

Different value-trust impacts in e-commerce SEM models

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Different value-trust impacts in e-commerce SEM models

In this study, the SEM model of Kim & Sullivan (2017, p199) was built on two different subsamples. The model balances the relative importance of perceived value and online trust in influencing consumers' repurchase intention. The two subsamples (with relatively reliable subsample size) represent buyers of two well-known brands, n=49 students ordered last time from Alibaba, and n=71 from eBay. The two subsamples are homogenous in regard of gender, age, and the products last time ordered. Our assumption is that Alibaba and eBay have similar performance, because only 2 of the 23 attitudes measured, were significantly different between Alibaba and eBay. Based on this, we accept that the perception of the stores is not different. After the models were built, the difference in total effects of value on trust, was not significant, comparing the two subsamples. ($p>0.05$). Meanwhile the coefficients of determination are notably different.

keywords: cross-border online shop; model; repurchase

track

Retailing & Omni-Channel Management

The objectives of the research

The study investigates the impact of online e-commerce on cross-border trade patterns. The rise of the internet and, more generally, digital communications technology, has led many observers to announce the 'death of distance' (Cairncross, 1997).

The term cross-border online shopping is the analogue to offline cross border shopping, differing only in the channel used. The literature has distinguished between using cross-border term (for purchasing in the neighbouring country or within the continent, e.g. Europe) from the word overseas fitting better (when real overseas shipping is included - e.g. Asia to Europe). The authors proposes to utilize the overseas cross-border online shopping term because all the examined retailer web site are dealing with mostly overseas retails, namely eBay and Alibaba.

According to the EU data the level of cross-border online shopping differs from country to country. For example, shopping across borders is most prevalent in Ireland and Austria, with respectively only 16 and 18 percent of consumers that only shop domestically. In Germany and Poland on the other hand, domestic shopping is still far superior, as 68 percent of Germans and 62 percent of Polish consumers shop domestically only. Overall, in Western Europe, 43 percent of consumers shop domestically only, while 48 percent go to both domestic and foreign web shops to purchase products online. The remaining 9 percent only shopped across the border in the past twelve months. In Eastern Europe, things aren't very different: 44 percent shops domestically only, 47 percent do both and 10 percent shop only at online stores located abroad (ecommercenews.com, 2018).

This study improves one hand the literature on online trust by integrating the consumers' product evaluations model and technology adoption model in e-commerce environments and other hand comparing two overseas cross-border online shopping e-commerce web sites' performance and highlight the differences and similarities.

We investigate how perceived value influences the perceptions of online trust among online buyers and their willingness to repurchase from eBay and Alibaba.

In this study the utilized model is the same as published in Kim & Sullivan (2017, p199). The model compares the relative importance of perceived value and online trust in influencing consumers' repurchase intention.

As in traditional markets, trust has been considered crucial in an e-commerce environment due its ability to promote risk-taking behavior in the case of uncertainty (Fang et.al, 2014).

The online trust along with technology adoption factors, such as perceived usefulness, perceived ease of use, and willingness to transact with online firms have dominated the information system literature (Kim and Sullivan, 2017, p199). This effort has advanced our understanding on the e-commerce adoption and has resulted in an emerging consensus as to its implications in business.

Trust in e-commerce

Trust has been studied in many disciplines, including psychology, economics, marketing, and information systems. In the trust literature, trust in e-commerce can be implied in two different stages: pre-purchase and post-purchase (Kim et. al, 2009). We focus on examining the impact of trust on repurchase intention we study trust at the post-stage.

Kim and Sullivan (2017, p201) stated that the trust on e-commerce research was dominated by technology adoption models (Technology Acceptance Model), in which trust was generally associated with perceived usefulness, perceived easy of use, and website characteristics, and design. Some of the empirical models used the theories from the economics discipline to measure how economic factors, such as price (Ba & Pavlou, 2002), perceived risk (Alam & Yasin, 2010) were associated with trust.

The research method

The relationship between perceived quality, perceived value, and purchase decision have been widely conceptualized and tested in the marketing literature (Dodds & Monroe, 1985, Parasuraman & Grewel, 2000, Zeithaml, 1988). Dodds & Monroe (1985) proposed that price is a major determinant of product evaluations. Zeithaml (1988) adapted the model published by Doods and Monroe to explain the relationship between the concepts of price, perceived quality and perceived value.

Based on the research of Kim & Sullivan (2017), a quantitative study was conducted. The participation was voluntary. The length of the questionnaire was app. 15 minutes long. Altogether N=392 students filled the survey online. The basic socio-demographic parameters of the sample: 58% male, 42% female. Mean of the age is M=21.39 years with SD=1.67, the values changed between MIN=18.0 and MAX=29.0 years.

The questionnaire consisted of the following main blocks: online purchase habits (spending on different categories), awareness and usage of different brands, attitude related to the purchasing process, details of the last purchase, and finally the attitude scales to repeat the model of Kim & Sullivan (2017), based on the last purchase of the respondent.

The aim of the research is to build a model of Kim & Sullivan (2017), and add the effect of the cross-border online shop type factor. Based on the frequency of the online

webshop type question, only few well-known brands (namely Alibaba.com, and eBay) could be used with relatively reliable sample size: n=49 students ordered last time from Alibaba, and n=71 from eBay. The two subsamples are homogenous in regard of gender and age. The differences among the two subsamples are not significant. ($p>0.05$).

Major results

Partial least squares (PLS) is a widely accepted variance-based, descriptive, and prediction –oriented approach to SEM (Ziggers & Henseler, 2016, Tsao et.al 2016 pp1995). Using ADANCO for PLS path modeling offers three advantages. First, the measurement model can be used to assess construct reliability and validity. Second, model fit can be verified via overall model assessment, and third the structural model can be used for hypothesis testing (Ziggers & Henseler, 2016, Henseler et al. 2016, Tsao et al. 2016, pp1995). We can assume that there is no difference in the performance of the two highlighted cross-border online shops, based on the seven different aspects, except in case of 2.2. *The website is well known by the general public and 8.1. If I re-ordered the product, I would probably order it on the same site.* The hypotheses were tested with non-parametric Mann-Whitney test, because none of the attitudes follow the normal distribution, based on the Shapiro-Wilk test (in each case $p=.000$) Altogether 23 factors were measured, there is only two cases, where the difference between Alibaba and eBay is significant, so based on this, we accept that the perception of the stores is not different, based on the last purchase. The ranks and the results of the tests:

1st table: Results of the Mann-Whitney test of the scales measured

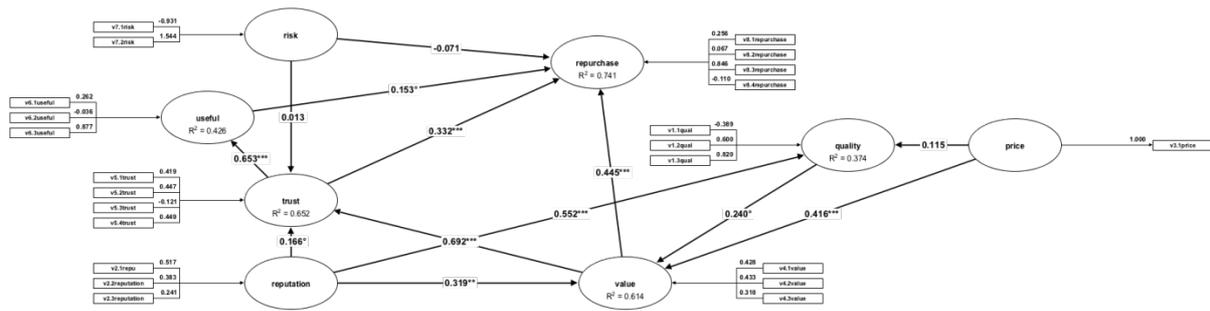
	Alibaba			eBay			Man n- Whit ney U	p
	N	Mean Rank	Sum of Ranks	N	Mea n Rank	Sum of Ranks		
1.1. The quality of the ordered product was excellent.	48	58.5	2810	69	59.3	4093	1634	0.897
1.2. The performance of the ordered product was excellent.	41	51.4	2108	64	54.0	3458	1247	0.653
1.3. Generally speaking, I am satisfied with the product I ordered.	47	60.5	2843	70	58.0	4060	1575	0.676
2.1. The website has a good reputation among its users.	46	54.1	2490	69	60.6	4181	1409	0.277
2.2. The website is well known by the general public.	46	50.9	2339	71	64.3	4564	1258	0.012
2.3. The website is well rated.	45	55.0	2477	69	59.1	4078	1442	0.485
3.1. The price of this product on this website is cheaper than on other websites.	46	61.7	2840	68	54.6	3715	1369	0.181
4.1. The product ordered from the site was very good value for money.	47	61.8	2903	69	56.3	3883	1468	0.325
4.2. Ordering a product from a website	45	57.9	2607	69	57.2	3949	1534	0.904

is a good buy.								
4.3. The price shown on the website was reasonable.	47	59.6	2800	68	56.9	3870	1524	0.623
5.1. The website shipped exactly the product that was in the product description.	46	60.6	2787	69	56.3	3884	1469	0.445
5.2. There is no change in the published terms of delivery of the website between order and receipt	46	58.3	2681	64	53.5	3424	1344	0.354
5.3. I think the website is honest.	45	58.7	2641	66	54.2	3576	1365	0.442
5.4. Overall, I trust the website.	46	62.1	2858	70	56.1	3929	1444	0.319
6.1. The site has improved my performance in terms of shopping (e.g. I made the transaction more smartly than before).	42	57.2	2403	62	49.3	3057	1104	0.176
6.2. The transaction process of the website increased my purchasing efficiency. eg. I completed the transaction faster than before.)	42	54.4	2283	63	52.1	3282	1266	0.696
6.3. The website was very helpful in purchasing the product.	45	53.3	2397	69	60.3	4159	1362	0.241
7.1. The entire purchase process on the website involved high risk / uncertainty.	46	58.8	2705	71	59.1	4198	1624	0.958
7.2. Buying a specific product on this site involved high risk / uncertainty.	46	56.8	2614	71	60.4	4289	1533	0.553
8.1. If I re-ordered the product, I would probably order it on the same site.	46	63.6	2927	67	52.5	3514	1236	0.045
8.2. If I could, I would like to use the website again for my next purchase.	45	62.9	2829	68	53.1	3612	1266	0.077
8.3. I intend to visit the site again in the future.	45	62.4	2809	69	54.3	3746	1331	0.123
8.4. I would like to revisit this site to buy products in the near future.	44	62.8	2763	68	52.4	3565	1219	0.058

The aggregated variables are all reliable, based on Cronbach Alphas. CA for quality is 0.908, for reputation 0.841, for value 0.775, for trust also 0.775, for usefulness 0.794, for risk 0.881 and finally, for repurchase 0.925 (Henseler et al. 2016).

Based on the categorization eBay is a C2C selling place, while Alibaba is a B2C selling place, meanwhile the performance of them is similar. The students were also asked, what was the last purchased item. In case of both selling places mainly electronic accessories and clothing accessories were bought, this a further similarity between the two selling sites. In case of Alibaba 76%, in case of eBay 65% of last purchase belongs to these categories.

Based on the total sample the following model was built with ADANCO software:



1st figure: Kim & Sullivan (2017) model based on total sample

The aim of the model is to explain repurchase. The model itself has seven independent elements, from which four has direct effect on repurchase. As a result, repurchase is explained in 74.1%.

The following table presents the details, the weights of the paths, the direct and the indirect effects, the sum of the direct and indirect effects, and the Cohen's f^2 , which shows the effect size. Based on Cohen (1988), $f^2 \geq 0.02$, $f^2 \geq 0.15$, and $f^2 \geq 0.35$ represent smaller, medium, and higher effect sizes. In case of the total base model, the highest effect size belongs to the path, how the value determines the trust, $f^2=0.7983$. There is one more similar high effect size in the model, this is the path where trust explains usefulness, $f^2=0.7415$.

2nd table: Results of the SEM model on total sample base

Effect	Beta	P	Indirect effects	Total effect	Cohen's f^2
quality -> value	0.2403	*		0.2403	0.0935
reputation -> quality	0.5523	***		0.5523	0.3924
reputation -> value	0.3189	**	0.1327	0.4516	0.1521
reputation -> trust	0.1655	*	0.3125	0.4780	0.0445
price -> quality	0.1149	*		0.1149	0.0170
price -> value	0.4159	**	0.0276	0.4435	0.3542
value -> trust	0.6920	***		0.6920	0.7983
value -> repurchase	0.4452	***	0.2991	0.7443	0.2542
trust -> useful	0.6525	***		0.6525	0.7415
trust -> repurchase	0.3321	***	0.1001	0.4322	0.1412
useful -> repurchase	0.1534	*		0.1534	0.0475
risk -> trust	0.0134	ns		0.0134	0.0005
risk -> repurchase	-0.0705	ns	0.0058	-0.0647	0.0186

(*ns* $P > 0.05$; * $P \leq 0.05$; ** $P \leq 0.01$; *** $P \leq 0.001$)

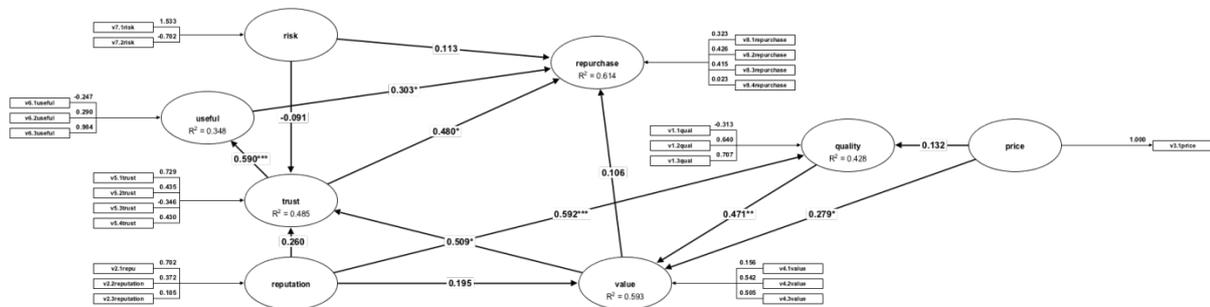
The model on total base has SRMR (standardized root mean squared residual) = 0.0929. (With $d_{ULS}=2.3844$ and $d_G=1.2236$) This is only slightly higher, than the 0.08 value which indicates an acceptable fit (Henseler et.al., 2016).

Hypotheses

H1: The outcome of two models are similar in regard of the value's total effect on trust, because the measured performance of the two cross-border online shops are very similar.

H2: The coefficient of determination of repurchase is similar comparing the model based on eBay and Alibaba.

Based on Alibaba users the following model was calculated. In this case, the system of the model is unchanged, meanwhile only those respondents are included, who bought last time something from Alibaba.



2nd figure: Kim & Sullivan (2017) model based on Alibaba subsample

The effect sizes are different, compared to total sample. In this case the highest effect size belongs to the path where reputation explains quality, $f^2=0.5212$.

2nd table: Results of the Mann-Whitney test of the scales measured Results of the SEM model on total sample base

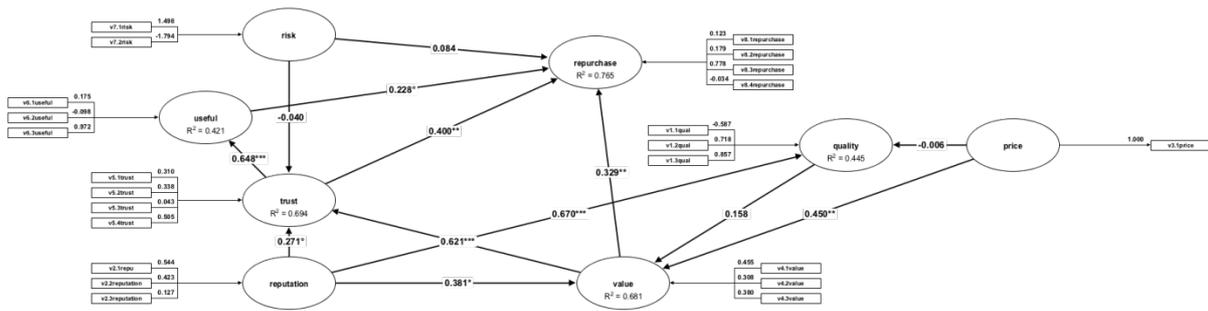
3rd table: Results of the SEM model on Alibaba subsample base

Effect	Beta	p (Beta)	Indirect effects	Total effect	p (Total effect)	SE of total effect	Cohen's f^2
quality -> value	0.4715	**		0.4715	0.0042	*	0.1645
reputation -> quality	0.5917	***		0.5917	0.0000	***	0.1092
reputation -> value	0.1948	ns	0.279	0.4738	0.0001	***	0.1172
reputation -> trust	0.2596	ns	0.2411	0.5007	0.0002	***	0.1321
price -> quality	0.1323	ns		0.1323	0.3301	ns	0.1359
price -> value	0.2795	*	0.0624	0.3419	0.0099	*	0.1326
value -> trust	0.5087	*		0.5087	0.0198	*	0.2182
value -> repurchase	0.1058	ns	0.3353	0.4411	0.0759	ns	0.2485
trust -> useful	0.5897	***		0.5897	0.0002	***	0.1565
trust -> repurchase	0.4805	*	0.1786	0.6591	0.0075	**	0.2463
useful -> repurchase	0.3028	*		0.3028	0.0334	*	0.1423
risk -> trust	-0.0912	ns		-0.0912	0.6048	ns	0.1762
risk -> repurchase	0.1132	ns	-0.0601	0.0531	0.7857	ns	0.1952

(ns $P > 0.05$; * $P \leq 0.05$; ** $P \leq 0.01$; *** $P \leq 0.001$) SE and P values of total effects were calculated with bootstrap (Henseler, 2012).

The model on Alibaba user's base has SRMR (standardized root mean squared residual) = 0.1357. (With $d_{ULS}=5.0808$ and $d_G=2.0820$) This is only slightly higher, than the 0.08 value which indicates an acceptable fit (Henseler et.al., 2016).

And for eBay the following results were calculated.



3rd figure: Kim & Sullivan (2017) model based on eBay subsample

Like in case of total sample, there is a very high effect size in case of this model, this belongs to the path where trust explains usefulness, $f^2=0.7258$.

4th table: Results of the SEM model on eBay subsample base

Effect	Beta	p (Beta)	Indirect effects	Total effect	p (Total effect)	SE of total effect	Cohen's f^2
quality -> value	0.1583	ns		0.1583	0.4412	ns	0.0437
reputation -> quality	0.6698	***		0.6698	0.0001	***	0.5869
reputation -> value	0.3806	*	0.106	0.4867	0.0014	**	0.2081
reputation -> trust	0.2712	*	0.3022	0.5734	0.0001	***	0.105
price -> quality	-0.0055	ns		-0.0055	0.9759	ns	0.000
price -> value	0.4501	**	-0.0009	0.4493	0.0044	**	0.4619
value -> trust	0.621	***		0.621	0.0000	***	0.5886
value -> repurchase	0.3286	**	0.3402	0.6688	0.0000	***	0.145
trust -> useful	0.6485	***		0.6485	0.0000	***	0.7258
trust -> repurchase	0.4	**	0.1479	0.5479	0.0000	***	0.2116
useful -> repurchase	0.2281	*		0.2281	0.0511	ns	0.1183
risk -> trust	-0.0396	ns		-0.0396	0.7359	ns	0.0046
risk -> repurchase	0.0839	ns	-0.0217	0.0622	0.6041	ns	0.0294

(ns $P > 0.05$; * $P \leq 0.05$; ** $P \leq 0.01$; *** $P \leq 0.001$) SE and P values of total effects were calculated with bootstrap (Henseler, 2012)..

The model on eBay user's base has SRMR (standardized root mean squared residual) = 0.1099. (With $d_{ULS}=3.3356$ and $d_G=3.2813$) This is only slightly higher, than the 0.08 value which indicates an acceptable fit (Henseler et.al., 2016).

Discussion of the hypotheses & Implications

H1: The outcome of two models are similar in regard of the value's total effect on trust, because the measured performance of the two cross-border online shops are very similar.

There are differences in total effects. Due to the limits of this paper, not all of the effects are compared between eBay and Alibaba. The full comparison may form the basis for a possible next study. Only the total effect of value on trust is examined detailed.

5th table: Differences in effects comparing the two subsamples

Effect	Beta	Indirect effects	Total effect	Cohen's f^2
Alibaba: value -> trust	0.5087		0.5087	0.3181
eBay: value -> trust	0.6210		0.6210	0.5886

Based on a t-test comparing the total effects of value on trust, the difference, measured in the sample is not significant. ($t(118)=-.189$ $p=> 0.05$ (two-sided)). The hypothesis is accepted, because the difference is not significant. Meanwhile we assume that in case of a next research, with a higher sample size, this difference may could be significant, because the difference is notable.

H2: The coefficient of determination of repurchase is similar comparing the model based on eBay and Alibaba.

In both cases, the coefficients of determination belong to repurchase are relatively high, meanwhile in case of eBay the determination coefficient of repurchase is higher than in case of Ali. (There is no formula to test the significance in this case.) May there is anything missing from the model of Ali? The next research question is how to renew the model, to explain the repurchase on a higher level in case of Alibaba. The 2nd hypothesis is also accepted, but there is a visible difference between Alibaba and eBay.

6th table: Differences in R2 comparing the two subsamples

Construct	Alibaba	eBay
	Coefficient of determination (R ²)	
quality	0.4281	0.4448
value	0.5934	0.6813
trust	0.4853	0.6936
useful	0.3478	0.4205
repurchase	0.6143	0.7653

We cannot state that coefficients of determination are significantly different. The Kim & Sullivan (2017) SEM models, based on Alibaba and the eBay buyers were built similarly but they perform differently in regard of coefficients of determination. In case of eBay, the factors transform better into repurchase. E.g. in case of eBay if the perceived value, trust and usefulness determine the probability of the repurchase better, than in case of Alibaba. Model of eBay has a higher predictive performance.

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