

CANONICAL CORRELATION ANALYSIS OF THE EFFECT OF PERCEIVED SERVICE QUALITY ON THE RELATIONSHIP QUALITY AT THE BUSINESS-TO-BUSINESS MARKET

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Abstract

The topic of the paper is focused on elaborating the impact of perceived service quality on the relationship quality at the business-to-business market. The purpose of the research is twofold. First, to expand the findings of only a few studies on the relationship between these variables (5, 19 and 18), as there is no consensus on the nature of their relationship. The second is to deepen the theoretical understanding of the impact of service quality model on the relationship quality. Consequently, the main research problem is how and to what extent the perceived service quality affects the relationship quality at the B2B market. The investigation of the use of financial services was conducted on a basic set of all hotels in Croatia. The model was tested using correlation analysis. The results of the research confirm the value and applicability of the conceptual model tested at the under-researched field of "service to service" marketing.

Keywords: business-to-business marketing, service quality, relationship quality, correlation analysis

1 INTRODUCTION

In the business market as compared to the consumer market, there are a small number of users of financial services that the providers develop stronger relationships with by frequently interacting with them and having a better understanding of their needs. The mutual interdependence between users and service providers is a crucial feature of the business market created because of the complexity and risks of the service product and because there is a small number of both alternative providers and quality users of the service (11).

Providing a quality service is extremely important to the quality of the relationship between providers and users at the business-to-business market. Both concepts are a part of a broader concept of holistic marketing. Service quality is an integral part of the integrated marketing, while the relationship quality is a component of the collaboration and relationship marketing. However, except for a few papers (5, 19 and 18), there has been no significant interest among researchers in the nature of this relationship.

2 LITERATURE REVIEW

During the last several decades, service quality has received more attention from researchers (8, 1, 2, 6, 4, and 15) than relationship quality (19, 3, and 7). So far, only a few papers have explored the relationship between service quality and relationship quality (5, 19 and 18), and there is no consensus among researchers on the nature of the relationship between these two concepts. Woo and Ennew (19) argue that the relationship quality precedes and has a positive impact on service quality, satisfaction and behavioral intentions of business customers. The results of their study show a positive and direct impact of the relationship quality on the service quality. The authors suggest there is a linear chain of influences between variables where the relationship quality has a positive effect on service quality, service quality has a positive effect on the satisfaction of business customers, and satisfaction has a positive effect on their subsequent behavioral intentions. Caceres and Paparoidamis (5) have a contrary opinion on the cause-effect relationship between these two variables. The authors refer to a multitude of scientific studies which confirm the service quality as a precursor of satisfaction (6, 14) and raise and prove the proposition that service quality has a positive and direct impact on the relationship quality. Before them, Wong and Sohal (18) also proved that there is a positive and direct

relationship between the service quality and the relationship quality. However, an important starting difference between these papers is that Woo and Ennew (19) define the relationship quality as an integral part of the overall service quality, while Caceres and Paparoidamis (5) make a clear distinction between the variables. Consequently, Woo and Ennew (19) define the relationship quality as a higher-order construct, which consists of three dimensions: cooperation, adaptation, and atmosphere, as opposed to Caceres and Paparoidamis (5) who see the variable as a component of trust, commitment and relationship satisfaction. By testing hypothesis Caceres and Paparoidamis (5) empirically verify that relationship satisfaction has a mediating role between quality service on one side and trust, commitment and loyalty on the other side of the conceptual model. Therefore, the following main and auxiliary hypotheses were developed:

H 1 There is an empirically provable relationship between service quality and relationship quality at the business-to-business market.

H 1.1. There is a relationship between service quality and satisfaction with the relationship at the business-to-business market.

H 1.2. There is a relationship between service quality and trust at the business-to-business market.

H 1.3. There is a relationship between the service quality and commitment at the business-to-business market.

3 RESEARCH METHODOLOGY

Empirical research was carried out by the survey method. The data were collected using a questionnaire consisting of four different measurement scales, previously used and named in the professional literature, which include the following:

- scales for measuring service quality (10),
- scales for measuring trust and commitment (13), and
- scales for measuring relationship satisfaction (12).

Measurement scales have been slightly modified and adjusted to the requirements of our research. The structural model was tested using correlation analyses.

The research was conducted on the total sample of 698 tourist facilities. The questionnaire respondents were financial managers of the tourist facilities responsible for negotiating the use of different financial products or services offered by financial institutions. The actual number of questionnaires analyzed was 356, which equals a response rate of 51%.

4 EMPIRICAL FINDINGS

The main and auxiliary hypotheses were tested empirically. The results of canonical correlation analyses of the relationship between the perceived service quality and relationship quality at the business-to-business market are presented in tables 1-6.

Each of the dimensions of service quality (SQ) was formed using principal component analysis (PCA) so that the canonical correlation analysis could be conducted between the dimensions of service quality and the dimensions of relationship quality. First, the relationship between the variables of service quality and relationship satisfaction was analyzed.

The results of the canonical analysis (see Table 1 and Fig. 1) show that there is a linear combination between the two sets of canonical variables i.e. between the dimensions of service quality and relationship satisfaction. Based on the value of the canonical correlation coefficient of 0.88860, we can say that these sets have a statistically significant correlation with a confidence level of 95%. The correlation between these variables is positive and strong. Bearing the above, the auxiliary hypothesis H1.1 can be considered as valid.

Table 1: Canonical correlation between the dimensions of service quality and relationship satisfaction

| | Eigenvalue | Canonical correlation | Wilks' Lambda | Chi-Square | Degrees of freedom | p-value |
|---|------------|-----------------------|---------------|------------|--------------------|---------|
| 1 | 0.789611 | 0.888601 | 0.210389 | 548.697 | 4 | 0.0000 |

Source: Authors' calculation

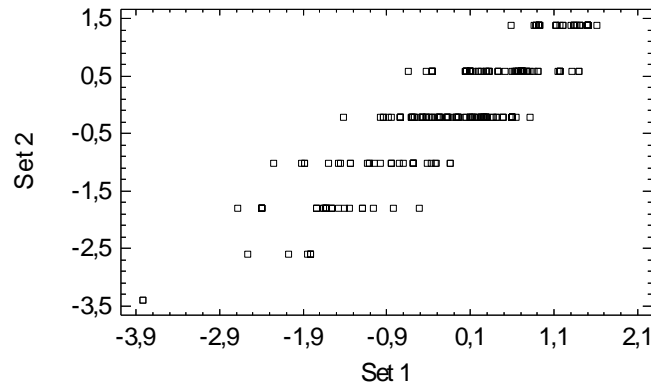


Fig. 1: Scatter plot with two sets of variables: the service quality and relationship satisfaction

The results of canonical correlation analysis (see Table 2 and Fig. 2) show that there are four linear combinations between two sets of variables (service quality and trust) that possess the highest mutual correlation. Table 2 shows the correlation of the estimated value of all linear combinations of sets of canonical variables. Based on the value of the total canonical coefficient R of 0.89005 (see Table 3), and given that three out of the four linear combinations of canonical variables have the empirical significance level (p-value) of less than 0.05, we can say that this is a strong observed correlation between the two sets of canonical variables and a strong correlation between the dimensions of service quality and trust. Bearing the above, the second auxiliary hypothesis H1.2. can be considered as valid.

Table 2: Canonical correlation between the dimensions of service quality and trust

| | Eigenvalue | Canonical correlation | Wilks' Lambda | Chi-Square | Degrees of freedom | p-value |
|---|------------|-----------------------|---------------|------------|--------------------|---------|
| 1 | 0.792184 | 0.890047 | 0.146759 | 670.678 | 24 | 0.0000 |
| 2 | 0.181383 | 0.425891 | 0.706198 | 121.577 | 15 | 0.0000 |
| 3 | 0.123516 | 0.351448 | 0.862672 | 51.6284 | 8 | 0.0000 |
| 4 | 0.015759 | 0.125535 | 0.984241 | 5.55165 | 3 | 0.1356 |

Source: authors' calculation

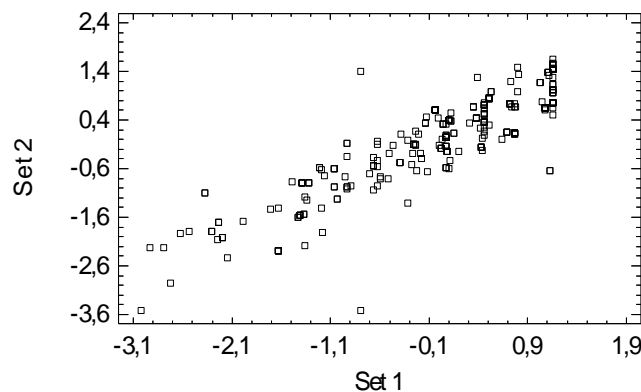


Fig. 2: Scatter plot with two sets of variables: the service quality and trust

Table 3: Summary of the results of the canonical correlation analysis between the dimensions of service quality and trust

| Summary of canonical analysis | | | Set: trust | Set: psychological contract |
|-------------------------------|---------|----------------------------|------------|-----------------------------|
| canonical R | 0.89005 | Number of variables | 6 | 4 |
| Chi-Square | 670.68 | Average variance extracted | 95.9226% | 100.000% |
| p-value | 0.0000 | Overall redundancy | 67.0523% | 68.3741% |

Source: authors' calculation.

A canonical correlation analysis was conducted between the sets of variables of service quality and commitment. The results of canonical correlation analysis (see Table 4 and Fig. 3) show that there are four linear combinations between two sets of variables (service quality and commitment) that have the highest mutual correlation. Table 4 shows estimated values of correlations of all linear combinations of sets of canonical variables. Based on the value of the total canonical coefficient $R = 0.76158$ (see Table 5), and given that most of the linear combinations of canonical variables have the empirical significance level (p-value) of less than 0.1, we can say that there is a medium intensity correlation between the two observed sets of canonical variables i.e. a medium intensity correlation between the dimensions of service quality and commitment. Bearing the above, the auxiliary hypothesis H1.3 and ultimately the main hypothesis H1 can be considered as valid.

Table 4: Canonical correlation between the dimensions of service quality and commitment

| | Eigenvalue | Canonical correlation | Wilks' Lambda | Chi-Square | Degrees of freedom | p-value |
|---|------------|-----------------------|---------------|------------|--------------------|---------|
| 1 | 0.580003 | 0.761579 | 0.330298 | 387.162 | 24 | 0.0000 |
| 2 | 0.178335 | 0.422298 | 0.786429 | 83.9684 | 15 | 0.0000 |
| 3 | 0.0259604 | 0.161122 | 0.957117 | 15.3185 | 8 | 0.0532 |
| 4 | 0.0173739 | 0.13181 | 0.982626 | 6.12554 | 3 | 0.1057 |

Source: authors' calculation.

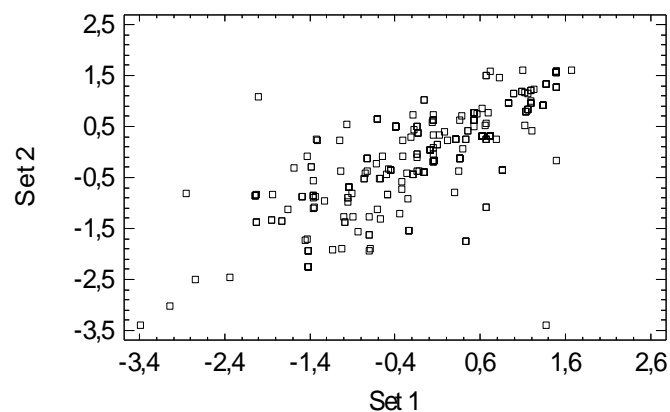


Fig. 3: Scatter plot with two sets of variables: the service quality and commitment

Table 5: Summary of the results of the canonical correlation analysis between the dimensions of service quality and commitment

| Summary of canonical analysis | | | Set: commitment | Set: service quality |
|-------------------------------|---------|----------------------------|-----------------|----------------------|
| canonical R | 0.76158 | Number of variables | 6 | 4 |
| Chi-Square | 387.16 | Average variance extracted | 88.7642% | 100.000% |
| p-value | 0.0000 | Overall redundancy | 40.3501% | 47.3059% |

Source: authors' calculation.

After conducting canonical correlation analysis between the two sets of variables (service quality and relationship quality), a further correlation analysis was conducted between the four individual dimensions (latent variables) of service quality pre-calculated using principal components analysis, and the three-dimensional relationship quality.

Table 6 shows that three out of four dimensions of service quality (hard and soft quality and the quality of the results) have a statistically significant correlation (with a confidence level of 95%). The dimensions of relationship satisfaction and trust are positive and of strong intensity. The same dimensions of service quality have a statistically significant correlation with commitment and are positive and of medium intensity. "Potential quality", the fourth dimension of service quality, has a statistically significant correlation with all dimensions of quality relationships that are positive and of medium intensity.

Table 6: Canonical correlation between the dimensions of service quality and relationship quality

| | Relationship quality | Trust | Commitment |
|------------------------|----------------------|--------|------------|
| Potential quality | 0.7879 | 0.7432 | 0.5785 |
| Hard quality | 0.8639 | 0.8503 | 0.6795 |
| Soft quality | 0.8168 | 0.8073 | 0.5939 |
| Quality of the results | 0.8393 | 0.8305 | 0.7384 |

Note: p-value of all correlations is 0.000 and the sample size is 356

Source: authors' calculation.

5 CONCLUSION

The relationship between service quality and the dimensions of relationship quality was analyzed using canonical correlation analysis, in order to accept or reject the main hypothesis (H1) and the associated auxiliary hypotheses. Testing the first auxiliary hypothesis (H1.1) proved the existence of a statistically significant relationship of a positive direction and high intensity ($R = 0.88860$) between the perceived service quality and satisfaction with the relationship. It can therefore be concluded that the hotels that perceive higher quality of banking services are more satisfied with their mutual relationship. Bearing the above, the auxiliary hypothesis (H1.1) can be considered as valid. Furthermore, the results of the canonical correlation analysis used to test the second auxiliary hypothesis (H1.2) show that there is a statistically significant, strong correlation ($r = 0.89005$) of a positive direction between the perceived service quality and trust, which means the auxiliary hypothesis (H1.2) can be considered as valid. The results of the research show that the hotels that perceive a higher quality of banking services have more confidence in their main bank. In addition, the relationship between perceived service quality and commitment (H1.3) was also analyzed. The results show that it is a statistically significant relationship of a positive direction and of medium intensity ($r = 0.76158$). The conclusion is: the bigger the perception of the quality of banking services in hotels, the more they believe in the importance of ongoing relationships with banks and will invest maximum efforts in order

to maintain a long-term business relationship. Based on these results, the auxiliary hypothesis (H1.3) is accepted. Finally, by accepting the auxiliary hypotheses (H1.1), (H1.2) and (H1.3), the main hypothesis (H1) that there is a relationship between the service quality and relationship quality in the business-to-business market is confirmed which in the end confirms the results obtained by Caceres and Paparoidamis (5).

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