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A Research on the Effects of Sustainability Reports Published in the Banking Sector on Financial Performance

Bankacılık Sektöründe Yayınlanan Sürdürülebilirlik Raporlarının Finansal Performansa Etkileri Üzerine Bir Araştırma

Ömer DİNÇER
PhD Student, Usak Universiy
omerdincer@hotmail.com
https://orcid.org/0000-0002-5049-5051

Ayşenur ALTINAY
Assoc. Prof. Dr., Usak University
aysenur.altinay@usak.edu.tr
https://orcid.org/0000-0001-6963-2346

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ABSTRACT

In studies comparing sustainability performance and financial performance, it is seen that banking is generally excluded from the sample. The main purpose of this study is to analyze the effect of the statements made within the scope of the sustainability report in the banking sector on the financial performance of banks. 9 banks that were included in the BIST Sustainability Index at least once between 2010 and 2020 were included in the analysis. Environment, human resources, product responsibility and society as areas of sustainability; Return on assets and equity and net interest margin were determined as financial performance criteria. In the study, in which non-parametric statistical tests and Panel data analysis were used, public-private status and bank sizes were used as dummy variables. As a result, it has been found that the sustainability report disclosures have a significant effect only on the return on assets, while the sustainability report disclosures do not have a significant impact on the return on equity and net interest margin. In addition, when the effect of the sustainability report disclosures on the profitability of assets is examined in terms of its dimensions, it has been determined that the statements made regarding the environmental and human resources dimensions have a negative effect on the return on assets.

Anahtar Kelimeler:

Bankacılık,

Finansal performans,

Sürdürülebilirlik Performansı,

Sürdürülebilirlik Raporlaması

Jel Kodları:

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ÖZET

Sürdürülebilirlik performansı ile finansal performansı karşılaştıran çalışmalarda bankacılığın genel olarak örneklem dışında tutulduğu görülmektedir. Bu çalışmanın temel amacı, bankacılık sektöründe sürdürülebilirlik raporu kapsamında yapılan açıklamaların bankaların finansal performansı üzerindeki etkisinin analiz edilmesidir. 2010-2020 yılları arasında BIST Sürdürülebilirlik Endeksi'ne en az bir kez dahil olan 9 banka analize dahil edilmiştir. Sürdürülebilirlik alanları olarak çevre, insan kaynakları, ürün sorumluluğu ve toplum; Finansal performans kriterleri olarak aktif ve özkaynak karlılığı ve net faiz marjı belirlenmiştir. Parametrik olmayan istatistiksel testlerin ve Panel veri analizinin kullanıldığı çalışmada kukla değişken olarak kamu-özel durumu ve banka büyüklükleri kullanılmıştır. Sonuç olarak, sürdürülebilirlik raporu açıklamalarının sadece aktif karlılığı üzerinde anlamlı bir etkiye sahip olduğu, özkaynak karlılığı ve net faiz marjı üzerinde ise sürdürülebilirlik raporu açıklamalarının önemli bir etkisinin olmadığı tespit edilmiştir. Ayrıca sürdürülebilirlik raporu açıklamalarının varlıkların karlılığına etkisi boyutları itibarıyla incelendiğinde, çevre ve insan kaynakları boyutlarına ilişkin yapılan açıklamaların aktif getirisini olumsuz etkilediği tespit edilmiştir.

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1. INTRODUCTION

Uncontrolled, rapid growth and consumption in the World jeopardize the sustainability of the generations after us. Because of that, the importance that the developed societies attached to sustainability issues like environmental consciousness and social responsibility and their awareness show a huge increase in recent years.

The totally profit oriented mind that the capitalism is forcing is being tried to balance by the concept of sustainable development for human being to maintain its development and to protect own wealth. In the report of World Commission on Environment and Development named "Our Common Future," it was emphasized that the concept of sustainable development should imply limits, and these limitations should be imposed by social organizations about environmental resources and present state of technology and by the ability of the biosphere to absorb the effects of human activities[1]. After that, the concepts of sustainability and development started to be used together for the first time in the united nations environment and development conference in Rio De Janerio in the year 1992 (Özmehmet, 2008: 5).

After the concept of sustainable development gained recognition, the sustainability of companies became a current issue. And the issue that the usual financial reports which are prepared by companies are not sufficient for the sustainability of companies, came into view, because these reports like balance sheets, and income statements only give information about financial situation. The concept of institutional sustainability came up after this situation. It is targeted to create a long-term and permanent significance with institutional sustainability by customizing decision making mechanism of companies in three ways as economic, environmental, and social, which encompasses all shareholders (Aras et al., 2018: 48). The first performance reporting in these three aspects is used under the name of institutional sustainability is stated by n (Elkington, 1997: 34). According to this report, the economic achievement should be parallel to environmental and social progress, and this relationship should be managed in a corporate way.

After the concept of institutional sustainability is bandied about, different kinds of sustainability reporting methods started to show up. According to the KPMG's report that published in 2013, 78 once of the biggest 100 companies are following any kind of sustainability report (KPMG, 2013: 65). The most known and the common used one is the sustainability report which is prepared by the Global Reporting Investment (GRI).

Global Reporting Investment is an independent establishment, and they identify subjects and standards for companies to help them understanding and expressing themselves about sustainability issues as environment, human rights and corruption. GRI has led reporting on sustainability issues untill the end of 90$^{th.}$ (GRI, 2016: 23). As it is one of the most comprehensive guidebook and ensures the participation of shareholders widely, it became the most preferred sustainability report all over the World (Lozano & Huisingh, 2011:101).

The concept of sustainability has gained importance in the middle of 2000$^{th.}$. After the companies in BIST 30 Index were started to evaluate for BIST Sustainability Index in November of 2014, it became an important indicator for investors and the other shareholders.

The aim of this study is to determine the effect of declaration, which is made in the scope of sustainability reports in the Turkish banking sector on financial performance of banks. As we explained before, GRI reporting is the most widely used method in Turkey, in our study the banks which are publishing GRI reports in BIST Sustainability Index were selected for our sample.

2. LITERATURE REVIEW

There are lots of publications about sustainability performance in literature. However, after the beginning of 2000 by the progress in corporate sustainability awareness, much more companies started to publish sustainability reports. Afterwards indexes based on sustainability were established in national stock markets and the studies on sustainability performance turned to a different way.

The finance companies are mostly excluded in studies about sustainability performance as you see in Table 1. According to the table, when we check methods and results of publications, we see that Burhan & Rahmanti (2012), Madorran & Garcia (2016) could not find a relationship between sustainability performance and financial performance by the method panel data. Fernandez (2016), Soytaş et al. (2017), Düzer & Önce (2018) and Önder

[1] http://www.un-documents.net/our-common-future.pdf (Access Date: 01.10.2022)

(2018) found a positive relationship between sustainability performance and financial performance by the method panel data.

When we direct our attention to subtitles of sustainability, Düzer & Önce (2018) found a positive relationship between economic sustainability performance and financial performance in their study.

Table 1. Studies on Sustainability Performance

No	Authors	Publication Name	Date	Sample	Methods
1	Annisa Hayatun N. Burhan Wiwin Rahmanti	The Impact Of Sustainability Reporting On Company Performance	2012	32 firms in Indonesian Stock Market	Panel Data Analysis
2	Pérez-Calderón E., Milanés-Montero P. Ortega-Rossell F. J.	Environmental Performance and Firm Value: Evidence from Dow Jones Sustainability Index Europe	2012	122 firms in European Dow Jones Sustainability Index	Cluster Analysis
3	Priyanka Aggarwal	Impact of Sustainability Performance of Company on its Financial Performance: A Study of Listed Indian Companies	2013	20 firms India NIFTY 50 Index	Panel Data Analysis
4	Sibel Fettahoğlu	Relations between corporate social responsibility and financial performance: An application in Istanbul stock exchange	2014	16 firms in BIST in Turkey	Panel Data Analysis
5	Mercedes Rodriguez-Fernandez	Social responsibility and financial performance: The role of good corporate governance	2016	121 firms in Madrid Stock Exchange	Panel Data Analysis
6	Cristina Madorran, Teresa Garcıa	Corporate Socıal Responsıbılıty And Fınancıal Performance: The Spanısh Case	2016	35 firms in IBEX in Spain	Panel Data Analysis
7	Paula Santis, Andrei Albuquerque, Fabiane Lizarelli	Do sustainable companies have a better financial performance? A study on Brazilian public companies	2016	Brazilian Stock Exchange firms (BM&FBOVESPA)	Cluster Analysis
8	Mehmet Ali Soytaş Meltem Denizel Damla Durak Uşar İris Ersoy	Corporate sustainability investments and financial Performance relationship in Turkey	2017	214 firms in BIST in Turkey	Panel Data Analysis
9	Murat Düzer, Saime Önce	Effect of disclosures on sustainability performance indicators on financial performance: An application in BIST	2018	GRI reporting 30 firms in BIST	Panel Data Analysis
10	Şerife Önder	Impact Of Sustaınabılıty Performance Of Company On Its Fınancıal Performance: An Empırıcal Study On Borsa Istanbul (BİST)	2018	33 firms in BIST in Turkey	Panel Data Analysis

*There is no finance company in the sample of studies.

Madorran & Garcia (2014), Düzer & Önce (2018) and Önder (2018) found a positive relationship between environmental sustainability performance and financial performance but Aggarwal (2013) found a negative relationship between environmental sustainability performance and financial performance in their studies. Burhan & Rahmanti (2012) found a relationship between sustainability performance and financial performance and Fettahoğlu (2014) could not find a relationship between social sustainability performance and financial performance, Önder (2018) found a positive relationship between social sustainability performance and financial performance in their studies. Publications about sustainability and banks are summarized in Table 2. According to the table, we see that Multi-Criteria Decision-Making Models and statistical comparison methods were used to compare banks, on the other hand; panel data analysis was used to find out the effect of relations between sustainability and banks.

Table 2. Studies on Sustainability and Banking

No	Authors	Publication Name	Date	Sample	Methods
1	Kılıç, M., Kuzey, C. Uyar, A	The Impact of Ownership and Board Structure on Corporate Social Responsibility (CSR) Reporting in the Turkish Banking Industry	2015	25 banks operating in Turkey	Panel Data Analysis
2	Sonia Rebai, Mohamed Naceur Azaiez , Dhafer Saidane	A multi-attribute utility model for generating a sustainability index in the banking sector	2016	3 biggest banks in France	AHP
3	Ayşenur Altınay Barış Kaki Ali Kestane Mustafa Soba Ömer Dinçer Eser Şık	The effects of sustainability index on banking sector share center values, an investigation on the BIST sustainability index	2017	4 banks in BIST Sustainability Index in Turkey	Pearson Correlation Analysis, Paired t-test
4	Güler Aras Nuray Tezcan Özlem Kutlu Furtuna	Comparison of corporate sustainability performance of conventional and participation banking with TOPSIS method	2017	7 banks operating in Turkey	TOPSIS
5	Utku Şendurur ve Fatma Temelli	Comparison of participation and conventional banks which are operating in Turkey in terms of sustainability	2018	5 participation and 7 conventional banks operating in Turkey	t-test
6	Amina Buallay	Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector	2018	235 banks operating in European Union	Panel Data Analysis
7	Łukasz Matuszak Ewa Rózanska	A Non-Linear and Disaggregated Approach to Studying the Impact of CSR on accounting Profitability: Evidence from the Polish Banking Industry	2019	18 banks operating in Poland	Panel Data Analysis
8	Eriana Kartadjumena Waymond Rodgers	Executive Compensation, Sustainability, Climate, Environmental Concerns, and Company Financial Performance: Evidence from Indonesian Commercial Banks	2019	39 commercial banks operating in India	Panel Data Analysis

When we check the studies in which panel data analysis was used to find out relations between sustainability performance and financial performance, we see that Buallay (2018) found a positive relationship in general, Matuszak & Rózanska (2019) couldn't find a relationship in general and Kartadjumena & Rodgers (2019) found a negative relationship in general. As you see, these studies couldn't find a common relationship between sustainability performance and financial performance in the banking sector. And also the number of the studies are still too less.

3. MODEL, DATA AND METHODOLOGY

The studies about sustainability in the finance sector is limited in literature. And most of the studies excluded finance sector from their samples (Soytaş et al. 2017; Burhan & Rahmanti, 2012; Aggarwal 2013). The reason for this is that the responsibilities of finance sector concerning pollution and labor safety are less in contrast to other sectors. And also the financial performance indicators of the finance sector are different than other sectors. Because of that, the finance sector and the other sectors should not be in the same samples. But finance sector has an important role on assigning social and environmental politics of industries (Kılıç et al., 2015: 360). Although the studies on the sustainability performances in banking sectors are increasing, it seems still unsatisfactory.

3.1. Data Set and Sample Size

In the study, 9 banks included in the BIST Sustainability Index were included in the analysis. Banks that were included in the BIST Sustainability Index at least once between 2010 and 2020 were included in the sample. Borsa İstanbul decides which companies will be included in the BIST Sustainability Index as a result of the evaluation of Borsa İstanbul companies according to international sustainability criteria by Ethical Investment Research Services Limited (EIRIS), with which it has a contract since the establishment of the Sustainability Index in BIST in 2014[2].

The first sustainability report of banks was published by Akbank in 2010 in relation to 2009. Akbank, the pioneer of the sustainability report, was followed by TSKB in 2010. The other 7 banks started their sustainability reporting very late compared to these two banks and started to publish reports generally in the same period as the establishment of the BIST Sustainability Index in 2014. Therefore, the year 2009, when Akbank started to publish its sustainability report, was taken as a starting point for the sample. The reason for taking the date of 2020 for the last sustainability report is that the purpose of the research is to measure the effect of the statements made by the banks on the financial performance of the banks, and because the banks' sustainability reports are published in the earliest February-March of the next year, and in June at the latest, the financial data is the data of the next year of the banks. is necessity. Since the last balance sheet we have belongs to 2021, the last sustainability report statements of the banks for 2020 were used in the study. Therefore, data on sustainability reports between 2009-2020 and financial statements between 2010-2021 were used for analysis.

In the study, 2 public banks and 7 private banks are included. Public banks are Halkbank and Vakıfbank, while private banks are İşbank, Garanti Bank, TSKB, Akbank, Şekerbank, Albaraka Türk Bank and Yapı Kredi Bank.

Table 3. Groups of Banks According To Types and Asset Sizes

Types		**Asset Sizes**		
Public	Private	0-180 Billions	180-250 Billions	250-320 Billions
2	7	2	4	3

3.1.1. Dependent Variables

Accounting-based financial indicators were used as dependent indicators of the study. These are the return on assets (ROA) and equity (ROE) ratios, which are generally used to measure bank performance as indicators of the financial performance of banks, and the net interest margin (NIM) (Telli, 2016: 71-72). Ratios related to financial performance were obtained from the annual reports of banks. In addition, the total average financial performance indicators of banks between the years 2009-2021 are presented in Table 4. According to the table, the three financial performance indicators of Return on Assets decreased similarly from 2009 to 2015, then a short increase, then the return on assets decreased until 2018, then followed a flat course until 2021; Return on Equity declined until 2018, then followed a fluctuating course; Net Interest Margin, on the other hand, increased in 2020 and then decreased again in 2021.

Table 4. Financial Indicators of Banks Between 2010-2021

Financial Performance Values	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
ROA	0,023	0,018	0,018	0,016	0,014	0,011	0,014	0,015	0,013	0,010	0,010	0,010
ROE	0,183	0,159	0,150	0,157	0,125	0,108	0,134	0,143	0,129	0,096	0,105	0,139
N. Interest Marjin	0,041	0,035	0,039	0,037	0,035	0,035	0,035	0,037	0,041	0,040	0,042	0,037

3.1.2. Independent Variables

The independent variables of the study are the performance values prepared using the sustainability reports of the banks. These performance values are divided into 4 main groups. These performance values are environment, human resources, product responsibility and society.

The following scoring model was used while calculating the performance values for the fields of environment, human resources, product responsibility and society from the sustainability reports of banks (Dinçer, 2011: 73). About these 4 groups;

[2] www.borsaistanbul.com (Access Date: 12.09.2022).

If there isn't any explanation – Point 0
If there is a partial explanation or a full explanation – Point 1

While calculating these performance values, which we accept as the independent variable of our application, calculations were made according to certain rules. Banks used different versions of the GRI reporting method in different years between 2009 and 2020. Although these versions of GRI contain similar questions in essence, the number of questions belonging to the groups we have determined is different. As the study was scored according to the number of questions pertaining to environment, human resources, product responsibility, and society in each version, separate scores emerged for each bank. To overcome this problem, the scores calculated for the sustainability areas of the banks are divided by the number of questions of the calculated GRI version. The quanta of these areas are shown in Table 5.

Table 5. Number of Criteria for GRI Versions

	GRI VERSIONS		
SUSTAINABILITY AREAS	**GRI 3.1**	**GRI G4**	**GRI 2016**
1- Environmental Performance Values	18	19	22
2- Human Resources Performance Values	15	13	19
3-Customer Confidentiality Performance Values	6	6	6
4- Community Performance Values	2	2	2
TOTAL PERFORMANCE VALUES	**41**	**40**	**49**

Table 6 shows the proportional averages of the sustainability reports statements made by banks between 2009 and 2020. According to the table, the statements made in the environmental field showed a fluctuating increase until 2013 on average, then after experiencing a decrease in 2014, it rose again in 2015 and followed a black fluctuating course until 2020 in the following years. When the disclosures in the fields of human resources, customer privacy and society are analyzed, it has shown a fluctuating increase from 2009 to 2015, and after reaching the highest level in 2015, it decreased volatilely.

Table 6. Evaluation Table of Banks' General Sustainability Reports Between 2009-2020

Reporting Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Environmental Performance Values	0,033	0,041	0,027	0,087	0,164	0,108	0,161	0,113	0,144	0,127	0,150	0,127
Human Resources Performance Values	0,024	0,051	0,030	0,100	0,197	0,177	0,275	0,184	0,190	0,184	0,218	0,227
Customer Confidentiality Performance Values	0,011	0,011	0,005	0,030	0,049	0,041	0,067	0,052	0,045	0,036	0,036	0,032
Community Performance Values	0,003	0,003	0,003	0,014	0,025	0,022	0,036	0,020	0,026	0,014	0,018	0,014
General Performance Values	0,070	0,106	0,065	0,230	0,434	0,348	0,539	0,370	0,405	0,361	0,422	0,399

3.2. Hypotheses

This study accorporates two main hypotheses and these hypotheses have sub-hypotheses. These were given below. The horizontal dependency test for determining the stationarity tests in the panel data series did not yield results in STATA and eViews programs because of the unbalanced panel. Based on this result, Im, Peserane and Shin-W test (IPS), ADF-Fisher Chi-square test and PP-Fisher Chi-square tests, which are suggested unit root tests for unbalanced panels, were used to determine the stationarity of the series (www.stata.com- 20.09.22). The study consists of two main hypotheses, A and B, and sub-hypotheses, as indicated by the subheadings below:

A) Hypotheses for testing whether performance indicators in sustainability reports differ according to banks' public/private status and asset size.

H1a: *The level of knowledge that banks declare about the environment regarding performance indicators in their sustainability reports differs according to the state of being public/private.*

H1b: *The level of knowledge that banks disclose about human resources regarding performance indicators in their sustainability reports differs depending on whether the banks are public/private.*

H1c: *The level of knowledge that banks disclose about product liability for performance indicators in their sustainability reports differs according to the state of being public/private.*

H1d: *The level of knowledge that banks disclose about the society regarding the performance indicators in their sustainability reports varies according to the public/private status of the banks.*

H2a: *The level of knowledge that banks declare about the environment regarding the performance indicators in their sustainability reports varies according to the asset size of the banks.*

H2b: *The level of knowledge that banks disclose about human resources regarding performance indicators in their sustainability reports varies according to the asset size of the banks.*

H2c: *The level of knowledge that banks declare about product liability for performance indicators in their sustainability reports varies according to the asset size of the banks.*

H2d: *The level of knowledge that banks disclose about the society regarding the performance indicators in their sustainability reports varies according to the asset size of the banks.*

B) Hypotheses to understand whether the performance indicators in the sustainability reports have an impact on the financial performance of banks

H3: *The level of knowledge that banks declare about performance indicators (environment, human resources, product responsibility, society and total sustainability) in their sustainability reports has a positive effect on the return on assets (ROA) of banks.*

H3a: *Considering the Public/Private status of banks, the level of knowledge they disclose regarding performance indicators (environment, human resources, product responsibility, society and total sustainability) in sustainability reports has an impact on the return on assets (ROA) of banks.*

H3b: *When the asset sizes of the banks are taken into consideration, the level of knowledge they declare about the performance indicators (environment, human resources, product responsibility, society and total sustainability) in the sustainability reports has an impact on the return on assets (ROA) of the banks.*

H4: *The level of knowledge that banks declare about performance indicators (environment, human resources, product responsibility, society and total sustainability) in their sustainability reports has a positive effect on the return on equity (ROE) of banks.*

H4a: *Considering the Public/Private status of banks, the level of knowledge they disclose regarding performance indicators (environment, human resources, product responsibility, society and total sustainability) in sustainability reports has an impact on the return on equity (ROE) of banks.*

H4b: *When the asset sizes of the banks are taken into consideration, the level of knowledge they declare about the performance indicators (environment, human resources, product responsibility, society and total sustainability) in the sustainability reports has an impact on the return on equity (ROE) of the banks.*

H5: *The level of knowledge that banks declare about performance indicators (environment, human resources, product responsibility, society and total sustainability) in their sustainability reports has a positive effect on the banks' net interest margin (NFM).*

H5a: *Considering the Public/Private status of banks, the level of knowledge they disclose regarding performance indicators (environment, human resources, product responsibility, society and total sustainability) in sustainability reports has an impact on the banks' net interest margin (NFM).*

H5b: *Considering the asset sizes of the banks, the level of knowledge they declare about the performance indicators (environment, human resources, product responsibility, society and total sustainability) in the sustainability reports has an impact on the net interest margin (NFM) of the banks.*

3.3. Methods

This section consists of two parts. In the first part, tests for sustainability performance and public/private situation of banks and bank size were determined. Secondly, panel data models were determined to determine the relationship between sustainability performance and financial performance of banks.

In Table 9, considering the public/private situation of banks, it is seen that there are 2 public banks and 7 private banks in the sample. Public banks are Halkbank and Vakıfbank, while private banks are Yapı Kredi, İşbank, Garanti Bank, Akbank, TSKB, Şekerbank and Albaraka Türk Bank.

Cluster Analysis Method was used to determine bank sizes. While applying the method, the average of the 2009-2021 values of the total assets in the balance sheets of the banks was used as the size criterion. When the number of groups was requested to be determined by the method during the analysis, the number of groups was determined as 3 for ease of evaluation by us, since the method created a single group using the TwoStep algorithm. Vakıfbank and Halkbank were included in the second group, and Garanti and İşbank in the third group. In our study, in order to define these groups in terms of size, the first group was named "Small", the second group "Medium", and the third group "Large". The results of the analysis results and average asset sizes are shown in Table 7.

Table 7. Distribution of Banks in the Scope of Analysis by Asset Size

BANKS	2009-2021 AVERAGE ACTIVE SIZES	CLUSTERING ANALYSIS RESULTS	GROUP NAME
YAPIKREDİ	₺280.547.344,77	2	Middle
GARANTİ	₺325.003.320,08	3	Big
AKBANK	₺293.231.877,92	2	Middle
VAKIFBANK	₺296.832.080,38	2	Middle
HALKBANK	₺296.893.652,77	2	Middle
İŞBANKASI	₺402.104.322,54	3	Big
TSKB	₺27.807.236,85	1	Small
ŞEKERBANK	₺25.806.578,08	1	Small
ALBARAKA	₺34.592.525,38	1	Small

i. Determining the Test to be Used for the Analysis of Sustainability Performance Disclosures by Public/Private Situation

In the study; In order to analyze whether the sustainability performance statements of banks differ depending on whether the banks are public or private banks, first of all, a normality test was conducted using SPSS for the performance values of the sustainability fields. The test results are shown in Table 8.

Table 8. Normality Test Results for Sustainability Performance Values

	Environmental	Human Resources	Product(s)	Community
N	63	63	63	63
Distortion	0,044	-0,488	-0,162	-0,388
Kurtosis	-0,761	-0,207	-1,267	-1,603

As seen in Table 8, since the kurtosis and skewness values of our data sets for sustainability performance values are between -2 and +2 values, it is accepted that our data show a normal distribution (George, D., & Mallery, M., 2010: 114). . Since our data showed a normal distribution, T-Test, one of the parametric tests used to determine the difference between two independent groups, was used to analyze whether the sustainability performance statements differ according to whether the banks are public or private banks.

ii. Determination of the Test to be Used for the Analysis of Sustainability Performance Disclosures by Asset Size

As can be seen in Table 10, since our data show a normal distribution, the One Way Anova Test, one of the parametric tests used to determine the difference between the averages of more than two independent groups, was used to analyze whether the sustainability performance statements differ according to the asset size of the banks.

3.3.1. Unit Root Tests

In the study, panel data analysis will be used to analyze the effect of banks' sustainability performance statements on return on assets. When performing panel data analysis, first of all, the stationarity of the variables to be used in the analysis should be examined. Unit root tests are used to test for stationarity. EViews 12 Student Version Lite statistical program was used to test the stationarity of the panel data and the first generation unit root tests Im, Peserane and Shin-W test (IPS), ADF-Fisher Chi-square test and PP-Fisher Chi-square tests were used. In the unit root tests we use, the test hypotheses in general are as follows:

H0: Series contain unit root (not stationary).
H1: Series do not contain unit root (stationary).

If the p values of these tests are less than 0.05, the H0 hypothesis is rejected and it is accepted that the sei does not contain a unit root, that is, it is stationary (Im et al., 2003, p:55).
The results of the unit root tests used in the study are shown in Table 9 below.

Table 9. Unit Root Test Results

METHODS	lm	Pesaran		ADF			PP		
SUSTAINABILITY AREAS	Normal Series	Difference 1	Difference 2	Normal Series	Difference 1	Difference 2	Normal Series	Difference 1	Difference 2
Environmental	-	-		-	+		+	+	
Human Resources	-	-		-	+		-	+	
Product Res.	+			+			-		
Community	+			+			+		
ROA	-	+		+			+	+	
ROE	+			+			-		
Net Interest Margin	-	-	-	-	-	+	-	-	+

"+ : Stable", " - : Not static"

Stationary or not, the criterion of stationarity of variables in at least 2 out of 3 tests was taken into consideration. As seen in Table 12, the variables of Product Responsibility, Society and Return on Equity Equity were stationary in the normal series; Environment, Human Resources and Return on Assets 1. They became stationary after their differences were taken; Net Interest Margin variable, on the other hand, became stationary after taking the 2nd difference. In the next stages, analyzes will be made with the first difference of the Environment, Human Resources and Asset Profitability variables and the second difference of the Net Interest Margin variable in order to get rid of the regression problems arising from the unit root.

3.3.2. Selecting the Panel Data Model

At this stage, Hausman and Breusch-Pagan LM tests will be applied to determine which of the Panel data models, Pooled Regression, fixed effects and random effects panel data methods, which we have explained in detail in the analysis methods section above, is more suitable for our analysis (Greene, 2003: 301). First, the Hausman test was applied to compare the fixed effects method with the random effects method for the model. It tests whether there is a statistically significant difference between the Hausman test and the regression coefficient estimates made by the models. The test hypotheses in the Hausman test are as follows:

H0: Random effects model is suitable
H1: Fixed effects model is suitable.

The results of the Hausman test are shown in the summary table is shown in Table 10 below.

Table 10. Hausman Test Results

		Test Sta.	**p Opt.**	Model to be used
Model 1	ROA	4,87	0,30	Random Effects Model
Model 2	ROE	5,89	0,21	Random Effects Model
Model 3	NET INTEREST MARGIN	1,38	0,85	Random Effects Model

As summarized in Table 10, the random effects model was assigned to the fixed effects model for all three of the panel data models established to determine the relationships between ROA, return on equity, net interest margin and environment, human resources, product responsibility and society variables according to the Hausman Test. The most suitable model was chosen.

According to the Hausman test results, after it was determined that the random effects method is a more suitable model than the fixed effects method for all three models, the Breusch-Pagan LM test was applied to compare the Pooled Regression and random effect methods for the models. The test hypotheses of the Breusch-Pagan LM test are as follows;

H0: Pooled regression model is suitable.
H1: The random effects model is suitable

The results of the Breusch-Pagan LM test are shown in the summary table is shown in Table 11 below.

Table 11. Breusch-Pagan LM Test Results

		Test Sta.	p Opt.	Model to be used
Model 1	ROA	1,11	0,29	Pooled Regression Model
Model 2	ROE	0,43	0,51	Pooled Regression Model
Model 3	NET INTEREST MARGIN	2,06	0,15	Pooled Regression Model

As summarized in Table 11, the Pooled Regression model for all three of the panel data models established to determine the relationships between return on assets, return on equity and net interest margin and environment, human resources, product responsibility and society variables according to the Breusch-Pagan LM Test. It was accepted that it was a more appropriate model at the 5% significance level compared to the Pooled Regression model. Pooled Regression models that we have determined according to the results of the Breusch-Pagan LM Test are formulated below.

ROA: $ROA_{it+1} = \alpha + \beta_1 ENV_{it} + \beta_2 HR_{it} + \beta_3 PL_{it} + \beta_4 CI_{it} + \varepsilon_{it}$

With this model, the effects of environment, human resources, product responsibility and society variables on active profitability will be analyzed.

ROE: $ROE_{it+1} = \alpha + \beta_1 ENV_{it} + \beta_2 HR_{it} + \beta_3 PL_{it} + \beta_4 CI_{it} + \varepsilon_{it}$

With this model, the effects of environment, human resources, product responsibility and society variables on return on equity will be analyzed.

NIM: $NIM_{it+1} = \alpha + \beta_1 ENV_{it} + \beta_2 HR_{it} + \beta_3 PL_{it} + \beta_4 CI_{it} + \varepsilon_{it}$

With this model, the effects of environment, human resources, product responsibility and society variables on the net interest margin will be analyzed. The meanings of symbols and abbreviations in the model equations are given below.

4. FINDINGS

This stage consists of two parts. In the first part, it was tested if the declarations of sustainability reports, which are published by banks about environment, human resources, product liabilities and community involvement differ according to the types and the sizes of banks, by non-parametric statistical tests as Mann-Whitney U and Kruskal Wallis. In the second part, the effect of these sustainability declarations' performance on return on assets, return on equity and net interest margin was analyzed separately with pooled regression panel data analysis. The models in which only the sustainability performance values are independent variables were analyzed first, then the dummy variables (types and sizes of banks) were added to the models and analyzed again.

4.1. Hypothesis Tests

Hypothesis 1: Sustainability performance of the banks differs according to the types of banks.

To test H_1 Mann-Whitney U test was applied. The hypothesis was rejected according to the test result in Table 5, because the p-value of total sustainability is 0,054, and it is not significant at 0,05 significance level.

Table 12. Statistical Data by Public/Private Status Distribution

Sustainability Areas	Public/Private	Average	Std. Deviation	Min.	Maks.
ENV	Public	0,1361	0,0771	0,03	0,23
	Private	0,1950	0,0740	0,08	0,35
	General	0,1828	0,0778	0,03	0,35
HR	Public	0,2482	0,0579	0,18	0,37
	Private	0,2696	0,0725	0,08	0,37
	General	0,2652	0,0699	0,08	0,37

	Public	0,0419	0,0350	0,00	0,10
PL	Private	0,0639	0,0342	0,00	0,12
	General	0,0594	0,0352	0,00	0,12
	Public	0,0253	0,0200	0,00	0,05
COM	Private	0,0287	0,0214	0,00	0,05
	General	0,0280	0,2099	0,00	0,05

Hypothesis 2: Sustainability performance of the banks differs according to the sizes of banks to test H_2 Kruskal-Wallis test was applied. The hypothesis was accepted according to the test result in Table 6, because the p-value of total sustainability is 0,012, and it is significant at 0,05 significance level.

Table 13. Independent Sample T-Test Results

Sustainability Areas		ENV	HR	PL	COM
Levene's	F	0,425	0,768	0,018	0,875
Test	sigma	0,517	0,384	0,892	0,353
T-Test	sigma	0,014	0,329	0,044	0,608
	(double sided)	0,024	0,273	0,057	0,597

Hypothesis 3: Sustainability performance of the banks has favorable effects on return on assets (ROA) of bank

Table 14. Sustainability Performance Disclosures

Dependent Variable: ROA
Total Panel Observations: 47
Panel Data Status: Unbalanced
Method: Pooled Regression Method
White cross-section standard errors & covariance (d.f. corrected)

Independent Variables	**Coef.**	**Std. Error**	**t sta.**	**p value**
Environment	0,0058	0,0078	0,7472	0,46
Human Resources	-0,0046	0,0080	-0,5763	0,57
Product Liability	0,0109	0,0158	0,6904	0,49
Community Involvement	-0,0030	0,0257	-0,1170	0,91
Constant Term (C)	-0,0010	0,0008	-1,1848	0,24
R^2	0,03			
F statistic	0,38			
p value of F statistic	0,82			
Breusch-Pagan / C-W test value	0,20			
Durbin-Watson Test value	0,40			

** Statistically significant at %5 significance level.

When the statistical data summary on Table 14 is examined, the p value of the F statistic, which shows the significance of our panel data model, is above the significance level of 0.05 and shows that our model is not significant since it is 0.82. In addition, the fact that the R2 value of our model is 0.03 is another indicator that it is not sufficient to explain the change in the return on assets with the changes in the independent variables. When the results of the Breusch-Pagan Cook-Weisberg and White tests are examined, the fact that the two values (0.20-0.40) are greater than 0.05 indicates that there is no heteroscedasticity in our model. The Durbin-Watson value, with the value of 2.18, shows that our model does not have autocorrelation.

According to these results; The hypothesis "H3: The level of knowledge that banks declare about performance indicators (environment, human resources, product responsibility, society and total sustainability) in their sustainability reports has a positive effect on the bank's return on assets (ROA)" is rejected. Hypothesis 3a: Sustainability performance of the banks affects return on assets (ROA) of banks when we add types of banks as a dummy variable. To test H_{3a} Pooled OLS Regression Model is used for Panel data analysis.

Table 15. The Effect of Sustainability Performance with Type of Banks on Return on Assets

Dependent Variable: ROA
Total Panel Observations: 47
Panel Data Status: Unbalanced
Method: Polled Regression Model

Independent Variables	**Coef.**	**Std. Error**	**t sta.**	**p value**
Environment	0,0069	0,0078	0,8837	0,38
Human Resources	-0,0052	0,0080	-0,6461	0,52
Product Liability	0,0016	0,0174	0,0930	0,93
Community Involvement	0,0023	0,0259	0,0869	0,93
Type of Banks	-0,0014	0,0011	-1,2435	0,22
Constant Term (C)	0,0011	0,0019	0,5959	0,55
R^2	0,07			
F statistic	9,62			
Breusch-Pagan / C-W testi değeri	0,67			
White Test Value	0,59			
Durbin-Watson value	2,21			

** Statistically significant at %5 significance level.

When the statistical data summary on Table 15 is examined, the p value of the F statistic, which shows the significance of our panel data model, is above the significance level of 0.05 and is 0.69, which shows that our model is not significant. In addition, the fact that the R2 value of our model is 0.07 is another indicator that it is not sufficient to explain the change in the return on assets with the changes in the independent variables. When the results of the Breusch-Pagan Cook-Weisberg and White tests are examined, the fact that the two values (0.67-0.59) are greater than 0.05 indicates that there is no heteroscedasticity in our model. The Durbin-Watson value, with the value of 2.21, shows that our model does not have autocorrelation.

According to these results; "H3a: Considering the state of being Public/Private, the level of knowledge that banks disclose regarding performance indicators (environment, human resources, product responsibility, society and total sustainability) in their sustainability reports has an impact on the bank's return on assets (ROA)" hypothesis is rejected. The new analysis made by adding the size of the banks to the panel data model is shown in Table 16.

Table 16. The Effect of Sustainability Performance with Size of Banks on Return on Assets

Dependent Variable: ROA
Total Panel Observations: 47
Panel Data Status: Unbalanced
Method: Polled Regression Model

Independent Variables	**Coef.**	**Std. Error**	**t sta.**	**p value**
Environment	0,0059	0,0079	0,7513	0,46
Human Resources	-0,0051	0,0082	-0,6174	0,54
Product Liability	0,0074	0,0192	0,3864	0,70
Community Involvement	-0,0052	0,0268	-0,1927	0,85
Size of Banks	0,0003	0,0011	0,3256	0,75
Constant Term (C)	-0,0015	0,0018	-0,8397	0,41
R^2	0,04			
F Sta.	0,32			
F Sta ve p value	0,90			
Breusch-Pagan / C-W test value	0,24			
White Test value	0,61			
Durbin-Watson test value	2,17			

** Statistically significant at %5 significance level.

When the statistical data summary on Table 16 is examined, the p value of the F statistic, which shows the significance of our panel data model, shows that our model is not significant since it is above the 0.05 significance level and 0.90. In addition, the fact that the R2 value of our model is 0.04 is another indicator that it is not sufficient to explain the change in the return on assets with the changes in the independent variables. When the results of the Breusch-Pagan Cook-Weisberg and White tests are examined, the fact that the two values (0.24-0.61) are greater than 0.05 indicates that there is no heteroscedasticity in our model. The Durbin-Watson value, with the value of 2.17, shows that our model does not have autocorrelation.

According to these results; "H3b: Considering the asset sizes of the banks, the level of knowledge they declare about the performance indicators (environment, human resources, product responsibility, society and total sustainability) in the sustainability reports has an impact on the bank's return on assets (ROA)" hypothesis is rejected.

Table 17. Significance Values of Panel Data Analysis

	Hypothesis	Hypothesis res.	ENV	HR.	PL	COM
ROA	H3	REJECT	NO	NO	NO	NO
A)Public/Private	H3a	REJECT	NO	NO	NO	NO
B) Bank Size	H3b	REJECT	NO	NO	NO	NO
Equity Profitability	H4	REJECT	NO	NO	NO	NO
A)Public/Private	H4a	REJECT	NO	NO	NO	NO
B) Bank Size	H4b	REJECT	NO	NO	NO	NO
Net Interest Margin	H5	ACCEPT	NO	(-)	NO	NO
A)Public/Private	H5a	ACCEPT	NO	(-)	NO	(+)
B) Bank Size	H5b	ACCEPT	NO	(-)	NO	(+)

5. CONCLUSION

When the public or private status of the banks is taken into account, it has been concluded that only the environmental, product responsibility sustainability report statements differ according to whether the banks are public or private. It is seen that the averages of the environmental sustainability statements of private banks and the averages of the environmental sustainability statements of public banks are high (0.20>0.14). This is an indication that private banks attach more importance to the environmental issue, one of the sustainability areas. It can be said that the reason for this is that the environmental issue is more taken into consideration, and that private banks use this issue as a promotional tool in terms of their prestige. In addition, it is seen that the averages of the sustainability statements related to the product liability of private banks and the averages of the sustainability statements of the public banks about the product liability are high (0.64>0.42). This is an indication that private banks attach more importance to product responsibility, which is one of the areas of sustainability. It can be said that the reason for this is that the subject of product responsibility is related to customer satisfaction, and that private banks give priority to customer satisfaction in their services.

It has been concluded that the sustainability report statements about human resources and society do not differ according to whether the banks are public or private. This result is an indication that both public and private banks generally attach the same level of importance to the preparation of sustainability reporting.

Considering the size of the banks, it was concluded that the sustainability report statements about human resources, product responsibility and society differ according to the size of the banks. It has been concluded that environmental sustainability report statements do not differ according to the size of the banks. The asset sizes of banks can also be accepted as an indicator of institutionalism in terms of management. Therefore, this result is in line with the study by Kılıç et al. (2015) in which they found a positive relationship between the size of the board of directors of banks and their sustainability reporting.

In Table 30, there are panel data analysis results that we have done to find out the effect of the banks' sustainability report on environment, human resources, product responsibility and society dimensions on the banks' return on assets, return on equity and net interest margin.

As a result of the analyzes made, it is seen that the sustainability report disclosures have a significant effect only on the net interest margin. It is seen that the sustainability report disclosures do not have a significant effect on the return on assets and return on equity.

When the effect of the sustainability report disclosures on the net interest margin is analyzed in terms of dimensions, it is seen that the disclosures regarding the human resources dimensions have a negative effect on the net interest margin. When the state of banks being public or private is added to our model, it is seen that the human resources dimension still has a negative effect on the net interest margin, and the disclosures about the community dimensions have a positive effect on the net interest margin. When the size of the banks is added to our model, it is seen that the explanations about the human resources dimension have a negative effect on the net interest margin, and the explanations about the community dimensions also have a positive effect on the net interest margin.

When we examine the net interest margin in terms of the formula, it is seen that apart from the return on assets and return on equity capital, only the net profit from interest income is in the denominator, and items such as net fee and concession income, dividend income, other operating income and commercial profit or loss are not used. Therefore, assuming that interest income, which is one of the main operating incomes of banks, is related to more stakeholders than other items, it can be said that this net interest margin is more sensitive to sustainability explanations than return on assets and return on equity.

The study contributed to the literature due to the limited number of studies on analyzing the effect of sustainability reporting on the financial performance of banks in the field of banking. In future studies, the relationship between sustainability disclosures and financial performance can be re-evaluated by taking a longer-term sample.

AUTHORS' DECLARATION

This paper complies with Research and Publication Ethics, has no conflict of interest to declare, and has received no financial support.

AUTHORS' CONTRIBUTIONS

Conceptualization, writing-original draft – AA; methodology, data collection, formal analysis, editing – OD; Final Approval and Accountability – AA/OD

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