal of Marketing Research*, 18, pp. 39-50.
- Greene, A., J., Niteesh, K.C., Kesselheim, S.A., Brennan, A.T. and Shrank, W., 2012. Changes in Direct-to-Consumer Pharmaceutical Advertising Following Shifts From Prescription-Only to Over-the-Counter Status. *The Journal of the American Medical Association*, 308(10), pp. 973-975.
- Gregorc, J., Videmšek, M., Štihec, J., Karpljuk, D., Tušak, M., Meško, M. 2012. The lifestyle of pre-school teachers and their assistants as an element of subjective theories. *Zdravstveno varstvo*, 51(2), pp. 95-104.
- Harrison, N., 2000. *Constructing sustainable development*. Albany: State University of New York Press.
- Hatch, Jo M. and Schultz, M., 2004. *Organizational identity*. Oxford University Press.
- Hernaus, T. 2011. Business Trends and Tendencies in Organization Design and Work Design Practice: Identifying Cause and Effect Relationships. *Business Systems Research*, 2(1), pp. 4-16.
- Hoffman, L. D. and Fodor, M., 2011. Can you Measure the ROI of Your Social Media? *Mit Sloan Management Review*, 52(1), pp. 41-49.
- Kietzmann, H.J., Hermkens, K., McCarthy, P.I. and Silvestre, S.B. ,2011. Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*, 54(54), pp. 241-251.
- Lazarc, N. and Lorenz, E., 1998. *Trust and economic learning*. Northampton: Edward Elgar Publishing Limited.
- Li, A., 2011. Social Media and Supply Chain Management: Don't Copy. Be Inspired. *Supply & Demand Chain Executive*, 12(2), pp. 10-21.
- Li, M.B. and Xu.X., 2011. Recent development of knowledge-based systems, methods and tools for One-of-a-Kind Production. *Knowledge-Based Systems*, 24, pp. 1108-1119.
- Ma del Mar Garcia de los S., Crespo, A.H. and Rodriguez del Bosque, I., 2005. Influence of corporate social responsibility on loyalty and valuation of services. *Journal of Business Ethics*, 61(4), pp. 369-385.
- Mare, C., Dragos, S. L., Lazar, J.T. and Dragos, C.M. 2013. Consumer protection through prices: an analysis of the energetic sector in European union countries, *Amfiteatru Economic*, XV(34), pp.327-341.
- Markova, S. and Petkovska-Mirčevska, T., 2013. Social media and supply chain. *Amfiteatru Economic*, XV(33), pp. 89-102.
- Mayer, R.C., Davis, J. and Schoorman, F.D., 1995. An integrative model of organizational trust. *Academy of Management Review*, 20(3), pp. 709-734.
- Nedelea, A. 2008. Ethical Responsibility of Firm's Marketing Activity. *Amfiteatru Economic*, X(23), pp. 103-106.
- Nunnally, J.C., 1978. *Psychometric Theory*. New York: McGraw-Hill.
- O'Dell, C. and Hubert, C., 2011. *The new edge in knowledge*. Hoboken: John Wiley & Sons
- Othman, R. and Sheehan, T.N., 2011. Value creation logics and resource management: a review. *Journal of Strategy and Management*, 4(1), pp. 5-24.

- Pejić Bach, M. (2003). Surviving in an environment of financial indiscipline: a case study from a transition country. *System Dynamics Review*, 19(1), pp. 47-74.
- Petrescu, I., Dinu, V., Ștefănescu, C. and Dobrescu, E. 2010. Human Factor's Involvement in the Consumer. *Amfiteatru Economic*, XII (28), pp. 267-286.
- Rousseau, D., Sitkin, S.B., Burt, R.S. and Camerer, C., 1998. Not so different after all: a cross-discipline view of trust. *The Academy of Management Review*, 23(4), pp. 255-271.
- Sako M., 1991. The role of 'trust' in Japanese buyer-supplier relationships. *Ricerche Economiche*, 45(2/3), pp. 449-474.
- Schniederjans, D., Cao, S.E. and Schniederjans, M., 2013. Enhancing Financial Performance with Social Media: An Impression Management Perspective. *Decision Support Systems*, 55(4), pp. 911-918.
- Severin Benshimol C, Griffin T and Teichner W., 2012. How consumer health-care organizations can leverage social media in McKinsey&Company. [online]. Available at: <<http://www.mckinsey.com>> [Accessed 6 March 2013].
- Smeureanu, I., Dioșteanu, A., Delcea, C and Cotfas, L., 2011. Business ontology for evaluating corporate social responsibility. *Amfiteatru Economic*, XIII (29), pp. 28-42.
- Steiner, G.A. and Steiner, J.F., 2003. *Business, government, and society: a managerial perspective*. Boston: McGraw-Hill/Irwin.
- Torres, C., 2011. More drug companies close Facebook pages as Walls open. The Washington Post. Available at: <[http://www.washingtonpost.com/national/health-science/more-drug-companies-close-facebook-pages-as-walls-open/2011/08/16/gIQA1venJJ\\_story.html](http://www.washingtonpost.com/national/health-science/more-drug-companies-close-facebook-pages-as-walls-open/2011/08/16/gIQA1venJJ_story.html)>[Accessed 2 June 2013].
- Wirtz, W.B., Schilke, O. and Ullrich, S., 2010. Implications of the Web 2.0. for creating value on the internet. *Long Range Planning*, 43, pp. 272-290.
- Xie, Y. and Peng, S., 2009. How to repair customer trust after negative publicity: the role of competence, integrity, and benevolence, and forgiveness. *Psychology & Marketing*, 26(7), pp. 572-589.
- Yam B., Limbu, M.W. and Lunsford, D., 2012. Perceived ethics of online retailers and consumer behavioural intentions: The mediating roles of trust and attitude. *Journal of Research in Interactive Marketing*, 6(2), pp. 133-154.
- Young-Ybarra, C. and Wiersema, M., 1999. Strategic flexibility in information technology alliances: the influence of transaction cost economics and social exchange theory. *Organization Science*, 10(4), pp. 439-459.
- Zack, H.M., 2003. Rethinking the knowledge-based organization. *MIT Sloan Management Review*, 44(4), pp. 67-71.
- Zhao, X., Lynch, G.J. and Chen, Q., 2009. Reconsidering Baron and Kenny: Myths and Truths about *Mediation Analysis*. *Journal of Consumer Research*, 37(2), pp. 197-206.