ACCOUNT MANAGEMENT OF THE LOCAL AUTHORITIES: CASE STUDY FROM HUNGARY

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Abstract

The study examines the impact of the integration of Savings Cooperatives on the account management of local governments in the framework of a questionnaire survey. In the course of the research, the authors evaluated the factors influencing the bank change within the framework of principal component analysis, cluster analysis, and cross-tabulation analysis.

Keywords: *savings cooperative integration, bank change, local government, account management*
JEL classification: *C38, G29, G30*
LCC code: *JS241-271*

Introduction

Significant changes took place in the savings of the Hungarian Local Governments as a result of the integration of the Saving Cooperative, which had a significant impact on the account management and the municipal portfolio. The Savings Cooperative was particularly strong in this local governmental customer segment, so assessing the impact of integration may be of interest in terms of bank marketing.

Theoretical Background

Currently, the operation of local governments is regulated by the law 2011 CLXXXIX. - by the Act on Local Governments of Hungary (hereinafter: the Act). Based on this Act, we can divide the concept of self-government into two major groups: The right of local self-government belongs to the community of voters of municipalities and counties. Municipalities operate in villages, towns, district cities, county towns and districts of the capital. The municipality of the capital is a local and regional government at the same time. *(Mötv, 2011)*

On the basis of the above mentioned, in order to manage local public affairs and exercise local public power, there are local governments in Hungary, which cannot be considered part of the state administration in terms of their constitutional status: independent factors of power. They also differ in their concept of state organization from the bodies of the central administration, as local governments are organized on the basis of the principle of decentralization. We consider the county self-governments to be regional self-governments, but this does not mean any hierarchy. There is no relationship of dependency or subordination between the local governments operating in the mentioned territorial units, where the territorial units can exercise the right of local authorities independently of each other. The capital is called the territorial and municipal self-government by law. *(Lentner, 2019; Molnár, 2019; Bethlendi - Lentner, 2019)*

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However it is important to note, that another regulatory act (the so-called Áht) came into force on 1 January 2012. where the Section 84 (1), according to which the payment account and account management of the local government can be maintained by a domestic credit institution or the Hungarian Treasury based on the on the municipalities own choice. (Áht, 2012) Nowadays, next to the Hungarian Treasury, most of the largest Hungarian banks and cooperative credit institutions also offer account management for the local governments in terms of savings and lending products, and several studies have already analyzed the account management habits of local governments. Among others *Ságiand Tóth (2009*) or *Sági J. (2015)*, who examined how the liquidity situation of local governments can be improved by banking services. It is needed to be highlighted that as of October 31, 2019, 11 savings cooperatives and 2 banks have been merged and as a result of this operation the largest branch network in the country – exactly with 750 branches – have been created. They serve nearly 1.2 million customers, of which 1 million are retail customers and nearly 200,000 are business and institutional customers. (Hungarian Savings Blog, 2019)

Loans from municipalities as well as municipal corporations were probably not transferred to another bank as a result of the integration, but as a result of the merger, several municipalities were able to switch financial institutions in case of developing their own account management. The creditworthiness and capital structure of municipal companies were assessed by *Zéman (2017)* and *Zéman et al. (2018)*.

Material and Methods

Source: The Savings Cooperative Integration Questionnaire was available to respondents from 4 April 2019 to 23 April 2019. The questionnaire was completed by a total of 197 respondents, of which 120 were relevant to the topic. The proportion of evaluable questionnaires is 3.75% of the total municipal sector. This proportion is considered reliable for the purpose of this article. The purpose of the study is to answer the following questions:

- To what extent has there been a change of account-managing as a result of the integration?
- Which factors influenced the decision the most?
- Is there a relationship between the responding municipality and the nature of the decision?

The method of the analysis: principal component analysis, cluster analysis and crossboard analysis by using the SPSS 24 software package. The authors were examining many variables included in the study as follows:

- location, less travel,
- more advanced/modern systems,
- discount, more favorable offer,
- stability of the institution,
- a friend's recommendation,
- quality of services.

Results

As mentioned above at the Theoretical Background section, the integration of the three banks had significant impact ont he account management of the local municipalties as more than 750 branches were still existing, but there were many other officies which has been closed during the integration procedure, therefore the colleagues at the local government have to travel more

to be able to compelte any cash-management activity. (e.g. cash withdrawal or cash transfer) Due to the fact considered above the authors wanted to examine if the local governments have been changed their account-holding banks and if the answer is yes, what were the most common reasons behind it.

Table 1: Did the integration of the Savings Cooperative affect the account management of their Municipality?

		Frequency	%	Valid %	Cumulative %
Valid	Yes	56	46,7	46,7	46,7
	No	64	53,3	53,3	100,0
	Total	120	100,0	100,0	

Source: The authors' own research, 2019

It is clear from the responses that out of the 120 respondents, 53.3% were not affected by the integration steps. In these respondents, fiduciary and account relationship capital had a stronger effect. Another such factor is the complexity of the procurement process and proper administration. So, contrary to our expectations, the majority remained in the management of savings cooperative accounts, while the rate of bank switching can be considered high.
From now on, we only worked with the answers of the local governments that changed the account-holding financial institution.

Table 2: KMO and Bartlett test results

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,687
Bartlett's Test of Sphericity	Approx. Chi-Square	243,542
	df	15
	Significance	0,000

Source: The authors' own research, 2019

As can be seen from the table above, the KMO value is 0.687, i.e. greater than 0.5, so our variables are moderately suitable for factor analysis.

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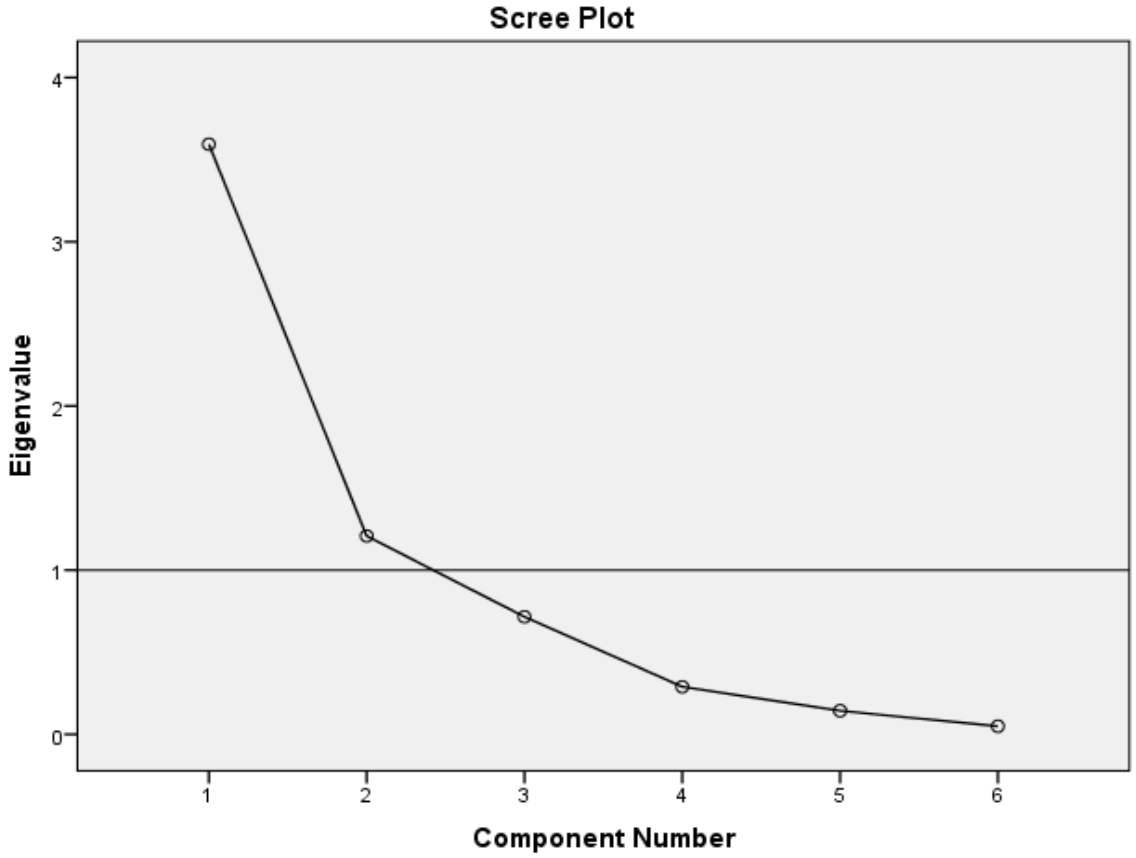

Figure 1: Scree Plot

Source: The authors' own research, 2019

The Scree test is prepared by using the so-called Scree Plot diagram, apply the "elbow rule": where there is a break in the diagram, it is advisable to determine the number of factors. It can be clearly seen from the figure above, that we have the opportunity to analyze two factors from the data used. Furthermore, the total explained variance (Table 3) also confirms that by analyzing the two factors, 80% of the data volume can be retained, so the factor analysis does not involve significant data loss, and the analysis meets the minimum 60% variance ratio criterion.

Table 4: Principal component analysis with varimax rotation

	Components	
	1	2
Discount, more favorable offer	0,935	0,123
Stability of the institution	0,935	0,183
Quality of services	0,935	0,234
Location (less travel)	-0,072	0,917
Friend recommendation	0,526	0,711
More advanced/modern systems	0,353	0,567

Source: The authors' own research, 2019

Table 3: Total explained variance

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Comp.	Total	Variance (%)	Cumulative %	Total	Variance (%)	Cumulative %	Total	Variance (%)	Cumulative %
1	3,594	59,895	59,895	3,594	59,895	59,895	3,031	50,511	50,511
2	1,208	20,135	80,030	1,208	20,135	80,030	1,771	29,519	80,030
3	0,716	11,931	91,961						
4	0,290	4,827	96,788						
5	0,143	2,390	99,177						
6	0,049	0,823	100,000						

Source: The authors' own research, 2019

Table 4 analyzes the reasons for the change of account-holding financial institution. Basically, the distribution of the already mentioned two factors is clearly visible. The first factor included the following three variables:

- discount, more favorable offer,
- stability of the institution,
- quality of services.

Based on the above mentioned, we believe that the elements of the first principal component factor has an economic nature. The second principal component factor included the following three variables:

- location (less travel),
- a friend's recommendation,
- more advanced/modern systems.

The second principal component factor is defined as the comfort considerations. In the following, cluster analysis is presented by the Ward method, standardization was performed based on Z scores.

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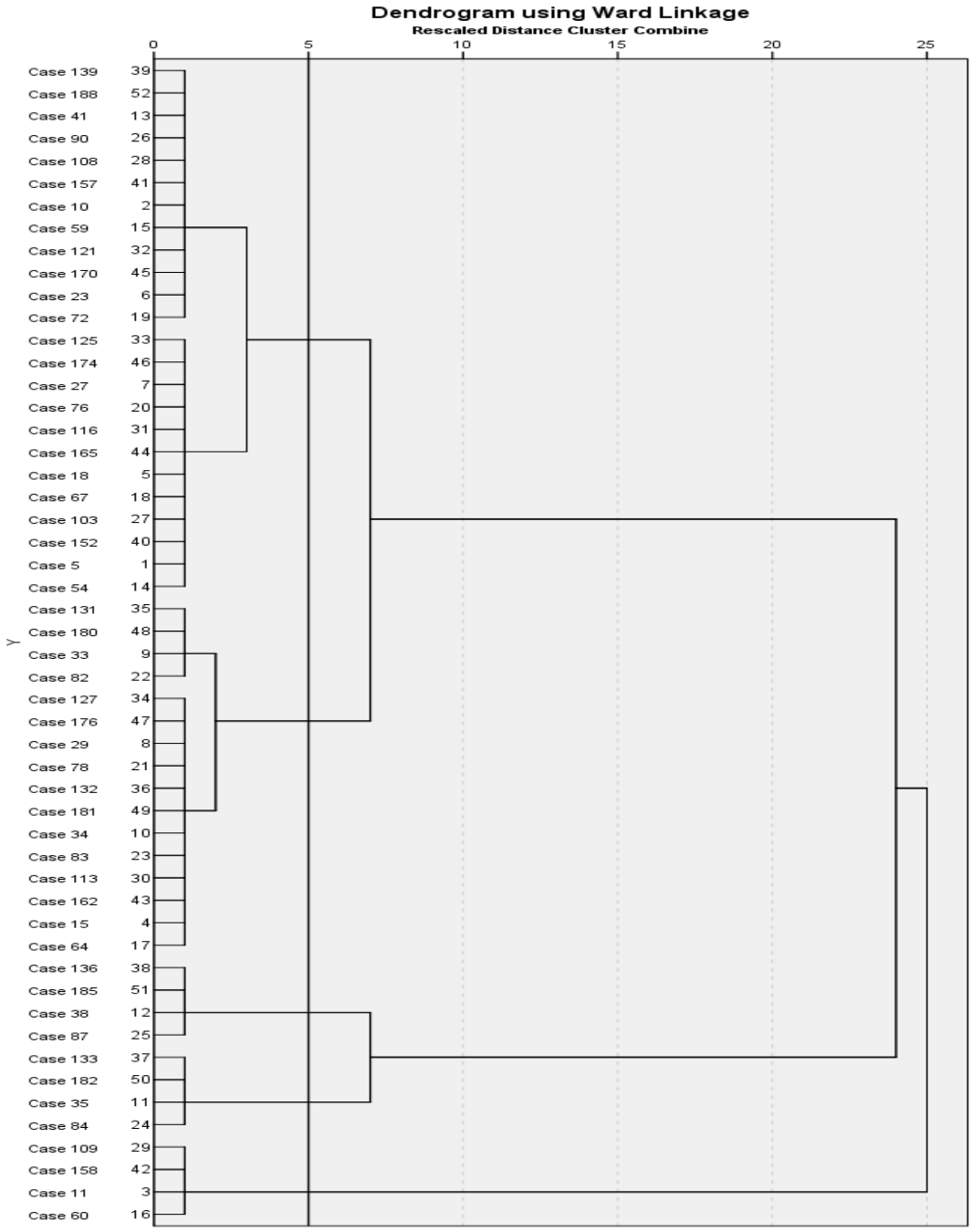

Figure 2: Dendrogram

Source: The authors' own research, 2019

Based on the dendrogram and professional judgment, the data were analyzed at aggregation level 5. At this level, the authors has the opportunity to analyze a total of 5 clusters.

Table 5: Cluster analysis

	Ward method	Economic aspects	Comfort considerations
1	N	24	24
	Mean	0,6036529	0,5280808
	Median	0,5954035	0,4861069

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	Minimum	0,29154	0,05235
	Maximum	1,03208	1,12584
	Std. Deviation	0,24545820	0,38474972
2	N	4	4
	Mean	1,5503017	-2,5612220
	Median	1,5503017	-2,5612220
	Minimum	1,55030	-2,56122
	Maximum	1,55030	-2,56122
	Std. Deviation	0,00000000	0,00000000
3	N	16	16
	Mean	-0,3593580	0,1816833
	Median	-0,3891486	0,3492973
	Minimum	-0,50554	-0,40247
	Maximum	-0,15359	0,43061
	Std. Deviation	0,15325868	0,35000962
4	N	4	4
	Mean	-2,2100273	0,3781174
	Median	-2,2100273	0,3781174
	Minimum	-2,21003	0,37812
	Maximum	-2,21003	0,37812
	Std. Deviation	0,00000000	0,00000000
5	N	4	4
	Mean	-1,5247601	-1,7121132
	Median	-1,5247601	-1,7121132
	Minimum	-1,52476	-1,71211
	Maximum	-1,52476	-1,71211
	Std. Deviation	0,00000000	0,00000000
Total	N	52	52
	Mean	0,0000000	0,0000000
	Median	0,2915359	0,3469842
	Minimum	-2,21003	-2,56122
	Maximum	1,55030	1,12584
	Std. Deviation	1,00000000	1,00000000

Source: The authors' own research, 2019

Table 5 shows well that the distribution of the 5 clusters determined by the dendrogram. The following conclusions can be determined from the table above:

- Cluster 1: Both economic and convenience considerations are above average. Based on this the cluster name is „the considered".
- Cluster 2: clearly the economic aspects are important (since it is clear that the comfort aspects have negative values) so this cluster is included by „the financially conscious".
- Cluster 3: economic aspects are more secondary and comfort aspects are more important, so „the comfort-oriented" people belong to this cluster.
- Cluster 4: The comfort aspect is clearly more important, so it is „the strongly comfort oriented" cluster.
- Cluster 5: None of the aspects are decisive, so the cluster was named „the indifferent".

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Using the previous data, we performed a crossboard analysis.

Table 6: Cross-tabulation on cluster and settlement size

		In what type of settlement is the municipality where you work?			
		District seat City	Village (under 5,000 people)	Village (above 5,000 people)	Total
Ward method	the considered	4	20	0	24
	the financially conscious	0	4	0	4
	the comfort-oriented	0	16	0	16
	the strongly comfort oriented	0	4	0	4
	the indifferent	0	0	4	4
Total		4	44	4	52

Source: The authors' own research, 2019

Table 6 shows that those who considered live mainly in villages and cities, while those who respond in an indifferent cluster live in villages with more than 5,000 people, and finally the rest majority (financially conscious, comfort-oriented or highly comfort-oriented) live in smaller villages.

Table 7: Chi-square test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	56,727[a]	8	0,000
Likelihood Ratio	34,113	8	0,000
N of Valid Cases	52		

a. a. 13 cells (86,7%) have expected count less than 5. The minimum expected count is ,31.

Source: The authors' own research, 2019

Although there is a relationship based on the Chi-square test, the proportion of cells where the expected value is less than 5 is high, so the test does not contain information relevant to us, since despite the test relationship, the result does not meet the requirements of the Chi-square test.

We also prepared the above analysis for the county inhabited by the respondent and for his / her position, however, the Chi-square test did not meet the above-mentioned expectation either. Finally, we wanted to re-measure the cluster analysis by using ANOVA. In connection with this, the Table 8 helped us to analyze by showing the results.

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Table 8: ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
economic aspects	Between Groups	49,262	4	12,315	333,030	0,000
	Within Groups	1,738	47	0,037		
	Total	51,000	51			
comfort considerations	Between Groups	45,758	4	11,439	102,560	0,000
	Within Groups	5,242	47	0,112		
	Total	51,000	51			

Source: The authors' own research, 2019

It can be clearly seen from the table above that the significance value in both cases is below 0.05 i.e. 5%, so there is a significant difference between the different groups. This is also supported by the Scheffe test performed, which can be seen in Table 9.

Table 9: Scheffe test

Dependent variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
economic aspects	the considered	the financially conscious	-,94664879*	0,10385508	0,000	-1,2796037	-0,6136939
		the comfort-oriented	,96301090*	0,06206528	0,000	0,7640323	1,1619895
		the strongly comfort oriented	2,81368024*	0,10385508	0,000	2,4807253	3,1466352
		the indifferent	2,12841302*	0,10385508	0,000	1,7954581	2,4613679
	the financially conscious	the considered	,94664879*	0,10385508	0,000	0,6136939	1,2796037
		the comfort-oriented	1,90965969*	0,10750022	0,000	1,5650186	2,2543008
		the strongly comfort oriented	3,76032903*	0,13597822	0,000	3,3243887	4,1962693
		the indifferent	3,07506181*	0,13597822	0,000	2,6391215	3,5110021
	the comfort-oriented	the considered	-,96301090*	0,06206528	0,000	-1,1619895	-0,7640323

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		the financially conscious	-1,90965969*	0,10750022	0,000	-2,2543008	-1,5650186
		the strongly comfort oriented	1,85066934*	0,10750022	0,000	1,5060283	2,1953104
		the indifferent	1,16540212*	0,10750022	0,000	0,8207610	1,5100432
	the strongly comfort oriented	the considered	-2,81368024*	0,10385508	0,000	-3,1466352	-2,4807253
		the financially conscious	-3,76032903*	0,13597822	0,000	-4,1962693	-3,3243887
		the comfort-oriented	-1,85066934*	0,10750022	0,000	-2,1953104	-1,5060283
		the indifferent	-,68526722*	0,13597822	0,000	-1,1212075	-0,2493269
	the indifferent	the considered	-2,12841302*	0,10385508	0,000	-2,4613679	-1,7954581
		the financially conscious	-3,07506181*	0,13597822	0,000	-3,5110021	-2,6391215
		the comfort-oriented	-1,16540212*	0,10750022	0,000	-1,5100432	-0,8207610
		the strongly comfort oriented	,68526722*	0,13597822	0,000	0,2493269	1,1212075
comfort considerations	the considered	the financially conscious	3,08930280*	0,18036708	0,000	2,5110537	3,6675519
		the comfort-oriented	,34639755*	0,10778995	0,049	0,0008276	0,6919675
		the strongly comfort oriented	0,14996340	0,18036708	0,951	-0,4282857	0,7282125
		the indifferent	2,24019401*	0,18036708	0,000	1,6619449	2,8184431
	the financially conscious	the considered	-3,08930280*	0,18036708	0,000	-3,6675519	-2,5110537
		the comfort-oriented	-2,74290525*	0,18669766	0,000	-3,3414499	-2,1443606

		the strongly comfort oriented	-2,93933940*	0,23615594	0,000	-3,6964452	-2,1822336
		the indifferent	-,84910878*	0,23615594	0,020	-1,6062146	-0,0920030
	the comfort-oriented	the considered	-,34639755*	0,10778995	0,049	-0,6919675	-0,0008276
		the financially conscious	2,74290525*	0,18669766	0,000	2,1443606	3,3414499
		the strongly comfort oriented	-0,19643415	0,18669766	0,892	-0,7949788	0,4021105
		the indifferent	1,89379647*	0,18669766	0,000	1,2952518	2,4923411
	the strongly comfort oriented	the considered	-0,14996340	0,18036708	0,951	-0,7282125	0,4282857
		the financially conscious	2,93933940*	0,23615594	0,000	2,1822336	3,6964452
		the comfort-oriented	0,19643415	0,18669766	0,892	-0,4021105	0,7949788
		the indifferent	2,09023061*	0,23615594	0,000	1,3331248	2,8473364
	the indifferent	the considered	-2,24019401*	0,18036708	0,000	-2,8184431	-1,6619449
		the financially conscious	,84910878*	0,23615594	0,020	0,0920030	1,6062146
		the comfort-oriented	-1,89379647*	0,18669766	0,000	-2,4923411	-1,2952518
		the strongly comfort oriented	-2,09023061*	0,23615594	0,000	-2,8473364	-1,3331248

*. The mean difference is significant at the 0.05 level.

Source: The authors' own research, 2019

Discussion

The evaluation of the results well-shows which methods are suitable for the analysis of a questionnaire research using SPSS 24 software, and how the partial results can be used for further analysis. First of all it can be concluded that out of the 120 respondents, 53.3% were not affected by the integration steps of the 3 banks. In these respondents, fiduciary and account relationship capital had a stronger effect than having a problem with the travelling time. So,

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contrary to our expectations, the majority remained in the management of savings cooperative accounts, while the rate of bank switching can still be considered high. By performing the KMO and Bartlett test, we examined the suitability of the results for factor analysis. The Scree test helped to determine the number of factors, and the total explained variance was used to determine the data loss associated with the analysis of these factors. Principal component analysis was used to present the distribution of factors by varimax rotation, based on which we could determine the variables. The elements of the principal component factor were then classified into economic and comfort groups.

Based on the partial results so far, we performed a cluster analysis with the Ward method and standardization based on Z scores. The Ward method shows well the distribution of the 5 clusters determined with the help of the dendrogram, so we named the clusters based on the most considered aspects. The clusters were compared with previously unexamined variables by cross-board analysis, however, no relationship was found based on the Chi-square test. In the end, the values obtained by cluster analysis were re-measured by using ANOVA, from which we found that there is a significant difference between the different groups, which was also supported by the performed Scheffe test.

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