

4. ГРОШІ, ФІНАНСИ І КРЕДИТ

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THE RELATIONSHIP BETWEEN ADVERTISING SPENDS AND BANKS' PERFORMANCE IN THE TURKISH COMMERCIAL BANKING SECTOR

Commercial banks, which are indispensable tools of monetary policy in the economy, are the most important commercial institutions of financial markets; informs its consumers about the services and products they produce and encourages them to buy. Therefore, they use advertising as a tool to increase their profits. At the same time, advertising activities also require costs. There is sufficient logical reason to believe that advertisements affect the consumer not only during the reporting period, but also in subsequent periods. The effects and benefits of advertising will continue into the future. Advertising expenditures in this context are similar to paid capital today. Thus, from the point of view of economic and statistical analysis, advertising expenditure does not affect the activities of commercial banks as an expense today, but as a capital good that will benefit in the future. From this point of view, it is necessary to measure the effect of advertising expenditures on business performance. In this context, the relationship between the advertising costs of commercial banks and their effectiveness is the subject of this study. In this study; The relationship between advertising expenditures and performance in the commercial banking sector was examined by creating a panel data set. The performance of commercial banks in the data set; Return on assets and return on equity were defined as dependent variables, while advertising expenditures were defined as independent variables. The stationarity of the panel data was tested using Hadri, Im, Pesaran & Shin and Phillips & Perron unit root tests. Then, a long-term relationship between the variables was tested using the Pedroni test. Finally, a causal relationship between variables was measured using the Granger test. According to the results of the unit root tests, it has been seen that the variable (advertising expenditures, return on assets and equity) series that make up the panel data set are stationary in the trended and fixed models at the level. As a result of Pedroni cointegration analysis, it has been determined that advertising expenditures are cointegrated with performance variables. As a result of the Granger causality test, it was determined that both of the advertising expenditures performance variables were Granger causes. At the same time, the direction of the relationship is from one-sided and advertising expenditures to the return on assets and return on equity, which are performance variables.

Key words: commercial banking, bank performance, advertising spending.

Formulation of the problem. Commercial banks collect deposits, provide loans, support the implementation of money lending policy. Acts as an intermediary, supports and participates in industrial enterprises, protects securities of individuals in safes. It supports and guides the development of the country's economy by actively participating in the stock market. In parallel with the economic and social development of countries, the number of these services is increasing day by day [6; 17]. In the last 50 years, great changes, upheavals and restructuring have taken place in the political, social, technical and economic fields. Mass media, which are becoming increasingly effective thanks to developing technology, deliver information to millions

of people at the same time, and at the same time cause radical changes in consumer attitudes and behavior towards products. Investors' attempts to exist in an increasingly difficult competitive environment are leading to new searches and inventions. The most striking example of these search efforts is advertising, which has left its mark on our age. Advertising is a means of communication that brings undeniable benefits to businesses and consumers. For businesses, advertising is a tool that helps them find the most suitable markets and encourages them to invest their capital in profitable areas. From the point of view of the consumer, it helps to determine the most suitable among similar products that meet their needs in the market and

make a rational choice. It is a tool that provides information about where, how and at what price various goods and services are available and how they can be used, ensuring the place and time utility [3, p. 183].

There are enough logical reasons to think that advertisements affect the consumer not only in the reporting period, but also in the following periods. The effects and benefits of advertising will continue into the future. Advertising costs in this context are similar to the capital paid for today. Therefore, in terms of economic and statistical analysis, advertising expenses do not affect the performance of commercial banks as an expense today, but also as a capital good that will benefit in the future. In this respect, it is necessary to measure the effect of advertising expenditures on the performance of commercial banks, and this is the purpose of the research.

Analysis of recent research and publications. In their study Comanor-Wilson came to the conclusion that advertising led to profitability. However, establishing a positive relationship between profitability and advertising is compatible with the assumptions of structure-behavior-performance or efficient structure. The structure-behavior-performance assumption assumes that in the case of high concentration it leads to high prices and therefore to high income [13].

According to Ehrlich and Fisher, in the wider financial sector, the demand for advertising rises due to sales and falls due to advertising costs [4].

Advertising is consumed with the product or service it belongs to, and the customer's production function is also seen as an argument. Excess advertising expenditure increases the marginal utility of the product or service [2].

The purpose of the article. Recent researches show that firms that reduce their debt through new financing,

after taken control of other factors, are pursuing more aggressive ad-based competition than firms that have increased their debt. Also, competitors of capital raising firms respond with higher advertising expenditures if their capital structure is less debt-based [8].

Presentation of the main material. 1. Advertising costs in the Turkish commercial banking sector. Until 2004, advertising expenses of commercial banks in Turkey were recorded as other operating expenses in accounting. Since 2005, other operating expenses (maintenance expenses, advertising and announcement expenses, other expenses) have been divided into three sub-expenditure groups. For this reason, the research covers the years 2005–2013. The annual advertising costs of commercial banks during this period are shown in the table below.

Examining the table, it can be seen that about 99% of the total advertising expenditure in the sector was carried out by 13 out of 34 banks (3 state, 6 private and 4 foreign-invested). In this research, an econometric model was established by using the information of the benches whose names were drawn.

According to the volume of advertisements on Groups, private benches occupy the first place, and in 2013, it seems that the foreign benches of the national benches have been superseded. Among the banks, İşbank is in the first place and Akbank is in the second place. In general, a serious increase is observed in the advertisements of all benches whose names have been withdrawn.

1. Performance of the Turkish commercial banking sector. Profit is the result obtained by enterprises as a result of the excess of their income over their expenses. Then profitability is the result of the ratio of the company's profit to any element of the balance sheet, profit or loss statement. Profitability is the oldest measure of the concept of performance

Table 1

Advertising costs of commercial banks (million TL)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Sector	684	188	749	801	691	859	848	1,057	1,310
State banks	43	21	56	110	105	107	146	221	329
Ziraat Bankası A.Ş.	0	0	0	19	22	21	37	46	82
Halk Bankası A.Ş.	5	6	15	33	33	39	57	97	150
Vakıflar Bankası T.A.O.	38	16	41	58	49	47	51	78	98
Private investment banks	504	120	522	496	431	546	515	574	659
Akbank T.A.Ş.	110	47	106	113	97	120	87	102	121
Şekerbank T.A.Ş.	14	2	19	17	11	19	13	17	21
Ekonomi Bankası A.Ş.	14	3	27	25	24	24	44	68	80
Garanti Bankası A.Ş.	76	16	108	111	109	131	111	114	124
İş Bankası A.Ş.	199	11	121	135	126	165	182	179	197
Yapı ve Kredi Bankası A.Ş.	73	30	127	91	63	82	74	88	114
Foreign-invested banks	148	44	171	195	155	206	187	262	321
Denizbank A.Ş.	25	10	28	28	35	58	62	84	103
Finans Bank A.Ş.	41	16	51	62	64	75	53	87	105
HSBC Bank A.Ş.	34	8	59	59	33	42	32	43	57
ING Bank A.Ş.	10	8	5	18	10	17	38	46	46

Source: [14]

that does not change and does not lose its importance. Because the main goal of organizations other than public institutions is to make profit or maximize profit. Furthermore, profitability is the most easily measured performance measure. In the scientific studies on the profitability indicators of banks, the return on assets (ROA) and return on equity (ROE) variables were used as performance.

To analyze the profitability indicators of commercial banks, it is necessary to examine the evolution of the performance of the sector over time. At the same time, segmentation of the sector into groups allows for a better analysis of profitability. Return on assets is the ratio of net profit to total assets for the period and is presented in the literature as ROA (return on assets). The asset profitability of commercial banks in 2005–2013 is shown in the table below. When the table is analyzed, a general decrease is observed in 2013. Although the return on assets of public and private investment banks is higher than the sector, the return on assets of foreign banks has been lower than the sector average since 2007.

2. The relationship between advertising costs and banks' performance in the Turkish commercial banking sector. The long-term relationship between the advertising expenditure and performance of 13 commercial banks between 2005 and 2013 was determined by the Panel Cointegration test and the direction of the relationship was determined by the Granger test, using the quarterly data of the Turkish Banks Union. To perform the panel data analysis, the stationarity of the series was first checked with unit root tests.

Unit root test As stated by Baltagi and Kao, time series is a common practical test applied among researchers and has become an indispensable part of economic research [1]. The unit root test in panel series is a new test, for

which we can refer to Hadri [9], Im, Pesaran & Shin [10] and Phillips & Perron [12] tests. Panel unit root tests have a normal asymptotic distribution. When a regression is detected between two variables using a time series, the most important indicators that will illuminate whether this regression is real or spurious are R2 and Durbin Watson's d -statistics. If $R^2 > d$, we are likely to encounter a spurious regression. Besides, the best way to understand whether the obtained regression is spurious is to perform the cointegration test [5].

Advertising expenditure and performance data used in this study were obtained from the online database of the Turkish Bankers Association. These data were converted into a panel data set according to the purpose of the study and used in the econometric analyzes of the banks' quarterly data. The performance of banks is referred to as return on assets (ROA) and return on equity (ROE). Since performance values are percentages, analyzes were performed after taking the logarithm of advertising costs. Definitions and symbols of variables used in economic research are given below.

LGRH: Logarithm of Banks' Advertising Expenditure

ROA: Return on Assets = Net Profit / Total Assets

ROE: Return on Equity = Net Profit / Equity

Time series data should be stationary to eliminate all negative cases and prevent the constructed models from being spurious models. Studies are valid if the time series data are stationary. Stationarity testing of time series data is usually done with the unit root test. The stationarity of the variables in the study was tested by Hadri, one of the general unit root tests, and Im, Pesaran & Shin, and Phillips & Perron tests, which are individual unit root tests.

First, the test to use for panel unit root analysis is the Hadri panel unit root test. Hypotheses to test,

Table 2

Return on assets of commercial banks in 2005–2013 (%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Sector	1.3	2.2	2.5	1.7	2.4	2.2	1.6	1.7	1.4
State banks	2.3	2.6	2.8	1.9	2.6	2.3	1.6	1.8	1.6
Ziraat Bankası A.Ş.	2.8	2.9	2.9	2.0	2.8	2.5	1.3	1.6	1.6
Halk Bankası A.Ş.	2.0	2.5	2.8	2.0	2.7	2.8	2.2	2.4	2.0
Vakıflar Bankası T.A.O.	1.7	2.1	2.4	1.4	1.9	1.6	1.4	1.4	1.2
Private investment banks	0.6	1.8	2.4	1.8	2.4	2.4	1.7	1.8	1.6
Akbank T.A.Ş.	2.7	2.8	2.9	2.0	2.9	2.5	1.8	1.9	1.6
Şekerbank T.A.Ş.	1.2	1.3	2.0	1.8	1.7	1.5	0.8	1.7	1.1
Ekonomi Bankası A.Ş.	1.5	1.3	1.1	1.1	1.4	1.6	0.5	1.1	1.0
Garanti Bankası A.Ş.	1.9	2.1	3.4	2.0	2.8	2.5	2.1	1.9	1.5
İş Bankası A.Ş.	1.5	1.5	2.1	1.5	2.1	2.3	1.6	1.9	1.5
Yapı ve Kredi Bankası A.Ş.	-12.6	1.0	1.4	1.6	2.1	2.4	1.7	1.6	2.2
Foreign-invested banks	2.5	2.5	2.0	1.3	1.9	1.4	1.5	1.4	0.6
Denizbank A.Ş.	2.1	2.4	1.4	1.4	2.5	1.7	2.4	1.8	0.8
Finans Bank A.Ş.	2.8	4.1	2.6	1.4	2.2	2.4	1.8	1.7	1.1
HSBC Bank A.Ş.	3.0	2.7	2.7	1.7	1.8	1.4	1.0	0.7	0.1
ING Bank A.Ş.	3.7	0.9	1.1	0.8	1.2	0.6	0.4	1.0	0.5

Source: [14]

H_0 : No panel unit root;

H_1 : The panel has a unit root

is defined in the format. The critical values found in Hadri's paper were used for the test [9]. The Hadri test results, which differ from other tests in terms of hypothesis structure, are listed in Table 4.

When analyzing Table 4, according to the Hadri test results, it was determined that the series of LogRH, ROA and ROE are stationary at the level of 1% significance in the "constant" and "constant and trending" models. As a result of the comparison of test statistics and critical values, it can be said that there may be a long-term relationship between the variables and that advertising expenditure may support performance.

Second, the Im, Pesaran, and Shin test will be applied to the series. Hypotheses to be used for testing,

H_0 : No panel unit root;

H_1 : The panel has a unit root

is built in the format. For the Im, Pesaran, and Shin test, the critical values of the normal distribution table are used as the values of N and T approach infinity [10]. Im, Pesaran and Shin test results are given in Table 5:

When analyzing Table 5, it was determined that banks' advertising expenses and return on assets are stationary

with a 1% error, return on capital is stationary with a 5% error in the Stable & Trend model according to the AIC level. As a result of the panel unit root test, according to Im, Pesaran and Shin test, it can be said that the variables are integrated at the level and there is a long-run relationship between them.

Finally, the individual unit root test proposed by Phillips and Perron was applied. The Phillips and Perron unit root test uses the asymptotic distribution and the standard normal distribution [12]. Phillips and Perron unit root test results are shown in Table 6.

Looking at Table 6, it is determined that all series are stationary with an error of 1% in the "constant", "constant and trend" models. From the comparison of test statistics and critical values, it can be said that there may be a long-term relationship between the variables and there may be a relationship between advertising expenditure and performance. As a result of the analysis of Hadri, Im, Pesaran & Shin and Phillips & Perron panel unit root tests, it was seen that the series is at a stationary level, and it can be said that there may be a relationship between commercial banks' advertising expenses and their performance.

After determining that commercial banks' advertising expenditure and performance variables are stationary, the

Table 4

Hadri panel unit root test results

	Level			
	Steady		Steady & Trending	
	t statistic value	probability	t statistic value	probability
LogRH	12.2468	0.0000*	5.3109	0.0000*
ROA	7.3607	0.0000*	4.0677	0.0000*
ROE	7.5916	0.0000*	4.6422	0.0000*

* shows that the series are correct with a 1% error

Table 5

Im, Pesaran & Shin panel unit root test results

	Level			
	Steady		Steady & Trending	
	t statistic value	probability	t statistic value	probability
LogRH	-2.2972	0.0108	-6.1913	0.0000*
ROA	-0.6747	0.2499	-2.4675	0.0068*
ROE	0.2783	0.6096	-1.9105	0.0280**

* indicates that the series are true with a 1% error

** indicates that the series are true with a 5% error

Table 6

Phillips & Perron panel unit root test results

	Level			
	Steady		Steady & Trending	
	t statistic value	probability	t statistic value	probability
LogRH	-10.4866	0.0000*	-19.9351	0.0000*
ROA	-11.4135	0.0000*	-13.3146	0.0000*
ROE	-11.0766	0.0000*	-16.2365	0.0000*

* indicates that the series are true with a 1% error

long-run relationship between the variables was tested with the help of Pedroni Panel Cointegration Analysis [11]. The results of the Pedroni cointegration test, in which the independent performance values of advertising expenditure are considered as dependent variables, are shown in Table 7.

The table shows seven different statistical results. As a result of the analysis, the H0 hypothesis "there is no cointegration relationship between the variables" was rejected in six out of seven statistics of the Stable & Trend model, while one statistic was accepted. In light of these analysis results, it is concluded that there is a long-run cointegration between advertising expenditure variables and performance (return on assets and return on equity) variables. In other words, as a result of the Panel Pedroni Cointegration Analysis conducted between advertising expenditure and performance variables, the H0 hypothesis that there is no cointegration relationship between the variables is rejected. According to the results of the analysis, there is a long-term relationship between the increase in the quarterly advertising expenses and the increase in the performance values of commercial banks between 2005 and 2014.

A Granger causality test was applied to determine the direction of causality between variables. Because the lag length for the Granger causality test had the smallest value, the AIC measure was set to 9 [7]. The results of the Granger causality test are shown in Table 8.

Considering the results of the Granger causality test, the H0 hypothesis that advertising expenditure is not a Granger causality of return on assets and equity is rejected based on

the AIC value. Return on assets and equity are not Granger causality of advertising expenditure H0 hypothesis is accepted according to AIC value. In short, it can be said that there is a one-way causal relationship between the variables.

Conclusions. In this study, panel information system evaluation methods were used based on state, private and foreign banks operating in the commercial banking sector of Turkey. Quarterly data between 2005 and 2014 was used to estimate how ad spend affects performance. According to the results of the unit root tests, it was seen that the series of variables that make up the panel data system (advertising expenses, assets and return on capital) are stable at the level and stationary in the trend models. A Pedroni cointegration analysis was then conducted and found that advertising expenditure was cointegrated with the performance variables. A Granger causality test was then performed to determine the direction of the relationship. As a result of this test, it was determined that both advertising expenditure performance variables are Granger causes. At the same time, the direction of the relationship is unidirectional and from advertising costs to return on assets and capital, which are performance variables. The relationship between advertising costs and performance requires that advertising costs and the budgeting methods for those costs be linked together. Given the growth rate of advertising spending by commercial banks, it is clear that today's competition will increase even more. In this regard, low-cost alternative advertising mediums should be explored to effectively meet the increasing competitive advertising costs. In this context, the effectiveness of advertising in the commercial banking sector can be a research object for future research.

Table 7

Pedroni panel cointegration test results

Within-group statistical value	Steady		Steady & Trending	
	t statistic value	probability	t statistic value	probability
Panel v-statistic value	-43.0498	1.0000	-81.3602	1.0000
Panel rho- statistic value	-2.7106	0.0034*	-3.9716	0.0000*
Panel PP- statistical value	-4.3208	0.0000*	-10.8318	0.0000*
Panel ADF- statistical value	-1.2385	0.1078	-4.6254	0.0000*
Statistical value between groups				
Group rho- statistic value	-2.5827	0.0049*	-2.6647	0.0039*
Group PP- statistical value	-5.0911	0.0000*	-10.3137	0.0000*
Group ADF- statistical value	-1.5540	0.0601***	-3.3165	0.0005*

* indicates that the series are true with 1% error

*** indicates that the series are true with a 10% error

Table 8

Granger causality test results

H ₀ Hypothesis	F statistic value	Probability	Decision
LGRH ROA's Granger is not the cause	3.3651	0.0006*	H ₀ rejection rejection
ROA is not the cause of LGRH Granger	1.7919	0.0684	H ₀ is accepted
LGRH ROE's Granger is not the reason	2.2686	0.0176**	H ₀ rejection
ROE LGRH is not the reason for Granger	1.7978	0.0673	H ₀ is accepted

* indicates that the series are true with a 1% error

** indicates that the series are true with a 5% error

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ЗВ'ЯЗОК МІЖ ВИТРАТАМИ НА РЕКЛАМУ ТА ДІЯЛЬНІСТЮ БАНКІВ У КОМЕРЦІЙНОМУ БАНКІВСЬКОМУ СЕКТОРІ ТУРЦІЇ

Комерційні банки, які є незамінними інструментами грошово-кредитної політики в економіці, є найважливішими комерційними інститутами фінансових ринків, вони інформують своїх споживачів про послуги та продукти, які виробляють, і заохочують їх до купівлі. Тому вони використовують рекламу як інструмент для збільшення своїх прибутків. Водночас, рекламна діяльність також вимагає витрат. Існує достатньо логічних підстав вважати, що реклама впливає на споживача не лише протягом певного періоду, але й у наступні періоди. Ефекти та вигоди від реклами триватимуть і в майбутньому. Витрати на рекламу в цьому контексті подібні до сплаченого капіталу сьогодні. Таким чином, з точки зору економічного та статистичного аналізу, витрати на рекламу впливають на діяльність комерційних банків не як витрати сьогодні, а як капітальні блага, які принесуть користь у майбутньому. З цієї точки зору, необхідно вимірювати вплив рекламних витрат на ефективність бізнесу. У цьому контексті взаємозв'язок між рекламними витратами комерційних банків та їхньою ефективністю є предметом цього дослідження. В цій роботі взаємозв'язок між витратами на рекламу та результатами діяльності в комерційному банківському секторі вивчався шляхом створення набору панельних даних. Показники діяльності комерційних банків у наборі даних, рентабельність активів та рентабельність капіталу були визначені як залежні змінні, тоді як витрати на рекламу були визначені як незалежні змінні. Стаціонарність панельних даних було перевірено за допомогою тестів Hadri, Im-Pesaran-Shin та Phillips & Perron на одиничний корінь. Потім довгостроковий зв'язок між змінними було перевірено за допомогою тесту Педроні. Причинно-наслідковий зв'язок між змінними вимірювався за допомогою тесту Грейнджера. За результатами тестів на одиничний корінь було виявлено, що ряди змінних (витрати на рекламу, рентабельність активів та власного капіталу), які складають набір панельних даних, є стаціонарними в трендовій та фіксованій моделях на рівні. В результаті коінтеграційного аналізу Педроні було визначено, що витрати на рекламу є коінтегрованими зі змінними ефективності. В результаті тесту причинності Грейнджера було визначено, що обидві змінні результативності рекламних витрат є причинами Грейнджера. При цьому напрямок зв'язку наступний – від односторонніх та рекламних витрат до рентабельності активів та рентабельності власного капіталу, які є змінними результативності.

Ключові слова: комерційний банкінг, діяльність банку, витрати на рекламу.