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The Determinants of Profitability of Large-Scale and Small-Scale Turkish Deposit Banks

Pelin KAYA[a,b*], **Şenol BABUŞÇU**[a] **, Adalet HAZAR**[a]

[a] Prof. Dr. Başkent University, Department of Banking and Finance, Turkey
[b] PhD Student, Başkent University, Department of Banking and Finance, Turkey

ABSTRACT

This paper aims to explore the bank-specific and macroeconomic determinants of the banks' profitability by dividing the Turkish deposit banks into large-scale and small-scale entities. For this purpose, panel data analysis was applied using fixed effects model, based on quarterly data for the period from March 2009 to September 2020 for 24 deposit banks. Return on assets and return on equity are used as a measure of the banks' profitability. According to the results, the determinants of profitability differ between large-scale banks and small-scale banks. With respect to the bank-specific determinants, the findings show that the equity/assets, deposits/assets and liquidity ratio have significant impact on the profitability of large-scale banks, whereas they have no relationship with the profitability of small-scale banks. The profitability of large-scale banks is negatively affected by their asset quality ratios. On the other hand, while the ratio of loans to total assets has no impact on the profitability of small-scale banks, the non-performing loan ratio has a positive impact. While the asset size and income-expense ratios have positive and significant impacts on the profitability of small-scale banks, they exhibit no relationship with the profitability of large-scale banks. With regard to macroeconomic indicators, small-scale banks' profitability is negatively affected by economic growth, whilst large-scale banks are not. This study is aimed to contribute to the literature by analysing the determinants of Turkish deposit banks' profitability under the classification of large-scale and small-scale banks.

ARTICLE INFO

Keywords:
Bank Profitability, Determinants, Large-Scale Banks, Small-Scale Banks, Panel Data Analysis

*Corresponding author:
pcelik02@yahoo.com
(Pelin Kaya)

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1. INTRODUCTION

The performance of a country's economy largely depends on the performance of its banking sector. Banks are financial intermediaries that are vitally important to economies. Banks, as financial intermediaries, have a vital role in the development of the economy in order to increase economic growth (Menicucci & Paolucci, 2016). On the other hand, bank failures can lead to systemic crisis. Economies with profitable banking sectors are better able to withstand negative shocks and contribute to the stability of the financial system (Alper & Anbar, 2011). Therefore, it is essential to understand the determinants of bank profitability.

In Turkey, most of the operations and activities in the money and capital markets are carried out by banks. Therefore, the banking sector is the most important mechanism for financing the economic

growth in Turkey. The importance of bank risk management has been better understood with the financial crises experienced in 1994, 2000 and 2001 in Turkey. The Banking Sector Restructuring Program was put into practice in May 2001 in order to restore a healthy structure for banks whose financial structures and profitability performance deteriorated due to the November 2000 and February 2001 crises. Thanks to this program, public and private banks were restructured and the profitability and stability of the Turkish banking system was strengthened (BRSA, 2010).

Due to the new regulations introduced after the 2001 crisis, the impact of the 2008 global crisis on the Turkish financial sector has been limited and no serious deterioration was realized in the financial structure of the banking sector. In this context, thanks to the regulations implemented, banks were prevented from taking excessive risks and as a result the profitability of banks increased (BRSA, 2010).

While assessing the profitability of banks, it is important to consider the scale structure. Differences in banks' size scales can provide advantages or disadvantages for banks. Many articles explore the impact of bank size, measured by total assets, on profitability (Dietrich & Wanzenried, 2011; Nguyen, 2020; Aladwan, 2015; Spathis et al., 2002; Özen & Tetik, 2014). The findings of these studies imply that the bank size measured by total assets has a significant effect on profitability indicators.

This paper aims to assess the impact of bank-specific and macroeconomic determinants of profitability of the Turkish deposit banks under the classification of large-scale banks and small-scale banks. It is expected that this study makes a contribution to the literature by exploring the determinants of Turkish deposit banks' profitability under the said classification of banks. The study is based on quarterly data and covers the period between March 2009 and September 2020. This study is outlined as follows: Section 2 presents the literature review. Section 3 describes the factors determining the profitability of banks. In Section 4, the dataset and method are discussed. Section 5 focuses on analysis and findings. The last section covers the conclusion.

2. LITERATURE REVIEW

Almaqtari et al. (2018) examined the factors affecting the profitability of 69 commercial banks in the Indian banking sector, using panel data analysis during the period from 2008 to 2017. Profitability of Indian banks is measured by two indicators: return on assets (ROA) and return on equity (ROE). The results showed that bank size, number of branches, the ratio of operating income to assets, expenditure/revenue ratio and total debt to total assets ratio are the most important bank-specific determinants affecting the ROA of Indian banks. In addition, among the bank-specific determinants, bank size, operating income/assets ratio, asset quality ratio and liquidity ratio were found to have a significant positive effect on ROE. Regarding the macroeconomic determinants, it is concluded that inflation, exchange rate, interest rate and demonetisation have a significant impact on ROA, whereas all macroeconomic determinants excluding demonetisation have a significant effect on ROE.

Ahmad et al. (2012) undertake a research to find out the profitability determinants of Pakistani local banks. As an indicator of profitability, ROA was used as a dependent variable whilst cost-income ratio, liquid assets/short-term funding, equity/assets and loan loss reserves/total gross loans were considered as independent variables. Panel data analysis was conducted for Pakistani local banks covering the period between 2001 and 2010. The results expressed a significant negative relationship between all these independent variables and ROA.

Batten & Vo (2019) investigated the determinants of profitability for Vietnamese banks for the period between 2006 and 2014, using panel data analysis. Bank size, capital asset ratio, provisions to loans ratio and cost-income ratio are used as bank-specific independent variables. Inflation rate and GDP growth rate are used as macroeconomic variables. ROA, ROE and net interest margin are dependent variables to proxy for profitability. It has been found that these independent variables have strong impacts on profitability.

Paleni et al. (2017) examined the effect of the minimum capital adequacy ratio, loan/deposit ratio and the ratio of non-performing loans (NPL) to total loans on ROA for the period between 2011 and 2015 for rural banks in Indonesia using a multiple regression model. According to the results, all these variables have a positive and significant impact on ROA when used simultaneously. When evaluated separately, ROA was negatively affected by capital and loan to deposit ratios, and positively affected by NPL ratio.

Madugu et al. (2020) studied the impact of banks' capital adequacy and credit risk on profitability of foreign-owned and local banks in Ghana. The study was carried out using fixed effects estimation approach for 11 banks covering the years 2006 to 2016. The results showed that credit risk (NPLs / total assets) has a positive and stronger impact on the profitability of local banks compared to foreign-owned banks. However, it was concluded that the capital adequacy ratio had no significant impact on the profitability indicators of local banks, whereas it had a negative impact on foreign banks' profitability.

Lee (2013) wanted to determine the determinants of the profitability of Korean banks under different banking regulatory regimes using the ordinary least squares (OLS) regression method. ROA is used as the proxy of banks' profitability. According to the results, while the profitability of Korean banks has a positive relationship with asset size and equity-to-assets ratio, it is negatively associated with the fixed asset ratio and NPL ratio. However, after the tightening of banking regulations with structural reforms in the aftermath of the Asian financial crisis, the positive relationship between profitability and asset size weakened, whilst the positive relationship between profitability and capital ratio strengthened.

Menicucci & Paolucci (2015) investigated the bank-specific determinants of profitability in the European banking sector. Panel data analysis was applied to the 35 largest European banks over the period 2009 and 2013. Net interest margin, ROA and ROE are used as an indicator of profitability. The findings imply that bank size and capital ratio have significant positive impact on bank

profitability, while the increase in the ratio of loan loss provisions to total loans causes lower profitability levels.

In the study conducted by Bucevska & Misheva (2017), ROE and ROA are used as bank profitability proxies. Bank assets to total banking sector, net interest income to average earning assets, cost efficiency, asset size, loan loss provisions to gross loans, equity to total assets, inflation rate and GDP growth rate are regarded as independent variables. The Generalized Moments Method was applied to find out the determinants of profitability for the years 2005 to 2009 for 127 commercial banks from 6 Balkan countries. According to the results, only the bank size is insignificant among the bank-specific variables, and the remaining variables affect the banks' profitability. On the other hand, it has been concluded that inflation and economic growth have no impact on profitability.

Sufian & Habibullah (2009) investigated the determinants of profitability of 37 Bangladesh commercial banks between 1997 and 2004 using the unbalanced panel data model. Net interest margin ratio, ROE and ROA are used as dependent variables. The findings suggest that loans-to-asset ratio, credit risk, capital ratio and cost ratio have a significant and positive impact on bank profitability, whereas non-interest income to assets ratio has a negative impact. While asset size has a negative impact on ROE, it has a positive impact on ROA and net interest margin. When the macroeconomic variables are analyzed, it is concluded that only inflation has a significant and negative relationship.

Pervan et al. (2015) investigated the factors influencing bank profitability for the period between 2002 and 2010 using the dynamic panel model. ROA is used as the dependent variable as an indicator of bank profitability. Bank specific independent variables include bank size, market share, equity-to-assets ratio (solvency), the ratio of loan provisions to total loans (credit risk), operating expenses, whilst macroeconomic variables are inflation rate and GDP growth. Except for market share, all variables have a significant impact on profitability. The variables that are statistically significant and have a positive impact on profitability are bank size, solvency and economic growth. Operating expenses, inflation and credit risk were statistically significant and had a negative impact on profitability.

Demirgüç-Kunt & Huizinga (1999) investigated the determinants of profitability using net interest income to total assets and ROA as dependent variables using banking data from 80 countries for the years between1988 and 1995. While capital ratio is positively associated with profitability, provisions has a negative impact. Moreover, a positive relationship was found between real interest rate and inflation rate variables and profitability, especially in developing countries.

Saona (2016) evaluated the profitability determinants of seven Latin American commercial banks for the years 1995 to 2012 using the GMM approach. Net interest margin is used as the dependent variable. The results suggest that there is a negative relationship between revenue diversification (such as fees and commissions, interests) and profitability. Also, it is concluded that there is a positive relationship between market concentration and profitability.

Dietrich & Wanzenried (2011) conducted a profitability analysis of 372 commercial banks operating in Switzerland for the period between 1999 and 2009 using the GMM estimator technique. Net interest margin, ROE and ROA are used as dependent variables. Regarding the bank specific independent variables, the ratio of equity to total assets, cost-income ratio, the ratio of loan loss provisions to loans, the annual growth rate of deposits, bank size, difference between the growth in bank loan and average market growth of loans, the ratio of interest income to total income and the ratio of interest expenses to total deposits are used. GDP growth rate, maturity structure of interest rates and effective tax rate are used as macroeconomic independent variables. According to the results, there is no significant effect of capital ratio on bank profitability in the pre-crisis period between 1999 and 2006. On the other hand, in the post-crisis period of 2007 and 2009, a significant and negative effect was found on ROA. In the paper, cost-income ratio, funding costs and loan growth explain bank profitability. Further, profitability is affected by interest income, as well. Also, dummy variables are created for small, medium and large-scale banks to see the potential size effects. According to the results of the study, a negative effect of large-scale banks on profitability was found.

Alharbi (2017) examined the factors influencing the profitability of almost all Islamic banks in the world for the years between 1992 and 2008. Panel data method was applied using fixed-effects regression model in the study. Capital ratio, operating income, bank size, GDP per capita and oil prices positively affected the profitability of Islamic banks. Insurance system, oil prices and growth had a negative impact.

Pasiouras and Kosmidou (2007) analyzed the profitability determinants of 584 domestic and foreign deposit banks from 15 European Union countries for the period between 1995 and 2001. The findings show that bank specific variables, macroeconomic variables and financial market structure had significant impact on ROA.

Nguyen (2020) examined the effect of capital adequacy on banks' profitability in Vietnam. ROA and ROE are used as a measure of bank profitability. With the panel data regression analysis, 22 Vietnam banks were studied for the period 2010-2018, and while net interest margin, non-interest income and capital adequacy were positively associated with profitability variables, non-performing loans and public ownership were negatively related. In addition, by calculating the median, a distinction is made between small and large banks and the effect of capital adequacy on profitability is examined. While the effect of capital adequacy on ROA was positive for small banks, a significant relationship was not found for large banks.

Dizgil (2017) explores the impact of internal factors influencing the profitability of Turkish deposit banks. In this regard, panel data analysis was applied and the data of the 10 largest banks by asset size were used. ROA and ROE are considered as dependent variables in the analysis. According to the results of the study, a significant relationship was found between ROA and operating expenses ratio, capital adequacy ratio and financial asset to total asset ratio. Likewise, a significant relationship was

found between ROE and operating expenses, capital adequacy ratio and liquid assets-to-total assets ratio.

Aladwan (2015) investigates the effect of bank size on the profitability of commercial banks with different size categories in Jordan. Using the data between 2007 and 2012, Jordanian commercial banks were divided into three categories according to their asset sizes. In the study, ROE is considered as a profitability indicator and used as a dependent variable. The results reveal that a significant difference has emerged in the profitability of banks of different size categories.

Spathis et al. (2002) divided Greek banks into two - large-scale and small-scale banks in terms of asset size and examined the effectiveness of Greek banks by using the ratios of ROA, ROE, net interest margin, liquidity, leverage, and capital adequacy. According to the results, large-scale banks were more efficient than small-scale banks.

3. DETERMINANTS OF PROFITABILITY OF TURKISH DEPOSIT BANKS

In accordance with the prior literature that explored the determinants of bank profitability, this study uses ROA and ROE as dependent variables (Almaqtari et al., 2018; 2013; Bucevska & Misheva 2017; Nguyen 2020; Lee & Kim, 2013; Dizgil, 2017). ROA consists of net profit divided by total assets, while ROE consists of dividing net profit by total equity. ROA demonstrates the efficiency of banks to generate earnings from its assets; and ROE is the return that investors earn from net assets.

Independent variables are examined in two groups as bank-specific and macroeconomic. Bank-specific variables are asset size, asset quality ratios, capital ratios, deposits and ratios regarding income and expense structure. Annual inflation rate and GDP growth rate are used as macroeconomic variables.

3.1 Asset Size

In most studies in finance literature, bank size is measured by total assets and calculated by taking the natural logarithm (LOGA) of the banks' total assets (Almaqtari et al., 2018; Batten & Vo, 2019; Alper & Anbar, 2011). This variable shows whether banks benefit from the advantages arising from economies of scale. If banks benefit from economies of scale, a positive relationship between bank size and profitability can be expected (Pasiouras & Kosmidou, 2007). In many studies in the literature, one notes that asset size has a positive impact on bank profitability (Almaqtari et al., 2018; Lee, 2013; Menicucci & Paolucci, 2015; Alharbi, 2017; Bucevska & Misheva, 2017; Pasiouras & Kosmidou, 2007; Pervan et al., 2015), whereas in Sufian & Habibullah (2009), a negative relationship was found between asset size and profitability.

3.2 Asset Quality Ratios

In this study, three ratios are used as asset quality indicators. The first one is gross non-performing loans/total loans ratio (NPL). This ratio is an important credit risk indicator, and a high ratio weakens

the credit quality. Nguyen (2020) found a negative relationship between the said ratio and profitability. There is also evidence from various studies showing a positive correlation between NPL ratio and profitability (Madugu et al., 2020; Paleni et al., 2017).

The second ratio used as an asset quality indicator is the loans-to-assets ratio (CRED). This ratio gives a measure of banks' income source and it is expected that profitability is affected positively unless the bank takes unbearable levels of risk. Some studies in the literature have found a negative relationship between profitability and loan ratio (Almaqtari et al., 2018; Staikouras & Wood, 2004). On the other hand, a majority of the literature studies have found that loan ratio is positively related to bank profitability (Menicucci & Paolucci, 2015; Pasiouras & Kosmidou, 2007).

The third ratio used as an asset quality is fixed assets-to-total assets (FIX) ratio. Fixed assets are assets that do not have interest earnings. Although fixed assets are an important income source of loans, it is expected that the increase in the share of fixed assets in the balance sheet will negatively affect profitability (Lee, 2013; Demirgüç-Kunt & Huizinga, 1999).

3.3 Capital Ratios

The regulatory capital adequacy ratio (CAR) is used to protect depositors and encourage the efficiency and stability of financial systems around the world and it helps to ensure the continuity of banks' activities against banking crises and significant losses. The ratio of equity to total assets (CAD) shows the strength of the bank's capital. If this ratio is high, it is expected that there will be less need for external funding, and it will result in higher profitability. In other words, banks' strong capital structure will reduce the default costs of banks and consequently result in a decrease in capital cost. These ratios show the bank's capacity to absorb losses. Based on the vast majority of the prior studies, a positive relationship is expected to be found between capital ratios and profitability (Almaqtari et al., 2018; 2013; Batten and Vo, 2019; Paleni et al., 2017; Lee, 2013; Menicucci & Paolucci, 2015; Alharbi, 2017; Bucevska & Misheva, 2017; Pervan et al., 2017; Demirgüç-Kunt & Huizinga, 1999; Nguyen 2020).

3.4 Deposit Ratio

Deposits are seen as the major source of bank funding and its cost of funding is very low. Total deposits-to-total assets ratio (DEP) is used as an internal determinant in many prior studies (Almaqtari et al., 2018; Menicucci & Paolucci, 2015). Menicucci & Paolucci (2015) argue that the said ratio is positively related to profitability. As more deposits turn into loans, interest margins would rise, and banks will be able to generate further profits as a result.

3.5 Liquidity

Liquid assets-to-total assets ratio (LIQ) is used as a liquidity indicator (Dizgil, 2017). Inadequate liquidity is considered one of the main causes of bank failures. Strong liquidity enables banks to survive difficult times and creates flexibility for them. The funding structure and diversification of

banks are of great importance in terms of liquidity management. On the other hand, excessive liquidity can adversely affect bank profitability. Molyneux & Thorton (1992) and Dizgil (2017) found a negative relationship between liquidity and profitability.

3.6 Income – Expense Structure

The ratio of net interest income to total assets (NIM) and the ratio of net non-interest income (non-interest income-non-interest expenses) to total assets (NII) are used to examine the income-expense structure (Saona, 2016; Almaqtari et al., 2018). A positive relationship with profitability is expected (Almaqtari et al., 2018; Bucevska & Misheva, 2017; Nguyen 2020).

3.7 Annual Inflation Rate

The annual inflation rate (INF) calculates the percentage change in the Consumer Price Index (CPI) for all goods and services. Inflation affects the real value of income and expenses. If inflation cannot be predicted, the costs of the activities of banks may increase faster than their revenues, and as a result, profitability will be negatively affected (Pervan et al., 2015; Sufian & Habibullah, 2009). Conversely, when the inflation rate is predicted, bank managers can increase profits by setting interest rates according to inflation. In Almaqtari et al. (2018), inflation rate has a negative impact on ROA but a positive impact on ROE. According to many literature studies, there is a positive relationship between inflation and profitability (Batten & Vo, 2019; Dietrich & Wanzenried, 2011; Demirgüç-Kunt & Huizinga, 1999).

3.8 Annual Real GDP Growth Rate

While some studies in the literature show a positive GDP growth-profitability relationship (Demirgüç-Kunt & Huizinga, 1999; Pervan et al., 2015; Pasiouras & Kosmidou, 2007; Sufian & Habibullah, 2009), some studies show a negative relationship (Almaqtari et al., 2018; Alharbi, 2017). As a result of the improvement in economic conditions, loan demands and solvency will increase, and the GDP growth rate will reflect positively on profitability. When the economic conditions deteriorate, the loan portfolios of the banks will weaken, and the profitability of the bank may be adversely affected as more provisions will be required for loans.

Table 1 shows the names of the variables, their explanations, and notations.

Table 1: Variables and Explanations

	Variables	Explanations	Notation

Dependent Variables	Profitability	Return on Assets = Net Profit / Total Assets	ROA
		Return on Equity = Net Profit / Total Equity	ROE
Bank-Specific Independent Variables	Asset size	Natural logarithm of total assets	LOGA
	Capital Adequacy	Regulatory Capital Adequacy Ratio = Regulatory Capital / Risk Weighted Assets	CAR
		Equity / Assets	CAD
	Asset Quality	Loans / Assets	CRED
		Fixed Assets /Assets	FIX
		Non-performing loans (gross) / Total Loans	NPL
	Deposit Ratio	Deposits / Assets	DEP
	Liquidity	Liquid Assets / Assets	LIQ
	Income – Expense Structure	Net Interest Income / Total Assets	NIM
		Net Non-Interest Income / Total Assets	NII
Macroeconomic Independent Variables	GDP Growth Rate	Annual Real GDP Growth Rate	GDP
	Annual Inflation Rate	CPI (Annual % Change)	INF

3.9 Model

In line with Sufian & Habibullah (2009), Almaqtari vd. (2018), Nguyen (2020), Batten & Vo (2019) and Pasiouras & Kosmidou (2007), the following model is used to investigate the determinants of the profitability of Turkish deposit banks.

$$\gamma_{it} = \alpha_{it} + \beta \times_{it} + \epsilon_{it} \quad (1)$$

In the equation, i denotes deposit banks and t denotes years. Y_{it} designates the profitability of bank i at time t, α is the intercept term on independent variables, X_{it} is a vector of bank-specific and macroeconomic independent variables i at time t and ε_{it} is the error term.

4. DATA AND METHOD

This paper aims to find out the bank-specific and macroeconomic determinants of the banks' profitability by dividing the Turkish deposit banks into large-scale and small-scale banks. There are many studies in the literature that analyze the profitability determinants of banks in different bank size categories (Nguyen, 2020; Aladwan, 2015; Spathis et al., 2002; Kosmidou et al., 2006; Dietrich & Wanzenried, 2011). In this study, the average of the banks' assets for the period between March 2009 and September 2020 is calculated and banks are divided into two (small and large) according to the

median values of their average assets. Banks with a median value and below are considered as small-scale banks, while banks above the median value are considered as large-scale banks (Nguyen, 2020). Secondary data is used on a quarterly basis over a period ranging from March 2009 to September 2020 for 24 deposit banks, which have complete data for this period. According to the median calculation of average assets of banks over the period of March 2009 and September 2020, the first 12 banks with the highest asset size are under the large-scale bank classification and the remaining 12 banks are analyzed under the small-scale bank classification. The banks and scale groupings in the study are listed in Table 2:

Table 2: Banks in the Scale Groupings

Large - Scale Banks	**Small - Scale Banks.**
Türkiye Cumhuriyeti Ziraat Bankası	Şekerbank.
Türkiye Halk Bankası	Alternatifbank .
Türkiye İş Bankası	Anadolubank.
Türkiye Vakıflar Bankası T.A.O.	Fibabanka
, Türkiye Garanti Bankası.	ICBC Turkey Bank
Yapı ve Kredi Bankası	Burgan Bank.
Akbank	Citibank
QNB Finansbank	Arap Türk Bankası
Denizbank	Turkland Bank
Türk Ekonomi Bankası	Turkish Bank
ING Bank	Bank Mellat
HSBC Bank	Habib Bank Limited

As of September 2020, the total asset size of the large-scale deposit banks in this study constitutes 88% of the total banking system assets, while the small-scale deposit banks account for 3.6%, respectively.

The dataset for the bank-specific variables is obtained from the official website of the Banks Association of Turkey (TBB), while data on macroeconomic variables is fetched from the official web page of the Central Bank of the Republic of Turkey (CBRT). Panel data regression analysis is used in this study (Sufian & Habibullah, 2009; Almaqtari et al., 2018; Ahmad et al., 2012; Batten & Vo, 2019; Alharbi, 2017).

5. DATA ANALYSIS AND FINDINGS

In this study, panel data analysis is used to investigate the determinants of profitability. In similar studies using panel data analysis, one notes that fixed effects or random effects models are generally used (Nguyen, 2020; Batten & Vo, 2019; Dizgil, 2017; Alharbi, 2017; Alper & Anbar, 2011).

In the analysis, firstly, a unit root test was conducted, and unit root isn't detected for any variables (Torres-Reyna, 2010). Then, the Hausman test was applied to choose between fixed effects and random effects models and the results suggest the use of fixed effects model (FEM) in all regressions. We also used the Breusch–Pagan and Breusch-Godfrey/Wooldridge tests to check for heteroskedasticity and autocorrelation respectively, and both problems were detected from the FEM model. Hence, Arellano estimators are applied for all the regressions (Torres-Reyna, 2010).

The panel regression results performed for large and small-scale banks where ROA and ROE are considered as dependent variables by using Arrelano estimators are given in tables 3 through 6 below.

Table 3: Determinants of ROA for Large-Scale Banks

	Coefficients	**Standard deviation**	**t**	**Pr(>|t|)**
CAR	0.0513	0.0353	1.4517	0.1472
CAD	0.2473	0.0637	3.8825	0.0001 ***
DEP	0.0118	0.0073	1.6021	0.2787
CRED	-0.0339	0.0143	-2.373	0.0180 *
FIX	-0.1283	0.0334	-3.838	0.0001 ***
NPL	-0.1544	0.0384	-4.023	6.58e-05 ***
LIQ	-0.0081	0.0074	-1.094	0.2744
NIM	0.0232	0.0239	0.970	0.3323
NII	0.0796	0.0622	1.2798	0.2012
LOGA	-0.0859	0.1814	-0.474	0.6359
GDP	-0.0107	0.0099	-1.081	0.2800
INF	0.0130	0.0084	1.5533	0.1209
R^2	0.64	Ajusted R^2	0.62	
F-statistic	79.94	p-value	< 2.22e-16	

Note: ".", "*", "**" and "***" denote significance level of 10%, 5%, 1% and 0,1% respectively.

Table 4: Determinants of ROA for Small-Scale Banks

	Coefficients	Standard deviation	t	Pr(>|t|)
CAR	0.0023	0.0146	-0.1582	0.8743
CAD	0.0224	0.0371	0.6039	0.5461
DEP	0.0046	0.0073	-0.6376	0.5240
CRED	-0.0008	0.0172	-0.0466	0.9628
FIX	-0.2692	0.1538	-1.7504	0.0806 .
NPL	0.0030	0.0010	2.9185	0.0037 **
LIQ	-0.0010	0.0173	-0.0551	0.9561
NIM	0.2156	0.0792	2.7237	0.0067 **
NII	0.3738	0.1255	2.9783	0.0030 **
LOGA	0.3229	0.3279	0.9846	0.3253
GDP	-0.0335	0.0155	-2.1607	0.0312 *
INF	-0.0130	0.0428	-0.3031	0.7619
R^2	0.27	Ajusted R^2	0.24	
F-statistic	16.35	p-value	< 2.22e-16	

Note: ".", "*", "**" and "***" denote significance level of 10%, 5%, 1% and 0,1% respectively.

Table 5: Determinants of ROE for Large-Scale Banks

	Coefficients	Standard deviation	t	Pr(>|t|)
CAR	0.3860	0.3793	1.0177	0.3093
CAD	1.5328	0.7287	2.1035	0.0359 *
DEP	0.1482	0.0839	1.7658	0.0780 .
CRED	-0.4548	0.1466	-3.1021	0.0020 **
FIX	-1.1669	0.3008	-3.8791	0.0001 ***
NPL	-1.6678	0.3590	-4.6450	4.276e-06 ***
LIQ	-0.1517	0.0658	-2.3050	0.0215 *
NIM	0.4326	0.2801	1.5444	0.1230
NII	0.2590	0.6338	0.4086	0.6830
LOGA	-0.4160	1.8258	-0.2279	0.8198
GDP	-0.1604	0.1054	-1.5220	0.1286
INF	0.0940	0.0754	1.2474	0.2128
R^2	0.57	Ajusted R^2	0.55	

	Coefficients	Standard deviation	t	Pr(>|t|)
CAR	0.3860	0.3793	1.0177	0.3093
CAD	1.5328	0.7287	2.1035	0.0359 *
DEP	0.1482	0.0839	1.7658	0.0780 .
CRED	-0.4548	0.1466	-3.1021	0.0020 **
FIX	-1.1669	0.3008	-3.8791	0.0001 ***
NPL	-1.6678	0.3590	-4.6450	4.276e-06 ***
LIQ	-0.1517	0.0658	-2.3050	0.0215 *
NIM	0.4326	0.2801	1.5444	0.1230
NII	0.2590	0.6338	0.4086	0.6830
F-statistic	59.32	p-value	< 2.22e-16	

Note: ".", "*", "**" and "***" denote significance level of 10%, 5%, 1% and 0,1% respectively.

Table 6: Determinants of ROE for Small-Scale Banks

	Coefficients	Standard deviation	t	Pr(>|t|)
CAR	-0.2123	0.1664	-1.2761	0.2025
CAD	0.1102	0.3965	0.2780	0.7812
DEP	-0.0912	0.0777	-1.1749	0.2405
CRED	0.0278	0.1289	0.2154	0.8295
FIX	-2.2631	1.6390	-1.3808	0.1679
NPL	0.0049	0.0128	0.3849	0.7005
LIQ	0.0092	0.1242	0.0744	0.9407
NIM	2.0764	0.9414	2.2056	0.0278 *
NII	1.5194	0.7592	2.0014	0.0459 *
LOGA	4.5572	2.4895	1.8306	0.0677 .
GDP	-0.1328	0.0702	-1.8924	0.0590 .
INF	-0.3562	0.3101	-1.1489	0.2511
R^2	0.23	Ajusted R^2	0,20	
F-statistic	13.58	p-value	< 2.22e-16	

Note: ".", "*", "**" and "***" denote significance level of 10%, 5%, 1% and 0,1% respectively.

As shown in Table 3 and Table 5, CAD is strongly significant at 0.1% and positively related to ROA of large - scale banks and it also works significantly at 5% for ROE. In various studies, one notes that there is a significant and positive relationship between equity/asset ratio and bank profitability (Almaqtari et al., 2018; Batten & Vo, 2019; Lee, 2013; Menicucci & Paolucci, 2015; Alharbi, 2017; Pervan et al., 2015; Demirgüç-Kunt & Huizinga, 1999). This positive relationship shows that banks with stronger capital adequacy can increase their profitability by decreasing their capital costs. On the other hand, one also finds that the CAD variable has no impact on the profitability of small-scale banks (Table 4 and Table 6).

There is a statistically significant positive relationship at the level of 10% between the DEP and ROE of large-scale banks (Table 5). This is consistent with the study of Menicucci and Paolucci (2015). There is no statistically significant impact of MEVD on the profitability of small-scale banks (Table 4 and Table 6). Hence, as more deposits turn into loans, interest margin and profit rise in large-scale banks.

There is a statistically significant and negative relationship between CRED and the ROA and ROE variables of large-scale banks at the level of 5% and 1% respectively (Table 3 and Table 5). According to the study of Menicucci & Paolucci (2016), a too high loan-to-assets ratio could mean that banks grow their loan portfolios rapidly and pay a higher cost for their funding needs, and this can have a negative effect on profitability. A statistically significant relationship was not found between the CRED variable and the profitability of small-scale banks (Table 4 and Table 6).

The results in Table 3 and Table 5 demonstrate a highly significant and negative impact of FIX ratio on ROA and ROE of large-scale banks. At the same time, a negative relationship was found between the FIX variable and the ROA of small-scale banks at the 10% significance level (Table 4). This relationship is very weak compared to that in large-scale banks. Therefore, although fixed assets, which do not have interest income, are an important income source for loans, an increase in their share in the balance sheet negatively affects the profitability of large-scale banks (Lee, 2013; Demirgüç-Kunt & Huizinga, 1999).

NPL ratio is negatively correlated with ROA and ROE of large-scale banks at a significance level of 0.1% (Table 3 and Table 5). Higher NPL will require banks to allocate more resources for loan loss provisions and will result in lower returns on assets by increasing the bank cost (Nguyen, 2020). On the other hand, a statistically significant and positive relationship was found between the ROA of small-scale banks and NPL ratio at the 1% significance level (Table 4). This situation may arise from the loan interest rates applied by small banks (Madugu, 2020). Thus, high credit risk increases the profitability of small-scale banks while decreasing the profitability of large-scale banks.

LIQ ratio has a negative impact on ROE on large-scale banks at significance level of 5% (Table 5). The study results of Molyneux & Thorton (1992) and Dizgil (2017) revealed a negative relationship between liquidity ratio and profitability. LIQ has no significant relation with the profitability of small-

scale banks (Table 4 and Table 6). Therefore, large-scale banks' excessive liquid asset holding may adversely affect their profitability.

While NIM and NII ratios have no impact on the profitability of large-scale banks, there is a strong positive relationship between the said variables and the ROA and ROE of small-scale banks, at 1% and 5% significance level respectively. The positive relationship was also found in the Nguyen (2020) study. Hence, as the operational efficiency of small-scale banks increases, their profitability also increases.

There is a weak positive relationship between LOGA variable and ROE of small-scale banks at the 10% significance level (Table 6). On the other hand, this variable has no impact on the ROA of small-scale banks and on the ROA and ROE of large-scale banks. This result shows that small-scale banks benefit from the advantages arising from economies of scale (Pasiouras & Kosmidou, 2007).

No significant relation was found between the GDP variable and the profitability of large-scale banks (Table 3 and Table 5). However, GDP is negatively correlated with ROA and ROE of small-scale banks at the 5% and 10% significance level respectively (Table 4 and Table 6). Almaqtari et al. (2018) and Alharbi (2017) also found a similar negative relationship in their studies.

6. CONCLUSION

This paper aims to explore the bank-specific and macroeconomic determinants of the banks' profitability by dividing the Turkish deposit banks into large-scale and small-scale entities. The study used the fixed effects panel quarterly data from March 2009 to September 2020 for 24 deposit banks, which have complete data for this period. The asset median size was calculated and the banks above the median value were classified as large-scale banks and the remaining banks were considered as small-scale banks.

The results show that the determinants of profitability differ between large-scale and small-scale banks. Regarding the impact of bank-specific determinants, while the profitability indicators of large-scale banks are positively related to capital/assets and deposits/assets ratios, these variables have no impact on the profitability of small-scale banks. Furthermore, in large-scale banks, loans/assets and non-performing loans/total loans ratios have a negative impact on both profitability indicators, and there is a negative impact of liquidity ratio on ROE. On the other hand, in small-scale banks, non-performing loans have a positive impact on ROA and loans to assets and liquidity ratio have no impact on both profitability indicators. Another finding of this study is that the ratio of fixed assets to total assets is more effective on the profitability indicators of large-scale banks than small-scale banks and there is a negative relationship. While the ratios of net interest income to total assets and net non-interest income to total assets have no impact on the profitability of large-scale banks, it is observed that they have a positive and strong impact on the profitability of small-scale banks. Regarding the macroeconomic determinants, the results revealed that GDP growth rate has no impact on the

profitability of large-scale banks, whereas it has a negative and significant impact on the profitability of small-scale banks.

The findings of this study have important contributions to the literature by analysing the determinants of Turkish deposit banks' profitability under the classification of large-scale and small-scale banks. The results of this study are considered to be beneficial for bankers, regulators, analysts and academics.

Although this study covers most of the deposit banks operating in Turkey and takes into consideration the most important bank-specific and macroeconomic determinants of profitability, there are some limitations due to data constraints. Including additional aspects, such as off-balance sheet transactions, interest rate and currency risks into the analysis will help to better understand the determinants of bank profitability. In addition, it may be efficient and important in understanding bank profitability to integrate certain information about board members into the work, such as education and experience. Therefore, it is thought that the effects of these variables can form a basis for future studies.

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Environmental Sustainability and Sports: An Evaluation of Sports-Induced Adverse Effects on the Environment

Ahmet ATALAY

Ardahan University, School of Physical Education and Sport.

ABSTRACT

The United Nations Sustainable Development Goals are grouped under three main titles; economic development, environmental sustainability, and improvement of social well-being. Environmental sustainability is one of the most important components of sustainable development goals because it is obvious that without a sustainable environment, economic and social development goals will be abandoned. While the unplanned use of the environment and natural resources threatens environmental sustainability, it can be said that one of the most important actors in this process is sports. Mass production and consumption, facility-establishment, and increase in organizations in sports accelerate environmental and natural destruction. The sustainability of sports is directly proportional to environmental sustainability. Therefore, reduction of the sports-induced negative environmental impacts will make great contributions to environmental sustainability. In this way, it will be possible to transfer both the natural environment and sports to future generations. This study was limited to environmental sustainability, which is one of the three main titles set for sustainable development goals and the effects of sports on environmental sustainability were evaluated in the light of available literature. Again, regarding the existing literature, suggestions were developed to reduce the negative environmental impacts of sports.

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**Corresponding author:*
ahmetatalay@ardahan.edu.tr
Dr. Ahmet ATALAY

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1. INTRODUCTION

1.1. Sustainable Development Goals Environmental Sustainability and Sports

Sustainable Development Goals (SDGs) were put into practice by the United Nations (UN) in September 2015 due to the increasing urgency for sustainable development (SD) on a global scale (Kanapathy, et al. 2019). Composed of seventeen goals, the SDGs are the basic components of a sustainable world goal in every field from poverty to food, health, energy, soil, air and fresh water needs. The SD processes of societies are gathered under three main titles by the UN. These are economic development, environmental sustainability (ES), and improvement of social well-being. All world societies aim at a combination and harmony of economic development, ES and social welfare (Sachs, 2012). People and societies are at the center of sustainable development goals because the need to set these goals has emerged as a result of human behavior. While the economic consumption process exceeds the natural

resource stock, the negative environmental effects have become evident and the social welfare balance in the access of societies to natural resources has been disrupted.

Environmental sustainability is one of the most important components of sustainable development goals. Unlimited needs of humans consume limited natural resources day by day, and the harmful gases emitted during this consumption process have devastating effects on the environment. Therefore, the conservation of the environment and natural resources and their transfer to future generations are the problems that humanity needs to find a solution to. It is obvious that without a sustainable environment, economic and social development goals will be abandoned. It can be said that the industrialization process puts the sustainable world goal at risk with its negative effects on the environment. Since the necessary measures have not been taken, the production, consumption and transportation processes in all sectors come to the fore with their negative effects on the environment. In fact, one of these sectors is sports, which is also industrialized.

Sports events, organizations and facility-establishment steps have negative environmental effects. It can be said that mass participation in sports organizations accelerates the consumption process of environmental and natural resources. During the facility-establishment process, unplanned construction, the use of chemicals that will cause soil and water pollution, and carbon dioxide and greenhouse gas emissions due to high energy consumption threaten environmental sustainability goals.

This study was limited to environmental sustainability, which is one of the three main titles set for sustainable development goals. In addition, the effects of sports on environmental sustainability were evaluated in the light of available literature. While the unplanned use of the environment and natural resources threatens environmental sustainability, it can be said that one of the most important actors in this process is sports. Mass production and consumption, facility-establishment, and increase in organizations in sports accelerate environmental and natural destruction. Therefore, the environmental effects of sports activities and organizations have been understood in recent years, and the studies conducted on this subject have increased qualitatively and quantitatively (Mallen et al. 2010).

1.2. Sustainable Development

Sustainable Development (SD) is defined as the realization of the development required by today's needs in a way that does not eliminate the ability to meet the needs of future generations (Triantafillidis, 2018). Sustainable development, which is based on not consuming global resources while ensuring the development of today's societies and transferring these resources to future generations, not only aims at the present development but also includes the construction of a sustainable future. Rogers et al. (2008: 23) states that the concept of sustainable development has been popular for more than 30 years and has been an important topic of discussion in recent years. At the center of sustainable development are the protection of the natural environment and the quality of life of humanity, while increasing the level of economic growth and welfare (Özmehmet, 2008).

The World Commission on Environment and Development (WCED) has had the understanding of sustainable development accepted and spread widely and has comprehensively discussed sustainable development with its report titled "Our Common Future" (Saraç & Alptekin, 2017). Rogers et al. (2008), on the other hand, states based on the WCED report that sustainable development includes three sub-headings, which are economic, social and ecological. They explain the relationship of these subheadings with sustainable development as follows:

- Economic: Increasing revenues while maintaining the capital stock (natural resources).
- Social: Ensuring the continuity of social and cultural systems.
- Ecological: Preserving and maintaining the biological and environmental system (Rogers et al., 2008: 23)

Specific to the economic subheading, first, individual and social expectations and needs are expected to be met efficiently. Economic conditions should support individual conditions and focus on the interests of present and future generations (Ergün & Çobanoğlu, 2012). Rogers et al. (2008:63) mention the three main components of the economic subheading, which are production, consumption and distribution. The main goal of sustainable development is that these three components meet the needs of people by protecting the environmental balance and natural resources without exceeding the resource stock.

Specific to the social subheading, one of the basic conditions for talking about sustainable development is to see economic progress in the social field, too (Ergün & Çobanoğlu, 2012). Equal and balanced access to natural resources by people all over the world without any discrimination can be considered as the most important element of the development of societies.

In the ecological (environmental) subheading, on the other hand, prevention of environmental pollution, reduction of greenhouse gas emissions, preservation of ecological balance, energy and resource efficiency (Triantafyllidis, 2018) emerges as the priority of a sustainable world. Besides, protecting the environment and natural resources and transferring them to future generations is one of the priorities of humanity. That is because, although human needs are unlimited, it is obvious that natural resources are limited and consumed rapidly.

To achieve sustainable development goals throughout the world, the three sub-headings in question should be handled together and complement each other. While increasing economic welfare, protecting the environment and natural resources, and establishing social balances equally and fairly stand out as the basic conditions of the development process. Sustainable development in general and the operationalization of the three sub-headings in particular and the construction of the desired future can be achieved with the determined principles. Sustainable development principles were compiled by Saraç and Alptekin (2017) and presented in the table below:

Table 1: Sustainable Development Principles

Economic	While ensuring economic development and progress, not to consume unsubstituted resources, not to harm

	the natural environment, and to ensure social justice and equality on a global scale.
Social	Equal access to existing natural resources by all humanity, to transfer these resources to future generations while today's societies benefit from these resources.
Ecological (Environmental)	To reduce carbon dioxide and greenhouse gas emissions, to reduce emissions that will harm the atmosphere, to reduce the actions that will pollute soil, water, and air in a planned way.

Source: Saraç and Alptekin (2017).

The United Nations (UN) is working with all countries to provide a sustainable environment for both humanity and the world and to transfer this to future generations. Based on this purpose, the UN determines sustainable development goals under 17 titles and puts into effect separate action plans for each title. The UN sustainable development goals are presented in the table below:

Table 2: The United Nations Sustainable Development Goals

No Poverty	Zero Hunger	Good Health and Well-Being	Quality Education	Gender Equality
Clean Water and Sanitation	Affordable and Clean Energy	Decent Work and Economic Growth	Industry Innovation and Infrastructure	Reduced Inequalities
Responsible Cınsumption and Production	Sustainable Cities and Communities	Climate Action	Life Below Water	Life On Land
Peace Justice and Strong Institutions			Partnership For The Goals	

Source: https://www.tr.undp.org/content/turkey/tr/home/sustainable-development-goals.html

The 17 goals mentioned above are built on the achievements of the "Millennium Development Goals" and include priority areas such as climate change, economic inequalities, innovation, responsible consumption, peace and justice (https://www.tr.undp.org/content/turkey/tr/home/sustainable-development-goals.html). It is also known these issues are discussed in the United Nations' "Transforming Our World: the 2030 Agenda for Sustainable Development" and emergency action plans that are critical for humanity and the planet for the next 15 years have been planned (Bebbington & Unerman, 2018).

1.3. Environmental Sustainability

The problem of meeting unlimited needs with limited resources is an area of economics studies (Önder & Ağca, 2018). However, it can be said that this problem has ceased to be a problem that only concerns the economic field, and has become one of the main problems of environmental science. That is because while the limited resources of the world are being exhausted, it is inadequate to handle this process

within a purely economic framework, and the arising problems make the negative effects on the environment more pronounced. Today, the effort to meet unlimited needs has revealed the concept of environmental sustainability and has become the main cause of many environmental problems, especially climate change.

Environmental sustainability has been defined in the Bruntland Report of the United Nations as the protection and inheritance of the natural environment for/to present and future generations. It became an international concept that became effective with the Kyoto Protocol signed in 1997 (World Economic and Social Survey, 2015). On the other hand, environmental sustainability is considered as leaving vital products and services such as food and nutrition and a clean and livable world to the next generations, and the availability of today's natural resources equally in all societies (Fantana & Ferruci, 2014). Environmental sustainability can be considered an important problem for both today's humanity and future generations. As stated above, the equal and balanced use of existing natural resources and transfer of these resources to the future are at the center of the understanding of environmental sustainability. Therefore, the protection of the environment and natural balance, and the balanced processing of limited resources can be accepted as the basic condition of a livable world. For this, Morelli (2011) stated that more importance should be attached to the understanding of environmental sustainability for the continuity of nature and its transfer to future generations. For this purpose, he proposed 5 main principles supporting environmental sustainability. These principles are presented in the table below (Morelli, 2011).

Table 3: Principles Supporting Environmental Sustainability

Social Needs	• Not to produce anything that will cause the next generations to act prudently, • To design products and services that will contribute to a sustainable economy, • To support the local workforce, • To support fair competition, • To consider environmental sustainability a necessity for new products and services.
Protection of Biodiversity	• To select natural resources that protect biodiversity, • To use environmentally friendly and sustainable energy resources, • To improve energy efficiency.
Improvement Capacity	• To increase renewable resource input in production, • To increase renewable resource substitution
Reuse and Recycling	• To develop reuse and recycling designs, • To reduce emissions and wastes to zero in production and work processes and to develop designs for this.

Non-Renewable Resource and Waste Restriction	• To establish the best transportation system and infrastructure in terms of environmental damage, • To keep emissions from waste at an acceptable level, • To develop criteria for low-impact transportation systems, • To develop an approach that considers environmental effects in all production processes.

Environmental sustainability has become one of the primary problems of modern societies. Today's technology, construction and modernization movements are on the agenda with their facilitating effects on human life on one hand, and their negative environmental effects, on the other. Mann et al. (2017) state that while carbon dioxide emissions due to human activities cause the natural environment and resources to deteriorate, climate scientists try to draw attention to this situation. It can be said that negative environmental effects occur in all individual and social actions and activities. All vital actions from plastic bottles and materials to fossil fuels used, from individual and public transportation vehicles to huge production facilities, cause great damage to the environment where life exists. As a result of all these vital processes, the fact that energy resources begin to be depleted rapidly on a global scale, and thus the problems related to the environment increase makes ecology and energy problems a current issue (Civan, 2006: 1).

In recent years, environmental sustainability and climate change issues have become a public debate in all societies (Mallen & Chard, 2011). That is because climate change and the deteriorating environmental tissue accordingly, are the leading common and fundamental problems of humanity. While Klein (2011:159) states that climate-change brings along global warming, adding that this situation has many negative effects on the planet. In fact, today's societies are faced with an unprecedented environmental change (IPCC, 2007) and the most important thing this change tells societies is that the resources of the world are not unlimited (Diamond, 2005: 497). This is a serious warning in terms of understanding the importance of the concept of environmental sustainability. This negative change and transformation in the environment necessitate urgent solutions (Fraj-Andres et al. 2009: 268), and it is stated that the most important solution in this process is the radical and fundamental changes in the attitude towards the environment (Senge et al. 2008: 59). We live in a period where there is a dominant culture of production and consumption. The consequences of this dominant culture cause the world to become more exhausted and pose an important threat to the sustainability of the planet (Şenocak & Bursalı, 2018).

There is an important relationship between the behaviors of people and the changes in the environment (Balteanu and Dogaru, 2011: 1). Therefore, all the behaviors that people exhibit in the environment they live in are actually the main cause of environmental problems (Keleş, 2015: 134). The rise of production and consumption societies, where the future is not well planned, resources are consumed as if they are unlimited, and that will harm the natural balance causes the fall of the world we live in. Continuous and

unplanned consumption of limited resources brings along many negative environmental consequences, especially climate change.

With the industrialization process and technological development, the negative and destructive effect of people on the environment increases. In addition, urbanization and population growth in parallel with industrialization accelerate environmental problems (Menteşe, 2017). Unal and Bağcı (2017) state that the carbon footprint should be reduced on a global scale against these environmental problems, which are a major threat to both the present and future. Carbon footprint is a general concept used for environmental pollution caused by individuals, institutions, enterprises, and organizations, and carbon dioxide and greenhouse gas emissions into the atmosphere (Executive Summary: Turkey's Ecological Footprint Report, 2007). For environmental sustainability, it is essential to reduce the carbon footprint on a global scale, both individually and socially. It can be said that it is one of the primary goals of humanity for a more livable world and to hand down this world to future generations. It would be appropriate to give an example in the scale of Turkey to further understand the importance of the concept of carbon footprint. It takes 2 years to substitute for the natural resources consumed and compensate the carbon dioxide emitted in Turkey in a year. The carbon dioxide emissions in Turkey are also almost twice the existing biodiversity (Executive Summary: Turkey's Ecological Footprint Report, 2007). Turkey's ecological carbon footprint report data show that the existing natural resources in Turkey are consumed two times faster and the environmental adverse effects continue destructively.

1.4. Aim of This Study

Even though environmental sustainability had previously been discussed in the context of the Olympics (Lenskyj, 1998), a decade passed before more depth and diversity in empirically derived publications on environmental sustainability made an appearance. The aim of this research is to reveal the concepts of environmental sustainability and sports in the light of current literature. It also evaluates the negative environmental effects of sports.

1.5. Method

In a traditional systematic review and meta-analysis, the best available evidence is sought, systematically identified, critically appraised and synthesized, in order to try answer some clinical or research question (Murad, et. al., 2014). Systematic reviews and meta-analyses are also increasingly being used in the context of research programs, in which they form the first step and are used to identify and highlight uncertainties and unanswered research areas where additional knowledge is warranted (Scoglio & Fichera, 2014)..In this research, a systematic review and meta-analysis was conducted and reported, based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) statement.

Research was carried out between January-March 2021 covered literature ranging from 2000 to 2020. In this context, some keywords are used, these; “Sustainability development”, “environmental sustainability”, “sports and environmental sustainability”, “sports facilities”. Keywords for research

criteria were selected after analyzing the purpose of the study and brainstorming with peers to explain this search. The use of multiple searches using multiple search terms, different combinations of search terms and search term synonyms also improves the effectiveness of an electronic literature search. (Bown & Sutton, 2010). Good quality systematic reviews necessitate good quality literature searches, and accurate reporting of these searches. Searching of single databases will only identify a maximum of one third of all relevant articles and searching multiple databases still only identifies half of all available articles. (McManus, et. al., 1998)We started a high-level search using common best-fit words that reveal a large number of sources. Each of the above keywords were applied to the different databases. These databases: Scopus, EBSCO, Researchgate, Academia, Google Scholar, and Web of Science. The necessary literature was accessed and classified through these databases.

2. ENVIRONMENTAL SUSTAINABILITY and SPORTS

2.1. Environment and Sports

Sport can be considered as a global phenomenon with its physical, spiritual, social, cultural and economic effects in individual and social terms. Today, there is almost no one who does not have sports experience at any stage of his/her life (Tekin & Karakuş, 2018). It can be said that everyone participates in sports actively or passively and has a sportive experience (Bester et al.2015).

Sport is one of the rapidly growing sectors in the economic and commercial climate of the modern world (Akşar, 2006: 54). The primary goal of sports, which has become a unique sector, is customer satisfaction. Depending on the service quality, customer satisfaction is the primary goal of the sports industry (Chelladurai & Chang, 2000; Kyle et al. 2004). Today, building healthy individuals and strong societies can be associated with the sports industry. Meeting the increasing demand effectively and creating the expected benefit and satisfaction in this process can be considered as a part of industrialization. However, mass attention such as service diversity and meeting the intense demand constantly nurtures and strengthens the industrial side of sports.

In the process, the economic volume of sports has grown. The number of public and private sector representatives providing sports services has increased. Accordingly, the ratio of facility building has increased and the events and organizations organized have been enriched in terms of quality and quantity. Supply and demand balance has been created and increasing demand diversity has been met. However, with these mutual developments in sports, negative outcomes have begun to be discovered gradually. Especially the damage caused by facility building and sports events and organizations to the environment and natural resources has been frequently discussed in recent years. The environmental effects of sports-induced carbon dioxide and greenhouse gas emissions have begun to be evaluated in theory and practice. The adverse effects of sports on the environment have become so widespread that global organizations such as the United Nations and the International Olympic Committee, in particular, point out that the necessary measures should be taken and emergency action plans should be prepared in this regard.

Increasing environmental concerns have also been linked to sports over time. That is because the negative environmental effects caused by sports have become evident and it has become an area where precautions should be taken for. The relationship between sports and environmental awareness emerged in 1994 when the United Nations Environment Program and the International Olympic Committee began working together to reduce the environmental impacts of the Olympic and Paralympic games (Kellison & Hang, 2015). Today, interest in the environment is now at the center of management debates in large sports organizations. Environmental sustainability is accepted in these discussions (Ciletti et al. 2010). Paquette et al. (2011), who draw attention to the strengthening of the relationship between sports and the environment, state that the International Olympic Committee included environmental sustainability in the Olympic ground. Therefore, environmental sustainability has become important not only for recreational and health sports activities but also for professional organizations (Lokimidis, 2008). After these important and serious steps of the International Olympic Committee, organizations in other branches started to develop environmental sustainability strategies (Wicker, 2009). For example, sports clubs, which are one of the important actors in the sports system, consider the environmental sensitivity of their members to a large extent when creating environmental sustainability strategies (Steg & Vlek, 2009).

Environmental problems and climate change are accepted as bad problems on a global scale, and especially the actors in sports should be included in the solution to this problem (Winn et al. 2011). It can be accepted that the sports sector is responsible for the pollution of the environment and the consumption of natural resources due to both the facility building and organizations held. Steffen et al. (2015) state that the main factor that causes climate change by disrupting the natural balance is human behaviors. At the center of sport is the human. Intense mobility, mass participation, and the facility-establishment steps to meet these participations reveal the relationship between sports and environmental effects.

Any sports facility meeting the qualifications for an international organization directly contributes to the brand recognition of the host city or country (Hu et al.2016). Therefore, Ünal and Bağcı (2017) state that one of the qualifications required for facilities today is compliance with environmental sustainability. That is because the International Olympic Committee takes the relationship between sports and the environment very seriously. For this reason, it has implemented a series of criteria below to reduce the negative environmental impacts of any organization. These criteria are listed as follows:

- Conservation of biological diversity,
- Conservation of the ecosystem,
- Correct land use and landscape studies,
- Prevention of pollution (soil, air, water),
- Resource and waste management
- Health and safety measures,

- Reduction of environmental disturbances,
- Protection of cultural heritage (IOC, Manuel on Sport and The Environment, 2009).

Policymakers are increasingly interested in the wider consequences of major sporting events, including their environmental impacts (Collins & Flynn, 2008). For example, The 2012 London Olympics were declared as an environmentally friendly Olympics and have provided a direction for sustainable development that the world must follow. The environment has emerged as one of the most significant issues of global social policy, as reflected in the initial IOC's response to environmental policy statements (Duck Kim, 2013). The International Olympic Committee expects the host countries to fulfill the abovementioned criteria for the environmental sustainability goals in sports to be achieved. These criteria are required for hosting because large-scale sports organizations cause alarming environmental effects for host cities or countries (McCool, 2015: 228). In fact, Triantafyllidis et al. (2018) states that even the city infrastructures of host countries have negative environmental impacts.

The literature reveals the relationship between sport and the environment. Sports-induced negative environmental impacts can be considered as an important part of the big problem for a sustainable world. In line with the United Nations Sustainable Development Goals, it is necessary to reduce the effects of human behavior on the environment and nature. These effects are also quite intense in sports where people are at the center. There are many negative environmental consequences, especially climate change, that threaten the natural balance in sports. In this context, the question of what are the adverse effects of sports on the environment should be handled sensitively both in theory and in practice.

2.2. Sports-induced Adverse Environmental Impacts

The International Olympic Committee has gathered the adverse effects of sports on the environment under two main headings. These are negative effects caused by sports organizations and building facilities. Adverse environmental impacts arise from production, consumption, transportation and accommodation due to organizations. It is reported that air, water and soil pollution, carbon dioxide and greenhouse gas emissions resulting from the energy use of new and existing facilities occur due to facility establishment (IOC, Manuel on Sport and The Environment, 2009).

The Protection Foundation (ACF), which divides sports into three categories according to their damage levels:

- Sports that are largely ecologically sustainable but can still be developed in some way;
- sports that are largely ecologically sustainable but can be significantly improved in sustainability as their core activities are not unsustainable in nature;
- sports that are not ecologically sustainable or significantly more sustainable due to the nature of their core activities (Dingle, 2009).

Consumption of fossil fuel energy obtained from oil, coal, and natural gas causes greenhouse gas emissions, which cause air pollution (Chard & Mallen, 2013). Major sports events consume considerable

amounts of electricity, much of which is produced by burning fossil fuels, such as coal and oil‖ (Schmidt, 2006). Electricity produced from fossil resources such as coal and oil is used in major and large sports organizations (Global Environment Outlook 4, 2007). Why are fossil fuels and their environmental effects important specific to sports? For example, an international sports organization such as the FIFA World Cup causes consumption of 3 million kilowatt-hours of electricity produced from fossil fuels, which is equivalent to the annual electricity need of 700 households (Schmidt, 2006). The environmental impacts of the electricity consumed in a one-month organization can be quite devastating. Especially in football, the excessive energy consumption, a significant amount of water use, and the fact that it results in negative environmental consequences that cause high pollution are worrisome (Collins et al. 2007). Ünal and Bağcı (2017) state that due to the unplanned consumption of natural resources, the ecological footprint within sports is growing day by day. It is necessary to detail the environmental effects of sports. While the greenhouse gas emission caused by a large sports organization held in 2005 was calculated as 210,000 tons, it was reported that the athletes in the organization caused a total of 60,000 tons of emission (Ahmed & Pretorious, 2010). Again, it was reported that nearly 70 thousand tons of waste was generated due to a sports organization and only 1% of these were recyclable (Thibault, 2009). These reported numerical data are considered to be high compared to the UN environmental sustainability criteria. It is also stated that air pollution, especially as a result of these environmental effects, seriously affects vital functions (Environmental Governance Update - October 2020).

The extensiveness of facilities is very important in the popularity, marketing and consumption of sports. Increasing active and passive participation and obtaining the expected benefit from sports is possible with the existence of facilities. Sports facilities contribute to the area where they are built in terms of architecture and aesthetics. On the other hand, it is an important risk factor for environmental sustainability goals due to the environmental problems it causes (Barghchi et al.2010). For example, it is known that the ecosystem is severely damaged due to the wastewater used for artificial snow production on a ski run (Schmidt, 2006). Besides, the destruction of the natural vegetation and habitat during the construction of a golf course brings enormous negativities for the ecological balance (Thibault, 2009). It is, of course, possible to increase these examples. Balcı and Koçak conducted a comprehensive literature review on the environmental impact of sports facilities. In their research, they revealed in detail the negative effects of sports facilities in some branches on the natural environment. The negative effects of sports facilities on the environment by branches are presented in the table below (Balcı & Koçak, 2014):

Table 4: Negative Effects of Sports Facilities on the Environment

Branches	**Environmental Effects**
Golf	• Use of fertile land (agricultural land, natural habitat, etc.) • Destruction of natural vegetation and deforestation • High water consumption

	• Soil and water pollution caused by the use of unsuitable pesticides and fertilizers • Soil and water pollution due to fuels and chemicals • Disturbance of habitat • Noise from the use of ground maintenance vehicles
Skiing	• Destruction of natural vegetation • Deterioration of the integrity of and thinning of the forests under protection • Soil compaction • Chemical pollution in soil caused by fuel leaks • Landslides, soil erosion, avalanches • Use of forest land for infrastructure and superstructure works (parking lots, roads, hotels, etc.) • Generation of solid waste • Noise pollution • Deterioration of wildlife
Swimming	• High water consumption • Use of harmful chemicals • High energy consumption
Ice Sports	• High energy consumption for ice-cooling and heating processes • The release of liquid wastes that cause carbon emissions damaging the ozone layer into nature • High water consumption • Water and soil pollution from pesticide use • Water and soil pollution from the use of chemicals and the fuels of ground maintenance vehicles
Football	• Soil pollution • Noise from the use of ground maintenance vehicles • High energy use for lighting • Noise pollution • Air pollution from spectator vehicles • Environmental pollution caused by fossil fuels • Environmental pollution caused by waste on match days
Car Races	• Destruction of natural habitats for the construction of racecourses • Damage to flora and fauna due to the destruction of forest areas • High energy use for lighting • Energy consumption of support services used in the realization of the races • Air pollution caused by harmful gas emissions • Noise pollution

	• Opening new areas for parking lots
Recreational Areas (Large parks, natural and artificial lakes, amusement parks and aqua parks)	• Noise pollution • Destruction of natural vegetation • Damage to habitat • Air pollution from burning fossil fuels • High energy use for operating machines in amusement parks • Generation of solid waste • High energy and water consumption in water parks

Resource: Balcı and Koçak (2014**)**

A closer look at the table above reveals that sports facilities cause air, water, and land use, threaten the ecological system, and natural resources are consumed in an unplanned manner. It is observed that soil fertility and wildlife are put at risk due to the use of chemicals in the facilities. Besides, it is predicted that the atmosphere may be adversely affected by greenhouse gas emissions due to high energy use. Mallen and Chard (2011), while drawing attention to the destructive environmental impacts caused by sports facilities, list the general environmental problems caused as follows:

- Sound and lighting pollution,
- Consumption of non-renewable resources,
- Consumption of natural resources,
- Electricity- and fuel-induced greenhouse gas emissions,
- Soil, air and water pollution,
- Soil erosion,
- Waste consumption (Mallen & Chard, 2011).

There is a need to shift to practices that support environmental sustainability (ES) or the safeguarding of the natural environment (Mallen & Chard, 2011). One of the main actors in the realization of environmental sustainability goals is sports. It can be said that the current literature agrees on the negative environmental impacts of sports organizations and facilities. The behaviors of the people taking part in organizations cause harm to the environment and nature. Again, it can be stated that there is no environmentally friendly approach in mass behaviors related to production, consumption, transportation and accommodation in these organizations. In facilities, carbon dioxide and greenhouse gas emissions, especially from fossil fuels, threaten the environment and natural resources.

3. CONCLUSION and RECOMMENDATIONS

The sport industry has a tremendous impact on the natural environment just like any other industry. According to recent estimates, the four major sport leagues in North America contribute 35,000 metric tons of carbon emissions on an annual basis while others estimate one league's (NHL) total greenhouse emissions at 550,000 metric tons (Hulac & Cusick, 2014).

The landscape of sport organizations has changed dramatically over the past years. The trend is for organizations to increasingly implement more and expand on current environmental initiatives. This

focus on the environment will continue to be on the agenda of various sport organizations not only because of shift in social values, but also because of new expectations from a variety of stakeholders Sustainable efforts allow sport organizations to reduce the ecological footprint of sport and the associated activities. (Trendafilova, et. al, 2014).

The sports industry is one of the most important actors in global environmental pollution. To take this dangerous process under control, strategic management skills and new policies must be developed in sports (Triantafyllidis, 2018), because environmental threats are increasing due to the intense interest in sports worldwide. Mann et al. (2017) state that human activities are the basis of the disruption of natural balance, while Dosumu et al. (2017) state that people participating in sports generate large amounts of carbon dioxide emissions. Particularly, the global interest and demand for sports increase these environmental effects day by day, reaching a level that will disrupt the natural balance.

In addition to sports organizations, the environmental effects of sports facilities can also hamper the goals of a sustainable world. Fossil-fuel-based energy consumption, tools and chemicals used in the facilities pollute the soil and water resources. Again, carbon dioxide and greenhouse gas emissions due to energy use also cause air pollution. Sport clubs should make environmentally friendly investments that contribute to the clubs' environmental quality. Investing in environmentally friendly devices like green electricity or solar cells does not only reduce costs in the long-term, but might also encourage members to behave environmentally friendly. Lastly, clubs should promote the usage of public transportation or car sharing opportunities. (Thormann and Wicker, 2020). For this, partnerships with local stakeholders can help bridge the gap between a club's small resource base and its pro-environmental ambitions (McCullough, 2018).

Sport facilities are operated by sport organization personnel at all levels of sport and have an environmental impact. In the end, it is important to note that all aspects of sport have a link with the natural environment. While sport personnel can take action to address adverse environmental issues, they cannot do everything (Porter and Reinhardt 2007). Sport is one of the most important phenomena in the modern world. It is a social institution that will reach future generations with its social, cultural and economic existence. However, the sustainability of sports is directly proportional to environmental sustainability. It has been noted that sustainability principles have been applied to the design of sport facilities over the last several decades (Erten & Özfiliz, 2006), and that sport facility managers have the discretion to participate in leading advances in environmental sustainability (Mallen & Chard, 2012). Also sport organizations are facing an increasing number of calls to reduce negative impacts of their facilities and events on the natural environment (Kellison et. al., 2015).

Therefore, reduction of the sports-induced negative environmental impacts will make great contributions to environmental sustainability. In this way, it will be possible to transfer both the natural environment and sports to future generations. In this context, the measures to be taken by and recommendations for sports facilities and organizations to create a sustainable environment can be listed as follows:

- Instead of using fossil-fuel-based energy resources in sports facilities, consumption of renewable energy should be encouraged,
- Consequently, carbon dioxide and greenhouse gas emissions can be restricted,
- Chemicals and clean water resources used in facilities can be limited,
- Ecological balance can be taken into account in the construction of facilities,
- Measures to protect biodiversity can be taken,
- The stakeholders of sports can be encouraged to save natural resources,
- Active and passive sports participants can be informed about the consumption of the environment and natural resources,
- Sound and light pollution can be prevented during events,
- Consumption of products suitable for recycling can be encouraged.

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Impact on Inclusive Development of Information and Communication Technologies in Turkey

Huriye Gonca DİLER[a*]

[a] Department of Economics, Faculty of Economics and Administrative Sciences, Afyon Kocatepe University, Afyonkarahisar,

ABSTRACT

In this study, the impact on inclusive development of information and communication technologies in Turkey's economy is analyzed. Information and communication technologies are represented by mobile phone penetration measured by mobile cellular subscriptions, and inclusive development is measured by the human development index (IHDI) adapted to inequality. The annual data used in this study covers the period 1990-2019. After examining the stationarity of the series of variables, the cointegration between variables was investigated using the ARDL approach. As a result of the ARDL test, a cointegration between inclusive development and information and communication technologies has been determined. Toda-Yamamoto causality test was conducted to find the direction of the relationship between variables. The findings obtained from the analysis of causality determined that it has an impact on inclusive development of information and communication technologies in Turkey.

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1. INTRODUCTION

Inclusive development promotes gender development in terms of poverty reduction, enhancement of human capital (education, healthcare), health, welfare and participation in social development for women, and social development to reduce the risks and vulnerabilities associated with age, disease, disability, natural disasters, economic crises and civil conflicts has emerged as a strategy for equity and empowerment based on participatory decision-making that provides protection and community-based social capital development (Rauniyar & Kanbur, 2010).

Information and communication technologies are pervasive and are used in the global economy to increase productivity, growth, innovation, efficiency, and competitiveness. E-commerce plays an effective role in improving human life through e-governance, e-health, e-education, electricity distribution over smart grids, shortening production needs and travel time (Ngwenyama et al., 2006); (ITU, 2015). 34% of the population in developing countries has access to the internet, whereas this rate is 80% in developed countries. The gap between ICT trends in developed and developing countries is decreasing. This indicates the rising trend of adoption and popularization of ICT in developing economies.

Despite the introduction of ICT and the implementation of new strategies to improve the socio-economic conditions of the masses, poverty is leading to specific development and unsustainability in many developing regions such as South Asia and Sub-Saharan Africa. Globally, people live on less than $ 1.90 a day, and many adults are still illiterate. The majority of the impoverished population lives in developing countries such as Nigeria, Congo, Tanzania, Ethiopia, Madagascar, India, China, Indonesia, Bangladesh, and Pakistan.

The correlation between ICT and economic growth in developing countries is positive. It is noticed that there is an incessant rise in the infrastructure of information and communication technologies (Das et al., 2016). ICT has direct, indirect, and reflection effects on the environment. Direct effects are related to e-waste and products of information and communication technologies and are generally adverse. Indirect effects are a favourable situation, which is associated with increased productivity, induction of smart grids, dematerialization, substitutes for travel, and sustainable development. Reflection effect refers to the process from dematerialization to re-materialization depending on the increase in demand and transportation cost of ICT (Plepys, 2002).

Information and communication technologies (ICT), energy consumption, climate change, and rising trends in sustainable development are becoming important areas of interest. Within this context, it is crucial to investigate the impact of information and communication technologies on the inclusive development of Turkey's economy. Investigation of an innovation, which may arise by testing the role of ICT on the energy-economic growth relationship through data of Turkey's economy, forms the primary aim of the study. In our study, firstly, the relevant literature was reviewed. After the data and method are presented, the results of the conducted analyses are discussed. In the conclusion section, policy recommendations appropriate to the subject of the study are listed.

2. LITERATURE REVIEW

A strong debate continues among economists on the issues of energy consumption, environmental degradation, the relation of causality between information and communication technologies, and inclusive development. The literature review demonstrates that the relevant variables have not been discussed in a single study.

Moyer & Hughes (2012) investigated the dynamic effects of information and communication technologies on interactive global systems, including the carbon emissions caused by economies and energy systems. They used data from 183 countries to conduct empirical analysis through an assessment system integrated with International Financial Systems (IFS). In the study, three separate relationships of information and communication technologies with efficiency, energy efficiency, and renewable energy production have been investigated. It has been concluded that information and communication technologies have an impact on reducing CO2 emissions, yet this impact is limited and not significant in the short run.

Zhang & Liu (2014) investigated the impact of information and communication technologies on CO2 emissions using the panel data set of 29 provinces in China for the period between 2000 to 2010.

CO2 emissions are calculated based on the IPAT framework, which was developed by the Intergovernmental Panel on Climate Change (IPCC) (2014). The IPAT model was used for empirical estimates. The results indicate that information and communication technologies helped in reducing CO2 emissions in China. It has been revealed that the impact of information and communication technologies on CO2 emissions is stronger in the central region compared to the eastern region.

Higón et al. (2017) examined the nonlinear relationship between ICT and CO2 emissions globally. Unbalanced panel data of 142 countries were used for the period between 1995 and 2010. The results revealed the existence of an inverted U-shaped relationship between ICT and CO2 emissions. It has been suggested that ICT could be used as a tool in reducing CO2 emissions when infrastructure reaches a certain threshold level of development in both developed and developing countries.

There is also limited literature on the relationship between ICT, environmental sustainability, energy consumption, economic growth, and inclusive development. Ngwenyama et al. (2006) analyzed the relationship between increased investment in ICT, education, health, and human development index in five West African countries. A stepwise regression analysis was performed on the data from 1997 to 2003. The results have demonstrated that ICT is crucial in investing in education and health, as it increases the pace of development. Tamazian & Rao (2010) investigated the association between economic development, financial development, institutional quality, and environmental quality using the standard reduced-form modeling approach in 24 countries for the period between 1993 and 2004. Heterogeneity was determined using the random effects specification, and the potential endogeneity of variables was controlled via the generalized method of moments (GMM). The findings suggest that financial liberalization must go hand in hand with good institutional quality to avoid the detrimental effects on environmental quality.

Sassi & Goaied (2013) investigated the impact of ICT and financial development on economic growth using cross-sectional data of 17 MENA countries spanning the period between 1960 and 2009. For the estimation of the dynamic panel model, the system GMM was conducted. Internet, mobile phone, telephone, information, and communication technologies import have been used as representative variables for ICT diffusion. The results state that financial development would only benefit the MENA countries if the development of ICT reaches the threshold level calculated by marginal effects, which is defined as the change in economic growth due to the change in the spread of ICT.

Wang (2015) investigated the effects of ICT on productivity growth using an unbalanced panel data set for 17 OECD countries. In the study, ICT capital stock is divided into three categories namely, communication equipment, information and technology equipment related to telecommunications demand, and personal computer penetration rate. The empirical model is based on the expansion of the foundations suggested by Roller & Waverman (2001). The results show that these three categories have a positive and significant impact on productivity growth. The study concluded that productivity

growth could be increased if resources are channeled to increase the ICT capital stock. The widespread use of ICT could also account for the labor productivity gap between developed and developing countries by increasing labor productivity in OECD countries.

Asongu & Nwachukwu (2016) investigated the impact of governance on mobile phone penetration for inclusive development based on a data set of 49 countries in sub-Saharan Africa from 2000 and 2012 via fixed effects, GMM, and Tobit regression estimations. It has been determined that the prevalence of mobile phones has a positive correlation with inclusive development. It has been found that economic and corporate governance has a significant impact on inclusive development and its impact is higher in the case of economic governance compared to corporate governance. The impact of political governance on inclusive development is insignificant. In the case of fixed-effect regression, there is no synergy effect between governance, mobile phones, and inclusive development. But, it was determined to be significant in the case of the GMM and Tobit regression estimations.

Das et al. (2016) investigated the joint impacts of ICT and financial development on per capita income growth between 2000 and 2014 in 46 developing countries. Three hypotheses are analyzed using the GMM in the estimation of behavioral equations. The results have verified the first hypothesis that ICT affects economic growth in all developing countries positively. But, financial development has not affected economic growth itself. It has been revealed that the joint impacts of ICT and financial development on economic growth vary at different income levels. Moreover, the results show that the joint impact of ICT and financial development is significant in a positive direction for low-income countries, whereas it is insignificant for low-middle-income countries.

Salahuddin & Gow (2016) predicted the impacts of internet usage, financial development, and trade openness on economic growth in South Africa for the period spanning 1991 to 2013. ARDL cointegration test was used to determine the long-run correlation between variables. The long-run correlation between variables was determined to be positive and significant. But, the short-run correlation was found to be insignificant. The findings suggest that the government should pursue investment policies that will expand education and skills not only in internet infrastructure but also in internet use on the demand side.

Alderete (2017) analyzed the role of ICT on socioeconomic development using the structural equation model based on data from 163 developed and developing countries for 2013. The model centered on the causal relationship between access to ICT and socio-economic development. The results show that building more skills and abilities in the use of ICT will increase digital access and productivity levels that will be used to develop new business opportunities.

Asongu et al., (2017a, b) investigated the impact of ICT on the inclusive development of sub-Saharan Africa through CO2 emissions. It has been suggested that ICT can be determined as a policy variable to reduce CO2 emissions, increase human development and achieve a sustainable environment. Based on the data set from 2000 to 2012, Asongu & Le Roux (2017) investigated whether the development in ICT improves inclusive human development using a sample of 49

countries from the sub-Saharan African region. To perform an experimental analysis via instrumental variable Tobit regression, limited dependent variable (HDI) range and concurrency problem were discussed. The unobserved heterogeneity was calculated by splitting the data set into key characteristics of human development. The results have demonstrated that to enhance the level of inclusive development, policies need to be designed to increase investment in ICT penetration.

Mbarek & Zghidi (2017) analyzed the dynamic relationship of ICT with the environment, transport energy, and economic growth in Tunisia. They determined a bi-directional causality between CO2 emissions and transport energy consumption in the short and long run. This study also has revealed that ICT does not make a significant contribution to the reduction of greenhouse gas emissions in Tunisia.

Mirza et al. (2020) investigated the impact of ICT, carbon dioxide emissions, and energy consumption on inclusive development in 81 developing countries for the period between 2010 and 2014. The two-stage system GMM was used to estimate these dynamic relationships between variables in conditional and unconditional models. The results indicate that ICT, which is associated with CO2 emissions per capita, positively affects inclusive development in an unconditional decline. When ICT complements the CO2 concentration, it positively affects the inclusive development in mobile and internet-oriented regressions. It has also been determined that the relationship between ICT and CO2 emissions from liquid and fuel consumption, as well as CO2 emissions from heat and electricity production, reveal the decline in inclusive human development.

Upon reviewing the literature, no study investigating the relationship between ICT and inclusive development particularly in Turkey's economy has been detected. Thus, our study would make a considerable contribution to both domestic and foreign literature. In our study, we tried to determine the innovation that may arise by testing the role of ICT in inclusive development with the data of Turkey's economy.

3. DATA

Time series data of Turkey's economy, which spans the period from 1990 to 2019 was used to perform the analysis. Data were collected from World Development Indicators (WDI) and United Nations Development Program (UNDP). The inequality-adjusted human development index (IHDI) was used to measure inclusive development. The IHDI is an expanded human development index that lowers the value of all dimensions of the HDI (long and healthy life, access to knowledge, and a decent standard of living) from the level of inequality. Information and communication technologies were measured by mobile phone subscriptions (per 100 inhabitants).

Three control variables are included in the model, namely, domestic credit, foreign direct investment, and foreign aid. These variables make a significant contribution to inclusive development. Domestic credit and foreign direct investment have a positive impact on human development by providing the financial basis for inclusive development. Generally, it is considered that foreign aid for

underdeveloped countries is not an effective tool for economic development and might have an unfavorable impact on inclusive development.

The control variables are selected on the basis of recent literature and rely on strong theoretical foundations to influence inclusive development.

Table 1: Definition of Variables

Variable	Description	Symbol	Sources
IHDI	Inclusive development measured by inequality adjusted human development index (IHDI).	lnıhdı	UNDP (World Bank)
Mobile penetration	Mobile phones penetration measured by mobile cellular subscriptions (per 100 people)	lnmp	WDI (World Bank)
Domestic Credit	Domestic credit provided by banks and by financial sector (% of GDP)	lndc	WDI (World Bank)
Official Development Assistance	Foreign aid measured by net ODA received (% of GNI)	lnoda	WDI (World Bank)
Foreign Direct Investment	FDI measured by foreign direct investment, net inflows (% of GDP)	lnfdı	WDI (World Bank)

4. METHODOLOGY

A time-series modeling approach has been employed to estimate the correlations between ICT and inclusive development. In this approach, the stationary time series is performed to investigate a relationship between the series of variables. The stationarity test analyzes whether there is a change depending on the time in a time series. A time-dependent change can be investigated by examining the mean and variance of the time series. Unit root test is required for this investigation.

$$Y_t = \alpha Y_{t-1} + \beta X_e + \epsilon \quad (1)$$

Yt is the value of the time series at time 't' and Xe is an exogenous variable.

Having a value of α=1 in equation (1) signifies that there is a unit root in the time-series. That is to say, the mean and variance are changing in the time-series and the series is not stationary. The previous time-series are subtracted from the later one to correct the change in mean and variance.

The Augmented Dickey-Fuller (ADF) unit root test is one of the most used statistical tests when it comes to analyzing the stationarity of a time-series. The ADF test is a statistical significance test. It is hypothesis testing, which involves a null (H_0) and alternative hypothesis (H_1). A test statistic is computed and the p-value is reported. It can be inferred from the test statistics and the p-value whether a time series is stationary or not.

H (0): α = 1 (There is a unit root.)

H (1): $\alpha \neq 1$ (There is no unit root.)

$$y_t = c + \beta t + \alpha y_{t-1} + \phi_1 \Delta Y_{t-1} + \phi_2 \Delta Y_{t-2} \ldots + \phi_p \Delta Y_{t-p} + e_t \quad (2)$$

When the test statistic is less than the critical value in the table, the null hypothesis is rejected and the time series is stationary. So the unit does not contain a root. If the test statistic is greater than the critical value in the table, the null hypothesis (H_0) is not rejected. Time series is non-stationary and contains unit root (Dickey & Fuller, 1981).

The ADF test does not take into account the abrupt change of a time series at one or more points in time when analyzing the stationarity in the time-series. Abrupt changes can be determinant in econometric analysis, which is made for developing countries. Such abrupt changes are termed as structural breaks. Structural breaks could involve a change in mean or a change in other parameters of the process that generate the series, and structural break tests are needed to detect it. For this purpose, the Lee-Strazicich unit root test, which can detect two breaks, was used in our study.

According to Lee & Strazicich (2003), who proposed an endogenous double-fractured Lagrange Multiplier (LM) unit root test, which is not affected by structural breaks under the null hypothesis, rejecting the null hypothesis (H_0) does not mean rejecting the unit root per se. But, the unit root is rejected without breaking. The alternative hypothesis (H_1) does not imply trend stationary with breaks either. Yet it indicates a unit root with breaks. This signifies that the alternative to the null hypothesis (H_0) does not need to be non-stationary with structural break.

For the LM unit root test; $y_t = \delta Z_t + e_t e_t = \beta e_{t-1} + \varepsilon_t$ (1) the regression equation is used. Z_t represents the vector of exogenous variables, while ε_t represents residues with the properties of *iid N* ($0, \sigma^2$).

To conduct the unit root test with one time-break at level, Modal A is established by replacing Z_t with $[1, t, D_t]'$ in the equation (1), where dummy variable is 1 when, D_t, $t \geq T_B$ $is + 1$ and it is 0 in other conditions. T_B is break time.

To conduct unit root test with two-break at level, the Model AA is established by replacing Z_t with $[1, t, D_t, \mathrm{DT_t}]'$ in the equation, where dummy variable is 1 when D_{jt}, j = 1, 2 for $t \geq T_{Bj}$ +1 and it is 0 in other conditions.

Model C, which allows a one-time-break at the level and slope, is established by replacing Z_t with $[1, t, D_t, \mathrm{D_t}]'$ in the equation, where dummy variable is $t - T_B$ when $\mathrm{DT_t}$, $t \geq T_B$ is +1 it is 0 in other conditions.

Model CC, which allows two-time breaks in constant term and trend, is established by replacing Z_t with $[1, t, D_{1t}, \mathrm{D_{2t}}, \mathrm{DT_{1t}}, \mathrm{DT_{2t}}]'$ in the equation, where the dummy variable is $t - T_{Bj}$ when DT_{jt}, $t \geq T_{Bj}$ is + 1, for j = 1, 2 and it is 0 in other conditions.

Data generation is ($\beta = 1$) under the null hypothesis (H_0) with break, and is $\beta < 1$ for the alternative hypothesis (H_1). The LM unit root test statistic evolves to the form of $\Delta y_t = \delta' \Delta Z_t + \phi \tilde{S}_{t-1} + u_t$.

The *t* statistic, which tests the LM unit root null hypothesis (H_0), is calculated by $\tilde{\tau}$. Break times are the points where the following $\tilde{\tau}$ test statistic is minimum.

$LM_\tau = inf_\lambda \tilde{\tau}(\lambda)$ *T* observations T_{Bj} break point for *j* = 1, 2, $\lambda_j = {}^{T}/_{T_{Bj}}$

The structural breakpoint of the trimming region is specified as (0.15 * T - 0.85 * T). Critical values for the one-time-break LM unit root test are obtained from Lee & Strazicich (2004), and critical values for the two-breaks LM unit root test are obtained from Lee & Strazicich (2003). If the calculated test statistic is greater than the critical value, the unit root null hypothesis with structural break is not accepted.

In the study, cointegration and causality analysis must be performed, respectively, to investigate the relationship between variables, following unit root analysis. Based on the results obtained from unit root analysis, it was decided to conduct the ARDL test to investigate cointegration. ARDL test is a model used to test the concept of cointegration, which suggests that at least two series that are non-stationary at their level have a stationary combination. It is possible to apply the test on the condition that the dependent variable is I (1) and the independent variables are I (0), regardless of whether the variables to be used in the model are stationary at the level I (0) or the first difference is stationary I (1). As the critical values of the test are tabulated according to the variables being I (0) and I (1), the variables need to be tested against the possibility of being stationary I (2) in the second difference. In the second difference, the ARDL model cannot be applied to stationary variables.

As the unconstrained error correction model is used in the ARDL test, it has better statistical features than the Engle-Granger test and gives more reliable results in small samples compared to the Johansen and Engle-Granger tests. The ARDL model is estimated as follows according to the dependent variable Y and independent variables.

$$\Delta Y_t = a_0 + \sum_{i=1}^{m} a_{1i} \Delta Y_{t-i} + \sum_{i=0}^{m} a_{2i} \Delta M_{t-i} + \sum_{i=0}^{m} a_{3i} \Delta E_{t-i} + a_4 Y_{t-1} + a_5 M_{t-1} + a_6 E_{t-1} + u_t \quad (3)$$

In the implementation of the ARDL test, optimal lags are determined primarily by using the Akaike (AIC), Schwarz (SIC), and Hannan-Quinn (HQ) information criteria. The F-statistic is computed using the optimal lags.

H0:θ1=θ2=0 (There is no cointegration.)

Hα:θ1≠θ2≠0 (There is cointegration.)

F statistics > F table upper bound; H0:θ1=θ2=0 is rejected and it is concluded that there is cointegration.

F statistics < F table lower bound; H0:θ1=θ2=0 is accepted and it is concluded that there is no cointegration.

F table lower bound < F statistics < F table upper limit; unstable region

If the H0 hypothesis is rejected and it is concluded that there is cointegration, the ARDL Long-Run and Short-Run Model interpretations are made, with the following predicted equations (Pesaran & Shin, 1995); (Pesaran et al., 2001).

$$\mathrm{Y}_t = a_0 + \sum_{i=1}^{m} a_{1i}\mathrm{Y}_{t-i} + \sum_{i=0}^{m} a_{2i}\mathrm{M}_{t-i} + \sum_{i=0}^{m} a_{3i}\mathrm{E}_{t-i} + u_t \quad (4)$$

Long Term Model Estimation

$$\Delta\mathrm{Y}_t = a_0 + \sum_{i=1}^{m} a_{2i}\Delta\mathrm{Y}_{t-i} + \sum_{i=0}^{m} a_{3i}\Delta\mathrm{M}_{t-i} + \sum_{i=0}^{m} a_{4i}\Delta\mathrm{E}_{t-i} + a_1 EC_{t-1} + u_t \quad (5)$$

Short Term Error Correction Model

The one-term lagged value of EC (-1) or CointEq (-1) of the residues obtained from the long-run relationship between the dependent variable and the independent variables in the Error Correction Model must be negative and statistically significant on the condition that the probe value is less than 0.05. EC (-1) shows how long shocks that occur in the short-run due to independent variables will stabilize in the long run (Pesaran & Shin, 1995); (Pesaran et al., 2001).

The stationary tests of dependent and independent variables and control variables in the study demonstrated that the most appropriate causality analysis in examining the direction of the relationship between variables was the Toda-Yamamoto causality test.

Toda-Yamamoto (1995) developed a method based on the estimation of the augmented VAR model (k+dmax) using the optimum time lag (k) in the VAR model and the maximum integrated degree dmax on the VAR variables to examine the Granger causality analysis. In this method, firstly a degree of integration is determined for each series. If the degree of integration is different, the maximum (dmax) is obtained.

VAR model is established at the levels of the series independent of the degree of determined integration. The (k) degree of the VAR model is identified based on the length of the lag obtained from the AIC, SC, HQ criteria. It is tested whether "VAR (k + dmax)" is specified correctly. If the series have the same degree of integration, the cointegration test is performed using the Johansen methodology, and if not then it is performed using the approach of Pesaran et al. (2001). Regardless of the result of the cointegration test, the causality test continues. The Granger causality test is conducted using binary equations and the modified Wald test (MWald) to determine the significance of parameters in the equations examined in time lags (k + dmax). The modified Wald test (MWald) follows the Chi-square ($\chi 2$) distribution asymptotically and the degrees of freedom are equal to the number of degrees of lag (k + dmax) (Toda & Yamamoto, 1995).

Rejecting the null hypothesis entails the rejection of Granger causality. Finally, one checks whether there is cointegration in the VAR model. If two or more series are cointegrated then there is a unidirectional or bidirectional causality. If there is no cointegrated situation, there is no causality.

5. EMPIRICAL EVIDENCE AND ESTIMATION OF THE MODEL

To predict the relationships between ICT and inclusive development, the stationarity test of the basic and control variables was performed with the Augmented Dickey-Fuller (ADF) test, which is the conventional unit root test, and the Lee-Strazicich (LM) unit root test, which takes structural breaks into account.

5. 1. ADF Unit Root Test Findings

The unit root test results of the series of ICT and inclusive development, which are the basic variables of the study, together with domestic credit, foreign aid, and foreign direct investment series, which are control variables, are presented in Table 2.

Table 2: ADF Unit Root Test Findings

Variables	ADF		Results
	Trend-Intercept Level Value	Trend-Intercept 1st Difference Value	
Lnıhdı	-2.695876 (0.2472)	-3.666687 (0.0433)	I (1)
Lnmp	-7.814665 (0.0000)	-	I (0)
Lndc	-2.423653 (0.3592)	-4.259448 (0.0116)	I (1)
Lnoda	-3.589216 (0.0423)	-	I (0)
Lnfdı	-2.690013 (0.2475)	-6.019852 (0.0002)	I (1)

According to Table 2, the variables lnıhdı, lndc, and lnfdı are stationary, that is to say it is I(1), at the 1st difference value of trend-intercept. The variables lnmp and lnoda are stationary, that is to say it is I(0), at the trend-intercept level. Based on the results of the ADF test, it was concluded that the basic variables of the study, the lnıhdı and lnmp series, were not stationary at the same level.

5. 2. Lee - Strazicich Unit Root Test Results with Structural Break

The findings of the basic and control variables of the LM unit root test investigating two break are shown in Table 3.

Table 3: Two Break LM Unit Root Test Findings

	lnıhdı Model AA	lnmp Model AA	lndc Model AA	lnoda Model AA	lnfdı Model AA	lnıhdı Model CC	lnmp Model CC	lndc Model CC	lnoda Model CC	lnfdı Model CC
Test Statistics	-4.1936	-2.8119	-2.4874	-3.2614	-4.3378	-9.4874	-13.196	-8.4278	-8.5158	-8.6741
Lag Length	6	5	4	8	1	5	7	8	6	5
Date of Breaking	2009 2012	2005 2007	2000 2007	2010 2016	2000 2003	2002 2011	2002 2006	2003 2006	2005 2010	2000 2004
Critical Values (%1)	-4.0730	-4.0730	-4.0730	-4.0730	-4.0730	-7.0040	-6.7500	-6.7500	-6.8210	-6.7500

The test statistic calculated in Model AA of the basic independent variable lnmp in Table 3 is less than 5% critical value. But, the test statistic of lnmp calculated in Model CC is greater than 5%. In this case, the unit root null hypothesis with LM two-break is not rejected. The calculated test statistics of the dependent variable lnıhdı are absolutely greater than the 5% critical value. In this case, it means rejecting the unit root without structural break, as the unit root null hypothesis with structural break cannot be accepted. The lnıhdı series is difference-stationary with breaks. It was revealed as a result of the LM unit root test that the variable lnmp is I(0) and the variable lnıhdı is I(1).

5. 3. ARDL Test Findings

The results of the ADF and LM unit root tests with structural break prevent conventional cointegration tests to investigate the relationship between variables. The conventional cointegration tests suggest that the variables must be stationary at the same level. On the other hand, the ARDL test is applied to the stationary states of the variables in the level and 1st difference, unlike conventional cointegration tests. Furthermore, to be able to apply the ARDL test, the dependent variable must be at their first difference, that is to say at I(1), while the independent variable must be stationary at the level. This requirement is met, particularly based on the basic variables of the study and the ADF test results of the lnoda variable. ADF test results of the other control variables, lnfdı and lndc series, are not suitable for ARDL testing. In the study, as a result of meeting the basic variables in a joint cointegration test, a different cointegration test was not applied for the other two control variables.

To analyze whether there is a cointegration relationship between the series with the ARDL test, an unconstrained error correction model must be established primarily. The unrestricted error correction model for the study is as follows:

Δlnıhdı$=\beta_0 + \sum_{i=1}^{m} \beta_{1i} \Delta lnıhdı_{ti} + \sum_{i=0}^{m} \beta_{2i} \Delta lnmp_{ti} + \sum_{i=0}^{m} \beta_{3i} \Delta lnoda_{ti} + \beta_5 lnıhdı_{ti} + \beta_6 lnmp_{ti} + \beta_7 lnoda_{ti} + u_t$

m is the maximum lag length, Δ is the difference operator. The maximum lag length (m) in the study was determined as 3 based on the selection criteria AIC, SC, and HQ information criteria and is reported in Table 4.

Table 4: Determination of Maximum Lag Length for lnıhdı and lnmp Variables

Lag	AIC	SC	HQ
0	2.556345	2.701510	2.598147
1	-3.676885	-3.096225*	-3.509675
2	-3.242254	-2.226099	-2.949638
3	-4.029891*	-2.578241	-3.611869*

* It expresses the maximum lag length where AIC and HQ values are relatively minimum and there is no autocorrelation problem.

The cointegration relationship based on the ARDL test for the variables of lnıhdı, lnmp, and lnoda with different stationary levels in the study is presented in Table 5. When Table 5 is examined, one

can notice that the computed F statistic is greater than the upper limit critical value of the table. Hence, it has been revealed that there is a cointegration relationship between the dependent variable lnıhdı and the basic and control independent variables lnmp and lnoda.

Table 5: Findings of Cointegration Relationship According to ARDL Test

Number of Independent Variables (k)	F Statistic	%10 Critical Values at Significance Level	
		Lower Limit I(0)	Upper Limit I(1)
2	4.238129	3.17	4.14

Given that there was a cointegration relationship between the series, the phase of investigating long-run and short-run relationships was started. The ARDL (3,0,0) model of the lnıhdı variable was estimated with 3 lagged values of lnmp and lnoda variables. The determination of the long-run relationship was conducted within the framework of the model presented below.

$$lnıhdı_t = \varphi_0 + \sum_{i=1}^{m} \varphi_{1i} lnıhdı_{t-i} + \sum_{i=0}^{n} \varphi_{2i} lnmp_{t-i} + \sum_{i=0}^{p} \varphi_{3i} lnoda_{t-i} + \varepsilon_t$$

The results of the estimated model are shown in Table 6.

Table 6: Estimated Findings of the ARDL (3,0,0) Model

Variable	Coefficient	Prob.
D(DLNIHDI(-1))	0.270290	0.3541
D(DLNIHDI(-2))	0.420268	0.0517
C	0.021813	0.1839
LNINT(-1)	0.000517	0.8472
LNODA(-1)	0.000695	0.8693
DLNIHDI(-1)	-1.175410	0.0020

The long-run coefficients of the estimated ARDL (3,0,0) model are presented in Table 7. The long-run coefficients of the model have expected signs but are not significant.

Table 7: Long-Term Estimated Coefficients of the ARDL (3,0,0) Model

Variable	Coefficient	Prob.
LNINT	-0.000172	0.9495
LNODA	0.003040	0.4236
C	0.025983	0.1024

Table 8: Findings Showing the Short-Term Relationship of ARDL (3,0,0) Error Correction Model

Variable	Coefficient	Prob.
D(DLNIHDI(-1))	0.281629	0.3270
D(DLNIHDI(-2))	0.439999	0.0403

D(LNINT)	-0.000204	0.9494
D(LNODA)	0.003601	0.4157
CointEq(-1)	-1.184369	0.0016

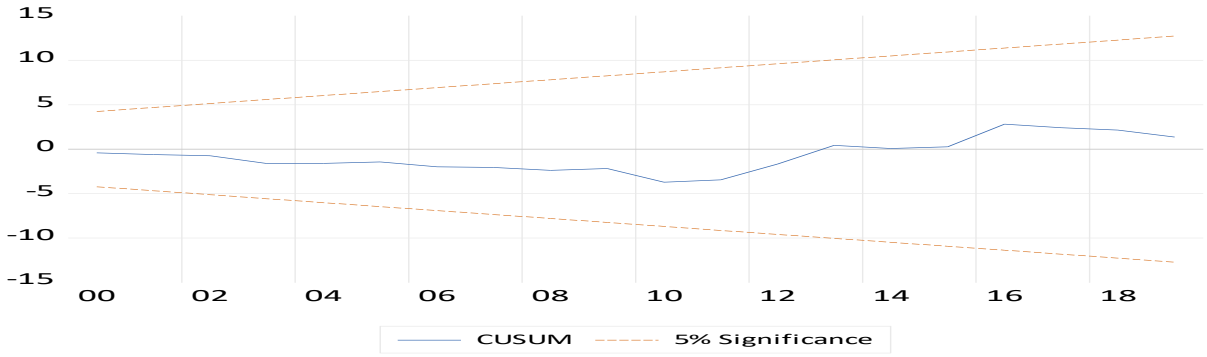
ECM_{t-1} The fact that the lagged expected value has a negative sign and is significant, one has to consider how much of any deviation from the balance in the examined period can be compensated in the future. The error correction coefficient in the model was determined to be -1.1844. The sign of this value is negative and the error correction coefficient is significant, as the P-probability value is less than 5%. Thus, 1.1844% of a deviation that would occur in the short run could be corrected in the long run.

Based on the results showing the short-run relationship of the ARDL (3,0,0) model in Table 8, the error correction model can be established as follows:

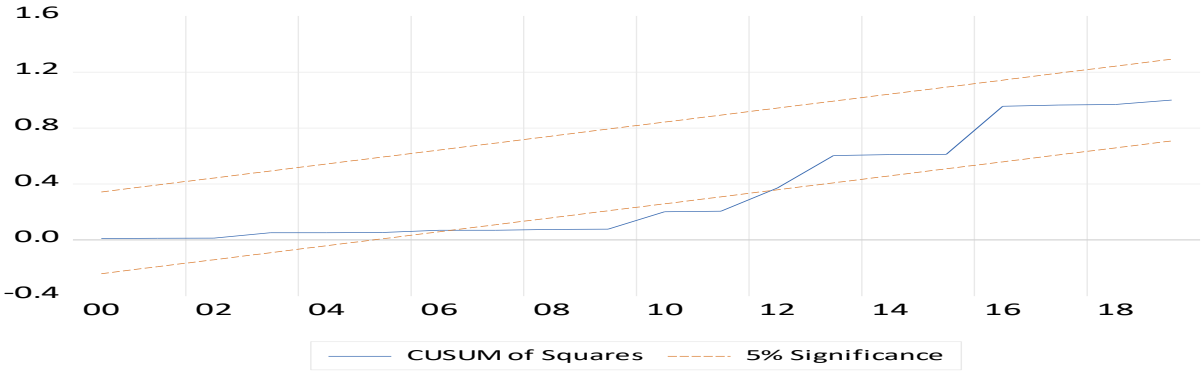
-1.1844 = dlnıhdı - (-0.0002*lnmp + 0.0030*lnoda + 0.0260)

Besides, while examining the stability of the long-run values of the variables, the short-run values should also be considered. For this purpose, CUSUM and CUSUMQ tests were also used in analyzing the stability of the long-run coefficients, which have been used in the computation of error correction term, based on the short-run values. These tests are shown in Graph 1 and Graph 2.

Grafik 1. CUSUM Test



Grafik 2. CUSUM Q Test



When the graph of the CUSUM test is examined, it is seen that the long-run coefficients used in the formation of the error term of the short-run dynamics of the variables are within the limits indicating the 5% significance level. It is concluded that the long-run coefficients of the variables lnıhdı, lnmp, and lnoda are stable as of the period discussed in the study.

But, in the graph of the CUSUM Q test, it is seen that there is a deviation from stability in the period between the third quarter of 2006 and the third quarter of 2012. This deviation is due to the assessments that can be described as international reflections of the domestic developments in the country. The fact that the effects of the 2007-2012 global financial crisis emerged in this period, such as, the high inflation rates, an unemployment rate that did not fall below 10%, and the current account deficit/GDP ratio that could not be reduced to below 5% and remained unstable, can be considered as signs of deviation from stability.

5. 4. Toda-Yamamoto Causality Test Findings

The variables in the study were stationary at different levels as a result of the stationarity tests and the dependent variable was determined as I (1), thus requiring the Toda-Yamamoto causality analysis. In the Toda-Yamamoto causality test, the standard VAR model was first established by using the level values of the lnıhdı, lnmp, and lnoda data. When establishing the VAR model, the AIC, SB, and HQ information criteria were taken into account in the selection of the lag length. Since the information criteria show 1 lag, the lag length of the standard VAR model is also 1. Table 9 shows the maximum lag length determined, based on the information criteria.

Table 9: Determining the Maximum Lag Length for to the lnhddi and lnmp Variables

Lag	AIC	SC	HQ
0	8.209989	8.449958	8.281344
1	-1.157997	0.281822*	-0.729863*
2	-0.326923	2.312745	0.457989
3	-1.317828*	2.521689	-0.176138

After determining the maximum lag length, the standard VAR model is established by using the level values of the series of variables.

$lnıhdı_t = \beta_0 + \beta_{lnmp} lnmp + \mu_i$

$\partial lnmp_t$ / $ln\square hd\square$ > 0 ; ICT affect inclusive development.

$\partial lnmp_t$ / $ln\square hd\square$ < 0 ; ICT don't affect inclusive development.

and

$\partial ln\square hd\square_t / lnmp > 0$; inclusive development affects ICT.

$\partial ln\square hd\square_t / lnmp < 0$; inclusive development don't affects ICT.

In the next step, the degree of integration (dmax) is 1, as lnıhdı i is (1) and lnmp is (0). Hence, the lag length is determined as 2 by adding the degree of integration (dmax) to the standard VAR model. The new VAR model was estimated by the Seemingly Unrelated Regression (SUR) method by changing the lag length. The SUR method was preferred because it takes into consideration the heteroskedasticity (changing variance) in the error terms of the equations for the causality analysis estimated in the model estimation part as well as the correlation between the error terms (autocorrelation).

Table 10: Toda-Yamamoto Causality Test Findings

Dependent variable	**MWald Test Statistics**		**Causality Direction**
	lnıhdı	lnmp	
lnıhdı	–	7.9919 (0.0184)	lnmp ⟶ lnıhdı
lnmp	0.4432 (0.8012)	-	lnıhdı ↛ lnmp

* Statistics given in the table are χ^2 values. Values in parentheses are P-probability values.

Toda-Yamamoto causality analysis results of lnıhdı and lnmp variables are presented in Table 10. The values in Table 10 show the relationship between inclusive development and ICT variables in Turkey. According to the Toda-Yamamoto causality analysis, causality has emerged from the independent variable of ICT to the dependent variable of inclusive development. Based on these results, inclusive development in Turkey is affected by the control variables of ICT, foreign direct investment, foreign aid, and domestic credit.

Our findings are also similar to the studies of Wang (2015), Alderete (2017), and Asongu & Le Roux (2017), which demonstrated that ICT could be used as a significant variable to enhance human development. Our study supports the theory in the literature that inclusive development depends on ICT.

CONCLUSION

The study analyzed the impact of information and communication technologies on the inclusive development of Turkey's economy. Information and communication technologies were represented by mobile phone penetration, which is measured by mobile phone subscriptions. ARDL approach and Toda-Yamamoto causality analysis were used to estimate the relationship between variables.

The ARDL test revealed a relationship between inclusive development and time series representing ICT. Toda-Yamamoto causality test determined the direction of this relationship between variables. Findings show that there is a causality from ICT to inclusive development. This result shows that information and communication technologies in Turkey could play a crucial role in

enhancing inclusive development. It is clear that information and communication technologies can play an important role in reducing environmental degradation primarily by controlling dematerialization and reducing transport spending, and the saved resources can be channeled to develop projects such as poverty reduction. Moreover, information and communication technologies help to expand the commercial activities by expanding the market size of a product, increasing business efficiency, and providing online communication services between the consumer and the manufacturer. ICT can help to increase the number of educated and healthy people through e-health and e-school programs in the country. Furthermore, it can improve workers' skills in the meaning of increased labor productivity. It can also be widely used to convey awareness-raising information among people and to make individuals more responsible.

Policies should be developed to promote investment in ICT. The investment should be centered on developing environmentally friendly information and communication technology equipment, increasing access to information and communication technology and use of the technology, and reducing e-waste to decrease environmental degradation. Investments that would improve skills of technology hardware production and technology infrastructure software (databases-operating systems-analytical tools, middleware, etc.) production should also be increased.

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The Relationship of BIST Sector Indices with Exchange Rate Volatility

Necmiye Serap VURUR[a*]

[a] Department of Accounting and Finance Management, School of Applied Sciences, Afyon Kocatepe University, Afyonkarahisar,

ABSTRACT

Through globalization, the increased integration in financial markets has made the relationship between exchange rate and stocks important. The study aims to model the exchange rate volatility using daily data for the period 04.01.2010-15.10.2020 and investigate the causality relationship between sector returns and exchange rate return volatility. In order to model the volatility of the exchange rate return series, the GARCH model was used to reveal the possible asymmetry feature in the series. As a result of the model applications, GARCH (2,2) was determined as the most suitable model to measure volatility modelling. Then, the Granger causality test was used to see whether there is a relationship between BIST sector return indices and exchange rate return volatility. As a result of the study, one notes that there is a uni-directional causality from the exchange rate return volatility series to the service, technology, and industrial sector indices. There is a bi-directional causality relationship between the financial sector index and the exchange rate return volatility series. It is noteworthy that the causality relationship between the BIST100 index and the exchange rate is towards the volatility of the exchange rate return series from the BIST 100 index, unlike the sector indices. According to this result, it is seen that the changes in the dollar exchange rate affect the decisions of the investors who will invest in the relevant index. The results show that in the case of Turkey, mostly traditional theories are valid.

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*serapvurur@aku.edu.tr

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1. INTRODUCTION

Exchanges act as financial intermediaries between units with fund surplus and units in need of funds. Increasing resource needs in developing countries are attempted to be met from international capital flows. In recent years, the interaction between national stock exchanges and exchange rates has increased due to increased capital flows between global financial markets.

The relationship between stock markets and the exchange rate has been explained in the literature with the traditional approach and portfolio balance approach (Tian and Ma, 2010: 491). The traditional

approach developed by Dornbusch and Fisher (1980) states that a change in the exchange rate will affect stock prices; in other words, there is a causality relationship from exchange rate to stock prices. In the Traditional Approach, the changes in exchange rates affect the enterprises' stock prices together with the international competition. According to the Traditional Approach, a one-unit increase in exchange rates will cause an increase in the exports of the relevant countries. This situation will cause the stock prices to increase along with the income of the enterprises. Therefore, it is concluded that there is a positive and significant relationship between exchange rates and stock prices as well as a causality relationship from exchange rates to stock prices. In addition, according to this theory, it is thought that a decrease in the exchange rate in the exporting countries will decrease the profitability of the enterprises and affect the stocks negatively. In importing countries, the exchange rate decrease will increase the enterprises' profits and cause the stocks to be positively affected (Obben et al., 2006: 148, Alacahan and Akarsu, 2019: 134). In the portfolio approach developed by Branson (1983), it is stated that there is a negative relationship between stock prices and exchange rate, and the causality relationship is from stock price to exchange rate. According to this view, increasing national stock prices will increase the local currency's demand, causing foreign stocks to be sold and being replaced by national stocks. This situation causes a downward pressure on the exchange rate and a decrease in its value. (Berke, 2012: 244; Abdalla and Murinde, 1997: 25). Turkey's economy has turned to liberalization since the 1980s. Due to this liberalization in financial markets, exchange rate volatility has been one of the factors affecting the real economy. Exchange rate volatilities affect the production costs and profitability of firms as well as have an impact on stock market returns. Since the US national currency, the dollar, is used as the international reserve currency, decisions taken by the US government and the US Central Bank FED also affect the economies of other underdeveloped, developing, and developing countries. Turkey's economy, through changes in the dollar rate, is among the most affected countries. For this reason, the value of the US dollar against the Turkish Lira was used as the exchange rate in the study.

The reasons for this study can be grouped under three headings:

1. First, the study will show the direction of the interaction with the exchange rate on the performance of the stock market sectors.
2. Secondly, it will ensure that the sectors on which exchange rate movements are effective will be revealed in terms of portfolio management.
3. Finally, at the end of 2017, the share of foreign exchange in Turkey was 65%, in 2018 it was 65.1%, and 61% at the end of 2019. At the end of the first month of 2020 this stood at 59.5%. Therefore, the results to be obtained will attract the attention of foreign portfolio investors who are worried about exchange rate risks.

In previous studies, the relationship between exchange rates and stock markets is not clear. Different conclusions have been reached in various countries on the subject. The aim of the study, in relation to sectors in Turkey's economy, is to investigate which of the traditional approach or portfolio balance theory is valid. This study is different from other studies in the literature in that it investigates the

exchange rate theories based on both the whole index and the sector index and by creating a volatility series for the exchange rate.

The next part of the study is organized as follows: In the second section, the relevant literature is reviewed, and the main findings are presented. In the third section, the data and methodology used in the study are explained. The fourth section gives empirical evidence of the relationship between exchange rates and sector indices in Turkey. In the conclusion part, the findings were discussed and suggestions were included.

2. LITERATURE REVIEW

This section includes empirical studies investigating the relationship between exchange rates and stock market indices of various countries. While most studies in the literature focus on the relationship using only two variables, such as exchange rate and stock prices, some studies investigate the effect of multiple real economic variables on stock returns. Considering the studies in the literature, one notes that there is no consensus on this issue.

Bahmani-Oskooee and Sohrabian (1992) found a causality relationship between US stock prices and the US dollar's effective exchange rate in the short term. Amihud (1994) and Bartov and Bohner (1994) found that changes in US dollar exchange rates explain firms' current stock returns with a delay. While Abdalla and Murinde (1997), who focused on emerging markets, found uni-directional causality from exchange rates to stock prices in Korea, Pakistan and India. The Philippines' causality relationship took place from stock prices to exchange rates. Tabak (2006) found that in Brazil, which abandoned the fixed exchange rate regime in 1999, there is a linear Granger causality with a negative correlation between stock prices and exchange rates, and this situation supports the portfolio approach. Horobet and Ilie (2007) found that a causality relationship existed before 2004 when the National Bank of Romania controlled the exchange rate. According to the study, the stock exchange adapts to changes in exchange rates after one month. Ghazali et al. (2008) analyzed the relationship between stock prices and exchange rates in Malaysia for the period between 2005 and 2007 using the Johansen cointegration method. They determined that there was no long-term equilibrium relationship between these two variables. Using the Engle-Granger and Toda-Yamamoto tests Ghazali (2018) detected a unidirectional causality between stock prices and the exchange rates. Aliyu (2009) examined the long and short-term relationship between stock prices and exchange rates in Nigeria for 2001-2008 and found a cointegration relationship. As a result of the causality tests, it was found that there is a solid bidirectional long-term relationship between these two variables. Tian and Ma (2010) demonstrated that since the Chinese exchange rate regime became flexible, there has been cointegration between the Shanghai A Stock Index and the Renminbi's US dollar and Hong Kong index. Both the exchange rate and the money supply have positively correlated with the stock price. Kutty (2010), on the other hand, found that the results of Granger causality tests in Mexico are the cause of the exchange rates of stock prices in the short term, but there

is no long-term a relationship between these two variables. In their study, Lean et al. (2011) examined the relationship between exchange rates and stock prices in eight Asian countries, found cointegration between these two variables only in Korea, and the existence of a weak uni-directional Granger causality from exchange rates to stocks. Kabir et al. (2014) tried to determine whether there is a significant relationship between stock prices and macroeconomic variables and foreign stock prices in an economy. Their study with the quarterly data of 1991-2010 found a significant relationship between Malaysian stock prices and exchange rate and foreign stock prices. Among these, the exchange rate was the most determining variable. Sharma (2016) tested the negative relationship between India's stock return and the exchange rate with correlation analysis. Akbar, Iqbal, and Noor (2019) examined the relationship between stock prices and exchange rates using monthly data from the Pakistani economy. They used the VAR model and the Bayesian VAR model as their analysis method. The findings obtained from the analysis concluded that while no long-term relationship between variables was found, negative fluctuations in the exchange rate caused a decrease in stock prices.

Some studies reveal the relationship between stocks (stock exchanges) and exchange rates in samples of various countries, regions and economies using their volatility spillover (See O'Donnell & Morales 2009; Lee et al. 2011; Walid et al. 2011; Andrikopoulos et al. 2014; Sui and Sun 2016; Sikhosana and Aye 2018;, Akdağ and Yıldırım 2019; Şenol 2020; Ozdemir 2020; Maura and Trebelsi 2020; Baranidharan and Alex 2020). O'Donnell and Morales (2009) analyzed the volatility spillover between exchange rates and stocks in the Czech Republic, Hungary, Poland, and Slovakia sample. In the study, it was seen that there was no volatility spillover effect among the sample countries, and the asymmetric spillover effect was positive from stock returns to exchange rates. In another study, Lee et al. (2011) analyzed the relationship between stock prices and exchange rates using the STCCGARCH model in their study on many Asian countries. They found that there were significant price transitions from the stock market to the foreign exchange market for Indonesia, Korea, Malaysia, Thailand and Taiwan. Walid et al. (2011) investigated the dynamic relationship between stock price volatility and exchange rate changes in Hong Kong, Singapore, Malaysia and Mexico using the Markov Regime Switching model. The study results showed that the relationship between stocks and exchange rate markets depends on their regime, and the volatility in stocks responds asymmetrically to the events in the exchange rate markets. Andrikopoulos et al. (2014) examined the volatility spillover between stocks and exchange rates in a sample of countries experiencing foreign debt crises and financial problems in the Eurozone. The results reveal a mutually asymmetric volatility spillover between exchange rate and stock markets, and they mutually affect each other. Sui and Sun (2016) investigated the relationship between exchange rates and stocks in a BRICS sample (Brazil, Russia, India, China and South Africa) and US countries. In the study, the short-run spillover effect is from exchange rate shocks to stock returns for all BRICS countries. Ozdemir (2020) and Mroua and Trabelsi (2020) found different results in the BRICS countries' sample. Ozdemir (2020) revealed a bidirectional causality relationship between the stock

index and exchange rates of BRICS-T countries, excluding Brazil and India, both symmetrically and asymmetrically. The study of Mroua and Trabelsi (2020) shows that exchange rate changes significantly impact the past and present volatility of BRICS stock indices. In addition, ARDL forecasts show that exchange rate movements significantly impact the short and long-term stock market indices of all BRICS countries. Baranidharan and Alex (2020) analyzed the exchange rate volatility spillover on the South African Stock Exchange. The study concluded that changes in exchange rates would have a low effect on the Johannesburg stock exchange returns. Akdag and Yıldırım (2019) studied the volatility spillover in Turkey samples. Their studies investigated the effect of positive and negative shocks in the dollar exchange rate on the BIST Industry and BIST Finance index. According to the Granger causality analysis result, there is bidirectional causality between variables. As a result of the Hatemi-J causality analysis, a bidirectional causality from positive and negative shocks in the dollar exchange rate to positive and negative shocks in both BIST Industry and BIST Finance indexes was determined. When Şenol (2020) used the causality test in variance, volatility spillover and the DCC GARCH method, he concluded a bi-directional relationship between Borsa İstanbul and the exchange rate.

In the literature, studies addressing the exchange rate relations with Turkey stock were investigated. Pekkaya and Bayramoğlu (2008) examined the causality relationship between variables with TRY / USD, ISE-100, and S&P 500 index data between 1990 and 2007. They found a bidirectionally Granger causality relationship between the exchange rate and the ISE 100 index. Kapusuzoglu and Ibicioglu (2010) examined the relationship between the exchange rate and the ISE National 100 Index and the direction of this relationship with daily data. In the study, as a result of the Johansen cointegration test, it was determined that there is a long-term relationship between the index and the exchange rate, and as a result of the vector error correction model, there is a negative short-term relationship between the index and the exchange rate. As a result of the Granger causality analysis, the authors determined that the exchange rate is the uni-directional Granger cause of the index. Savas and Can (2011) examined the relationship between ISE-100 and Euro-Dollar Parity, Real Effective Exchange Rate. In the study, a causality was determined from ISE 100 index towards Real Effective Exchange Rate, Euro-Dollar Parity with Granger causality test. Berke (2012) investigated the relationship between exchange rate and BIST 100 in 2002: 01 and 2012:07. In his study, he concluded that the portfolio balance approach is valid in Turkey. Ceylan and Şahin (2015) found a strong causality relationship from exchange rate to stock prices at the end of their study to examine the relationship between exchange rate and stock prices. A similar result is seen in Belen and Karamellik's (2016) studies that the exchange rate negatively affects stock prices, and the traditional approach is valid. Urkmez and Karatas (2017) found no long-term relationship between BIST and USD exchange rates. However, it has been concluded that there is a one-way Granger causality relationship between them from the exchange rate to the BIST index. Ilarslan (2018) revealed a negative relationship between exchange rates and stock market index in the short run and a positive relationship in the long run.

Some studies reveal the relationship between exchange rates and industry indices in the stock exchange. (See Ayvaz 2006; Eyupoglu and Eyupoglu 2018; Akdag and Yıldırım 2019; Kayral 2020; Ugur and Bingol (2020). Since these studies differ in terms of indices used, methods and results obtained, they will be discussed in detail. Ayvaz (2006) investigated the exchange rate relationship with the financial sector index, industry sector index and service sector indices. His study found a long-term stable relationship between the exchange rate and the National 100 index, the exchange rate and the Financial Sector Index, and the exchange rate and the industrial sector index. The study has also shown bidirectional causality between the exchange rate and other stock price indices. Kendirli and Cankaya (2016) examined the relationship between exchange rate and XBANK variables with the Johansen cointegration test and Granger causality test. As a result of the analysis, uni-directional causality from the XBANK index to the exchange rate was determined at the 10% significance level. In the study of Eyuboglu and Eyuboglu (2018), the relationship between the exchange rates of all industry indices in Borsa Istanbul was tested with the ARDL model. As a result of the analysis, a long-term relationship between the dollar exchange rate and BIST Textile, Leather, Trade, and Technology indices has been determined. Kayral (2020) examined the short and long-term relationship between the BIST city indices and the Dollar and Euro in his study. As a result of applying the ARDL limit test, a long-term relationship with other indices other than BIST Ankara and Euro has been detected. Another result obtained is that there is a positive relationship between Izmir City Index and the Euro. In the studies of Ugur and Bingol (2020), the relationship between the financial sector index, leasing and factoring index, insurance index, banking index, real estate investment trust index, holding and investment trust index and the currency basket consisting of Dollar-Euro was determined by the frequency distribution causality test. As a result of the study, a causality relationship from stocks to exchange rates was found. In the study, it was concluded that the portfolio balance approach is valid.

There are not enough studies in the literature that reveal the relationship between exchange rate volatility and sector indices. Therefore, our study will focus on the relationship between exchange rate volatility and industry returns.

3. DATA

This study investigates the effect of exchange rate volatility on BIST sector stock indices. As determined by the Central Bank of the Republic of Turkey, sector indices, service, finance, and technology industry are the main sector indices, and the overall stock market national BIST 100 Index represents the data. As the foreign exchange rate variable, the US dollar (USD) value in Turkish Lira (TL) was taken as it is heavily traded in the country. The daily data for the period 07.01.2011- 15.10.2020 were analyzed by taking their logarithm in the study. Data for the analysis of the Republic of Turkey Central Bank (www.evds2.tcmb.gov.tr) was taken. Eviews 11 package program was used in the analysis. Information about the variables included in the study is given in Table 1.

Table 1: Variables and Abbreviations Included in the Study

Variables	Abbreviation
United States Dollar Return	USDR
BIST 100 Index Return	RBIST100
BIST Industrial Index Return	RBISTIND
BIST Services Index Return	RBISTSERV
BIST Financial Index Return	RBISTFİN
BIST Technology Index Return	RBISTTEC

Source: Authors' Compilation

Graphical representation of the variables used in the study is given in figure 1.

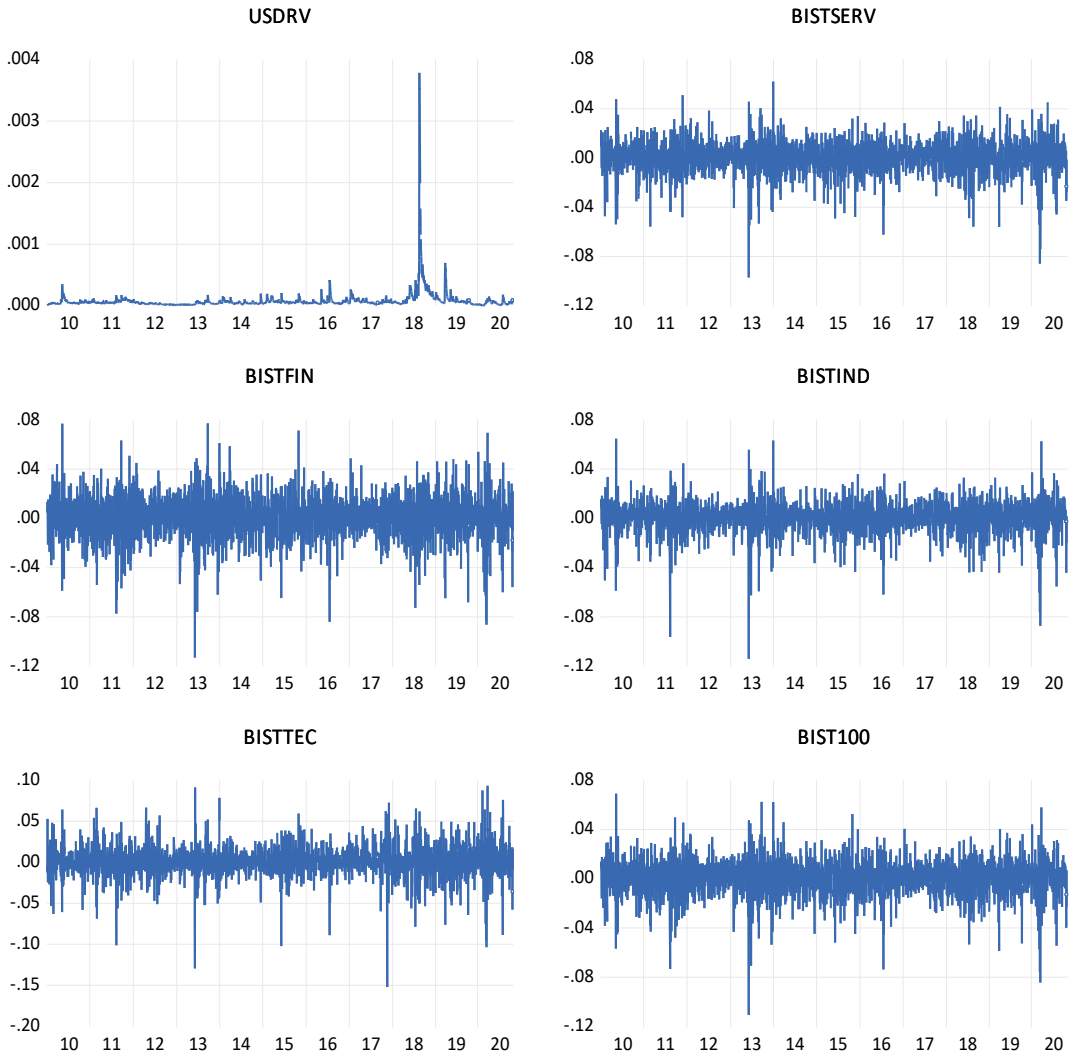

Figure 1. Series Return Change Graph

Table 2: Descriptive Statistics

	RBISTSERV	RBISTFIN	RBISTIND	RBISTTEC	RBIST100	USDR
Mean	0.000370	0.000139	0.000554	0.000887	0.000271	0.000639
Median	0.000924	0.000445	0.001400	0.001169	0.000912	0.000254
Maximum	0.062034	0.077151	0.064551	0.093636	0.068952	0.147563
Minimum	-0.096993	-0.112947	-0.114010	-0.151518	-0.110638	-0.079965

Std. Dev.	0.012755	0.017082	0.012602	0.018274	0.014333	0.008850
Skewness	-0.752626	-0.415037	-1.074211	-0.596745	-0.613038	1.796298
Kurtosis	7.413410	5.769264	10.50450	9.456235	6.938072	37.56912
Jarque-Bera	2459.787	945.4812	6893.072	4876.523	1924.446	136647.2
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	1.005677	0.377147	1.503489	2.407108	0.734449	1.733966

Source: Authors' Compilation

When the skewness, kurtosis, and JB test statistics were examined together, it was determined that all the data included in the study did not conform to the normal distribution. Correlation analysis was performed to determine the direction and degree of the relationship between variables. It means that the closer the correlation coefficient is to 1 and -1, the stronger the relationship between the variables; however, as it approaches 0, the relationship between variables gets weaker. Correlation coefficients for the series are given in Table 3.

Table 3: Correlation Between Series

	USDR	**RBISTTEC**	**RBISTIND**	**RBISTFIN**	**RBISTSERV**	**RBIST100**
USDR	1,00					
RBISTTEC	-0,031266	1,00				
RBISTIND	-0,023195	0,656966	1,00			
RBISTFİN	-0,037376	0,626384	0,807136	1,00		
RBISTSERV	-0,054910	0,596104	0,766831	0,764489	1,00	
RBIST100	-0,036641	0,669564	0,898705	0,971665	0,858523	1,00

Source: Authors' Compilation

When Table 3 is analyzed, one can see that there is a negative correlation between all sectors and exchange rates. Correlation values between exchange rate return series and industry indices are very close to each other. However, the highest correlation relationship with the exchange rate is seen in the industry sector index. Since the correlation coefficients of the sector indices are positive, it is concluded that the returns of the sector indices move together.

4. METHODOLOGY

The relationship between volatility in exchange rates and sectoral stock market index returns is investigated in the study. For this reason, the methodology regarding the Granger causality test, which examines the causality relationship between the General Autoregressive Conditional Heteroskedasticity Models used in the analysis and the series, is included.

4.1 General Autoregressive Conditional Heteroskedasticity Models

In traditional time series, the error terms of the predicted models are assumed to have constant variance. It has been observed that the error variance may change over time in econometric

models aiming to predict financial time series. In the literature, this situation is called heteroscedasticity (changing variance). Engle (1982) developed the ARCH model to better understand the dynamic nature of financial assets and predict variance that changes over time. The ARCH model leaves the constant variance assumption in traditional time series models, allowing the error term variance to change as a function of the squares of the previous period error terms. ARCH models are discussed in two main parts as linear and nonlinear.

$$R_t = \theta_t + \varepsilon_t \qquad (1)$$

$$u_t \approx N(0, h_t) \qquad (2)$$

$$h_t = \alpha_0 + \sum \alpha_i \varepsilon_{t-i}^2 \qquad (3)$$

The Linear part is the conditional mean equation (1) showing the change of dependent variable Rt over time. The nonlinear part is the conditional variance equation showing the relationship between the dependent variable conditional variance h_t and the error terms lagged values (3). The ARCH equation, while the unknown parameter vector is expressed as α, indicates past period prediction errors. The ARCH model led lag value in (3) is named with the value of (q): such as ARCH (1), ARCH (2) (Engle, 1982).

In the ARCH (p) model's empirical applications, many parameters need to be estimated because the delays can go very far back. In order to overcome this drawback, Bollerslev (1986) introduced the Generalized Autoregressive Conditional Variable Variance (GARCH) model. Unlike the ARCH model, this type of model developed by Bollerslev is a volatility model in which conditional variance depends on the lagged values of the squares of the error terms as well as their own lagged values (Johnston and Scott, 2000). The general form of this model, expressed as GARCH (p, q), is as follows (Bollerslev, 1986):

$$h_t=\alpha_0+\sum_{i=1}^{q} \alpha_i \varepsilon_{t-i}^2+\sum_{i=1}^{p} \beta_i h_{t-i} \qquad (4)$$

There are some restrictions on αi parameters in both ARCH models and GARCH models. In these models, $q<0$, $p\geq0$, $\alpha_0>0$, $\alpha_i \geq 0$ (i=1,2,3,…p) conditions must be met. In addition to these constraints, the sum of the parameters α_i and β_i must also be less than one. Providing this constraint shows that the process has a level roots structure (Engle, 2001).

4.2. Granger Causality Test

The Granger causality test is a frequently used test to investigate the cause-and-effect relationship between a variable and another variable. Causality analysis analyzes whether one

variable's delayed values can be used to describe another variable if the X variables lagged values have a significant effect on the Y variable; X is the Granger cause of Y (Granger, 1988). Granger causality test is performed with the help of the following equations (Gujarati, 2001):

$$Y_t=f(Y_{t-i},X_{t-i})=\alpha_0+\sum_{i=1}^{m}\alpha_i Y_{t-i}+\sum_{j=1}^{m}\beta_j X_{t-j}+\varepsilon_{1t} \quad (5)$$

$$X_t=f(X_{t-i},Y_{t-i})=\alpha_0+\sum_{i=1}^{m}\lambda_i X_{t-i}+\sum_{j=1}^{m}\delta_j Y_{t-j}+\varepsilon_{2t} \quad (6)$$

Here m indicates the lag length, and the error terms ε_{1t} and ε_{2t} are assumed to be white noise with zero mean and constant variance and common variances of zero. Equation (5) shows causality from X to Y, and equation (6) shows causality from Y to X. H_0 hypothesis in equation (5); If $\beta_j = 0$, X is not the cause of Y; H1 hypothesis; one notes that if $\beta_j \neq 0$, X is the cause of Y. H_0 hypothesis in equation (6); If $\delta_j = 0$, Y is not the cause of X; H1 hypothesis; If $\delta_j \neq 0$, Y is the cause of X.

5. INTERPRETING THE FINDINGS

5.1. Modeling the Volatility of the USD Return Series

In order to be able to model the volatility of the USD return index, it was first examined whether the time series is stationary or not. The stationarities of the series used in the study are tested by using Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) unit root tests to determine whether the series contain unit root or not. Unit root test results are presented in Table 4

Table 4: USD Return Series Unit Root Test Results

Series	Level	Augmented Dickey-Fuller (ADF) Testi		Philips-Perron (PP) Testi	
		Intercept	Trend Intercept	Intercept	Trend Intercept
USDR	Level	-33.55614***	-33.61735***	-47.3435***	-47.8890***
Critical Values					
%1		-3,4325	-3,9614	-3,4325	-3,9614
%5		-2,8624	-3,4114	-2,8624	-3,4114
%10		-2,5672	-3,1275	-2,5672	-3,1275

Source: Authors' Compilation

When Table 4 is examined, it reveals that the series do not have a unit root in neither the ADF technique, nor the PP technique (according to the unit root test results of the series with fixed and fixed and trending effects). Thus, it is concluded that the null hypothesis that there is a unit root in the series is rejected and that the level values of the series are stationary I (0). In order to be able to model volatility, it is necessary to examine whether the series has volatility or not. The ARCH LM test determined the presence of

volatility in the series. The ARMA structure, which are linear stationary stochastic models of the series, should be determined just before the ARCH-LM test. Schwarz Bayesian Information Criterion (SBIC) has been chosen to determine the appropriate ARMA model. 4 lag values were determined for p-value and q value to consider higher led lag values and determine the ideal result. The ARMA results are included in Table 5.

Table 5: ARMA Model Results

ARMA STRUCTURE	**USD RETURN** ARMA (0,3)			
SBIC	**LogL**	**AIC**	**BIC**	**HQ**
-6,61617	8987,99	-6,627069	-6, 616178	-6,623131

Source: Authors' Compilation

According to the ARMA election results, the ARMA structure of the dollar return series was determined as (0,3), that is, AR (0), MA (3). The ARCH LM test statistic value is calculated using the residual series obtained from the ARMA model. ARCH LM test statistics values were calculated at different led lag numbers for the USD return residual series. The results found are shown in Table 6.

Table 6: ARCH LM Test Results

	Lag coefficient	**F Statistics**	**Observation R^2**	**RESULTS**
USDR	1	324,6201***	434,4010***	There is heterosdastic.
	5	89,67279***	385,3661***	
	10	45,35222***	389,6787***	
	15	30,78017***	396,2024***	

Source: Authors' Compilation

ARCH-LM test statistics values and R^2 values of errors calculated by considering different lags are statistically significant at 1% significance level. With these results, the null hypothesis claiming that there is no variance effect is rejected. That is, it is concluded that there is an ARCH effect in the dollar return series. Volatility needs to be modeled at this stage. For the dollar return series, ARCH (p), GARCH (p, q) models, which are among the conditionally heteroskedasticity variance models, are constructed and calculations are made according to the lag lengths p: 1,2,3 and q: 1,2,3. In order to choose the most suitable model, firstly, the parameters must be meaningful, and the parameter constraint conditions must be met. The variance equation coefficients of conditionally heteroskedasticity variance models must be positively valued, and the sum of these coefficients must be less than one. The low one of the Akaike Information Criteria (AIC) and the Schwartz Bayesian Information Criteria (SBIC) and

the higher likelihood ratio (OO) of the models that fulfill the parameter criteria are selected as the most suitable model. Models with these criteria have been determined for the series and are shown in Table7.

Table 7: Most Suitable GARCH Models

Series	USDRV
Model / Parametre	GARCH (2,2)
α_0	8,44E-08***
α_1	0,175264***
α_2	-0,164219***
β_1	1,635376***
β_2	-0,647071***
γ_i	-
AIC	-6,954745
SBIC	-6,943854
OO	94,32,157

*** indicates 1%, ** indicates 5%, * indicates 10% of significance level.
Source: Authors' Compilation

The GARCH (2,2) model has been determined as the most suitable model for the dollar return series. ARCH-LM test was performed again to see whether the predicted models removed the ARCH effect in the series, and it was determined that the variance problem existing in the series was eliminated.

5.2. Granger Causality Test Results

In order to investigate the causality relationship between USD return series volatility and BIST industrial, financial, service, technology sector indices and BIST 100 index returns, it was first examined whether the time series is stationary or not. The USD volatility series obtained from the GARCH model, the BIST sector indices' stability, and the BIST 100 index were investigated using Augmented Dickey-Fuller (ADF) and the Philips Perron (PP) unit root tests. Unit root test results are presented in Table 8.

Table 8: Unit Roots Tests

Series	Level	Augmented Dickey-Fuller (ADF) Testi		Philips-Perron (PP) Testi	
		Intercept	Trend Intercept	Intercept	Trend Intercept
USDRV	Level	-10,99555***	-11,2001***	-10,22691***	-10,72135***
RBIST 100	Level	-52,6438***	-52,6344***	-52,64198***	-52,63276**
RBIST Ind.	Level	-33,89187***	-33,8866***	-50,7070***	-50,6986***
RBIST Serv.	Level	-50,9717***	-50,9666***	-51,0077***	-51,0025***
RBIST Fin.	Level	-53,3017***	-53,2933***	-53,2996***	-53,2895***

RBIST Tec	Level	-51,3397***	-51,3329***	-51,3344***	-51,3270***
Critical Values					
%1		-3,4325	-3,9614	-3,4325	-3,9614
%5		-2,8624	-3,4114	-2,8624	-3,4114
%10		-2,5672	-3,1275	-2,5672	-3,1275

*** indicates 1%, ** indicates 5%, * indicates 10% of significance level.
Source: Authors' Compilation

When Table 8 is examined, according to the unit root test results of the series with fixed and fixed and trending effects, the series do not have unit roots in both ADF and PP techniques. Thus, it was concluded that the null hypothesis that there is a unit root in the series is rejected and that the level values of the series are stable I (0). After determining the stability of the series, to investigate the causal relationship between the USDRV, BIST 100, BIST Industry, (BIST Ind.) BIST Service (BIST Serv.), BIST Financial (BIST Fin.) and BIST technology (BIST Tec.) the VAR Granger causal test was applied. In order to determine the source of causality based on the vector autoregressive (VAR) model, the following models have been estimated.

$$USDRV_t = \alpha_1 + \sum_{i=1}^{n} \beta_{1i}\ USDRV_{t-i}\ + \sum_{i=1}^{n} \gamma_{1i}\ RBIST100_{t-i}\ + \varepsilon_{1t} \qquad (7)$$

$$RBIST100_t = \alpha_2 + \sum_{i=1}^{n} \beta_{2i}\ RBIST100_{t-i}\ + \sum_{i=1}^{n} \gamma_{2i}\ USDRV_{t-i}\ + \varepsilon_{2t} \qquad (8)$$

$$USDRV_t = \alpha_3 + \sum_{i=1}^{n} \beta_{3i}\ USDRV_{t-i}\ + \sum_{i=1}^{n} \gamma_{3i}\ RBISTInd_{t-i}\ + \varepsilon_{3t} \qquad (9)$$

$$RBISTInd_t = \alpha_4 + \sum_{i=1}^{n} \beta_{4i}\ RBISTInd_{t-i}\ + \sum_{i=1}^{n} \gamma_{4i}\ USDRV_{t-i}\ + \varepsilon_{4t} \qquad (10)$$

$$USDRV_t = \alpha_5 + \sum_{i=1}^{n} \beta_{5i}\ USDRV_{t-i}\ + \sum_{i=1}^{n} \gamma_{5i}\ RBISTSERV_{t-i}\ + \varepsilon_{5t} \qquad (11)$$

$$RBISTServ_t = \alpha_6 + \sum_{i=1}^{n} \beta_{6i}\ RBISTServ_{t-i}\ + \sum_{i=1}^{n} \gamma_{6i}\ USDRV_{t-i}\ + \varepsilon_{6t} \qquad (12)$$

$$USDRV_t = \alpha_7 + \sum_{i=1}^{n} \beta_{7i}\ USDRV_{t-i}\ + \sum_{i=1}^{n} \gamma_{7i}\ RBISTFin_{t-i}\ + \varepsilon_{7t} \qquad (13)$$

$$RBISTFin_t = \alpha_8 + \sum_{i=1}^{n} \beta_{8i} \ RBISTFin_{t-i} + \sum_{i=1}^{n} \gamma_{8i} \ USDRV_{t-i} + \varepsilon_{8t} \quad (14)$$

$$USDRV_t = \alpha_9 + \sum_{i=1}^{n} \beta_{9i} \ USDRV_{t-i} + \sum_{i=1}^{n} \gamma_{7i} \ RBISTTec_{t-i} + \varepsilon_{9t} \quad (15)$$

$$RBISTTec_t = \alpha_{10} + \sum_{i=1}^{n} \beta_{10i} \ RBISTTec_{t-i} + \sum_{i=1}^{n} \gamma_{10i} \ USDRV_{t-i} + \varepsilon_{10t} \quad (16)$$

After estimating the equations, the F statistics and probability values obtained from the Walt test applied together with the independent variables' coefficients for each dependent variable are shown in Table 9.

Table 9: Granger Causality Test Results

Hypotheses	F Value	Probability	Direction of Causality
USD Return Volatility is not the Granger cause of the BIST 100 Index Return.	1,85671	0,134	USDRV ← BIST100
BIST 100 Index Return is not the Granger cause of USD Return Volatility.	2,6917	0,044**	
USD Return Volatility is not the Granger cause of the BIST Industry Index Return.	2,5517	0,054*	USDRV → BISTIND
BIST Industry Index Return is not the Granger cause of USD Return Volatility.	0,90241	0,439	
USD Return Volatility, is not Granger cause of Bıst Service Index Return	2,61978	0,049**	USDV → BISTSERV
BIST Service Index Return is not Granger cause USD Return Volatility.	7,58353	5.E-05	
USD Return Volatility is not Granger cause BIST Finance Index Return.	4,579	0,008***	USDRV ↔ BISTFIN.
BIST Finance Index Return is not Granger cause USD Return Volatility.	4,1637	0,015***	
USD Return Volatility, is not Granger cause BIST Technology Index Return.	5,0071	0,001***	USDRV → BISTTEC
BIST Technology Index Return is not Granger cause USD Return Volatility.	0,6782	0,565	

*** indicates 1%, ** indicates 5%, * indicates 10% of significance level
→ means a uni-directional causality relationship.
↔ means a bi-directional causality relationship

Table 9 presents the findings of the Granger causality test. The table shows that the causality relationship is uni- directional from the exchange rate return volatility series to the service, technology, and industry sector indices. There is a bidirectional causality relationship between the financial sector index and the exchange rate return volatility series.

6.CONCLUSION

Theoretically, changes in exchange rates can change stock returns because changes in exchange rates change the firms' profit. This situation affects stock returns. This means that the causality aspect is from

exchange rates to stock prices and is explained by the traditional model. In the portfolio balance approach, an increase in domestic stock prices creates an increase in domestic income, which leads to an increase in the demand for money and thus in interest rates. High-interest rates will also cause capital inflows, causing the country's currency to appreciate. Thus, the direction of the relationship between stock prices and exchange rates can be from stock prices to exchange rates. The study aims to determine which of the traditional approaches or portfolio balance theories are valid for the Turkish economy's main sectors. For this purpose, BIST 100, BISTIND, BISTSERV, BISTTEC, BISTFIN indices were taken. As the exchange rate, the United States Dollars (USD) value in Turkish Lira (TL) has been taken. Exchange rate return is modeled with the GARCH (2,2) model. In the study, daily data for the period between 07.01.2011 - 15.10.2020 were analyzed.

Granger causality test was used to investigate the causality relationship between stock indices and exchange rate return volatility. The study shows that the causality relationship is uni-directional from the exchange rate return volatility series to the service, technology, and industry sector indices. There is a bidirectional causality relationship between the financial sector index and the exchange rate return volatility series. It is striking that the causality relationship between the BIST 100 index and the exchange rate differs from the others. The direction of the relationship is from the BIST100 index to the exchange rate. According to this result, one can see that changes in the dollar exchange rate have an effect on the decisions of the investors who would invest in the relevant index. It is thought the fact that the dollar is seen as an investment tool and has an effect on the sales and resource structure of the companies included in the relevant indices has led to the emergence of such causality. The causality test results show that the traditional theory, which is one of the theories explaining the relationship between stocks and exchange rates, is valid in The Turkey Stock Exchange sector indices. Considering the number of shares held by foreigners on the Turkish stock exchange, the results obtained will help foreign portfolio investors concerned about exchange rate risk. Exchange rate volatility in Turkey should be carefully monitored by investors. For both domestic and foreign investors in the stock market, it will be appropriate for policy makers to take decisions by taking into account the sensitivity of investors.

The fact that the value of the American dollar (USD) against the Turkish Lira (TL) as the exchange rate is the only variable, constitutes the study's limitation. Future studies can test whether the structural breaks create a difference in the relationship between index returns and exchange rate.

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Tourism Insurance Market, Risks and Prospects: The Case Study

Maia Diakonidze

Akaki Tsereteli State University, Agrarian Faculty, department of Tourism and landscape Architecture, Kutaisi, Georgia

Email: maia.diakonidze@atsu.edu.ge

Tel. +995599757760

A B S T R A C T

Purpose: According to the global pandemic conditions, tourism and therefore, travel insurance market face new challenges. This study is aimed to determine appropriate approaches that will contribute to the tourism development during and post-pandemic period.
Design/Methodology/Approach: Tourism insurance is one of the most important elements of travel planning, that protects tourists from certain financial risks and wastage that can occur during traveling. Expenditure can be minor, such as a delayed luggage, or significant - a medical emergency overseas. Within pandemic conditions, emergency medical care, which will cover Covid -19 has become inevitability part of insurance packages being offered. The design of the article includes secondary data review, theoretical explanations and empirical evidence (survey) regarding insurance updates in the travel sector, development of proposals for the future tourism development in Georgia without significant excess or outcomes from the pandemic conditions.
Findings: Ideas and examples are proposed to enhance knowledge in adapting insurance in accordance with the requirements of this modern situation, with an aim to continue developing tourism in the future.
Practical Implications: Several approaches have been identified in terms of enhancing the quality of tourism services, which is most important in relation to this pandemic period.
Originality/Value: This is a first attempt at describing and identifying issues related to the Georgian tourism sector in terms of travel insurance adaptation to the Covid-19 conditions. It is a valuable piece of information for tourism product makers to adopt the article's proposals for the improvement of future tourism development.

A R T I C L E I N F O

Keywords:
Tourism; Tourism Insurance; Insurance Market; Tourism Development; Georgia.

****Corresponding author:***
maia.diakonidze@atsu.edu.ge (Maia Diakonidze)

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1. INTRODUCTION

Tourism is one of the most important sectors of the world's economy. Many countries are trying to develop their tourism industry with the aim of economic development and increased fame. Tourism has become a significant part of the national economy development of country of Georgia.

Tourism service design includes diverse domains, with one of the most important being travel insurance services. The Global Code of Ethics for Tourism, adopted by the UNWTO General Assembly in October 1999 in Santiago, Chile, stated that tourism professionals, should work with

public authorities to take care of the safety of tourists, such as, accident prevention, health and food hygiene for those who request their services; they must ensure that adequate insurance and assistance systems are in place.

According to the global pandemic conditions, diversity and new challenge-oriented travel insurance has become an urgent necessity in the designing of tourism packages. Travel insurance is a good financial risk management service, that allows travelers to avoid financial costs and have losses reimbursed in the event of an emergency. The most beneficial covers on a travel insurance policy –are namely, coverage for trip cancellations, medical emergencies, travel delays, and luggage protection.

There is a correlation between increased tourist flows, enhanced demand on travel and travel insurance usage, so far as travel insurance services are part of tourism packages. Consequently, it is becoming very important to increase the demand for tourism purpose travel. The previous year (2020) can be said to have been inactive in terms of tourism and, therefore, travel insurance realization.

The stagnation caused by the pandemic led to a corresponding reduction in tourism activities, which was reflected in the economicsetting . Mito (Japan Travel Guide) has put on the agenda the promotion and resuscitation of the tourism industry, with the modification of travel insurance packages and coverage services covering Covid-19.

2. LITERATURE REVIEW

There are various types of insurance covers currently used in the travel business: accident risks, medical risks, travel cancellation insurance, transport delay insurance, personal property insurance, car travel insurance, etc. The essential type of insurance in tourism is the medical insurance, which covers the basic costs of urgent medical services, specifically, transportation of the patient, the cost of drugs, or fatal accident coverage. The Tourism Industry, together with its dependent sectors are often susceptible to various hazards, which result in risk concerns. Insurance is recognized as one of the risk management strategies (Galvani et al., 2020; Ozen & Grima, 2020).

Due to the Corona Virus, the tourism industry suffered significant losses. Consequently, losses impacted persons and companies, including insurance companies (Huebner, A. 2020). During the pandemic, insurance companies suffer significant losses caused from the economic stagnation in many countries, and from the necessity to pay insurance compensations to people (including travelers) and companies (Ehlers 2020). Insurance companies draw conclusions from the current situation and take actions to verify offered insurance products

and, consequently adjust them to market needs and potential subsequent pandemics that are likely to happen in the future (Kizielewicz, 2020).

A pandemic risk insurance program, which is supported by the government, can be part of the remedy project to manage infectious disease risks, to provide stability to businesses and organizations. It is very important for stakeholders to work together to improve national and organizational sustainability, that will help to better forecast and restrain future pandemics(Marsh 2020).

3. RESEARCH METHODOLOGY

The paper is adopting a methodology based on secondary research. According to this approach, one needs to perform several steps towards processing information. The first step includes the development of the research question and consequently, the research question is - What is the effect Covid-19 had on Tourism insuarance market? The second step of this research approach is to detect the data set, leading to the third step which is to analyze and evaluate the data. The fourth step is to prepare ideas and conclusions. The secondary research approach implies reviewing literature reviews such as, textbook reviews, encyclopedia, journal article reviews, web pages, published academic journals, government documents and statistical databases. Based on this it is possible to gather all the required data for the study.

4. IMPACT OF COVID-19 ON TRAVEL INSURANCE MARKET

The wide spread of COVID-19 has impacted all areas, especially the near suspension of the travel industry, aviation and international tourism activities. The Travel & Tourism sector suffered a loss of almost US$4.5 trillion and reached US$4.7 trillion in 2020, with the contribution to GDP dropping by a staggering 49.1% compared to 2019; this is relative to a 3.7% GDP decline of the global economy in 2020 (WTTC 2020).

In 2019, the Travel & Tourism sector contributed 10.4% to global GDP; a share which decreased to 5.5% in 2020 due to ongoing restrictions to mobility (WTTC 2020).

In 2020, 62 million jobs were lost, representing a drop of 18.5%, leaving just 272 million employed across the sector globally, compared to 334 million in 2019. The threat of job losses persists as many jobs are currently supported by government retention schemes and reduced hours, which without a full recovery of Travel & Tourism could be lost (WTTC 2020).

Domestic visitor spending decreased by 45%, while international visitor spending declined by an unprecedented 69.4%. The tables below, demonstrate, regression of economic

performance over the past year caused by the global pandemic (WTTC 2020). [See the Tables 1 and 2].

Table 1- Total contribution of Travel and Tourism 2019

Total contribution of Travel and Tourism to (%)	Regional Overview 2019						
	North America	Caribbean	Latin America	Europe	Africa	Middle East	Asia Pacific
GDP	8,8	14,1	8,1	9,5	6,9	8,9	9,9
Employment	11	15,4	8,0	10,1	6,5	8,9	10,0

Source: Travel and Tourism Economic Impact Research May 2020(WTTC)

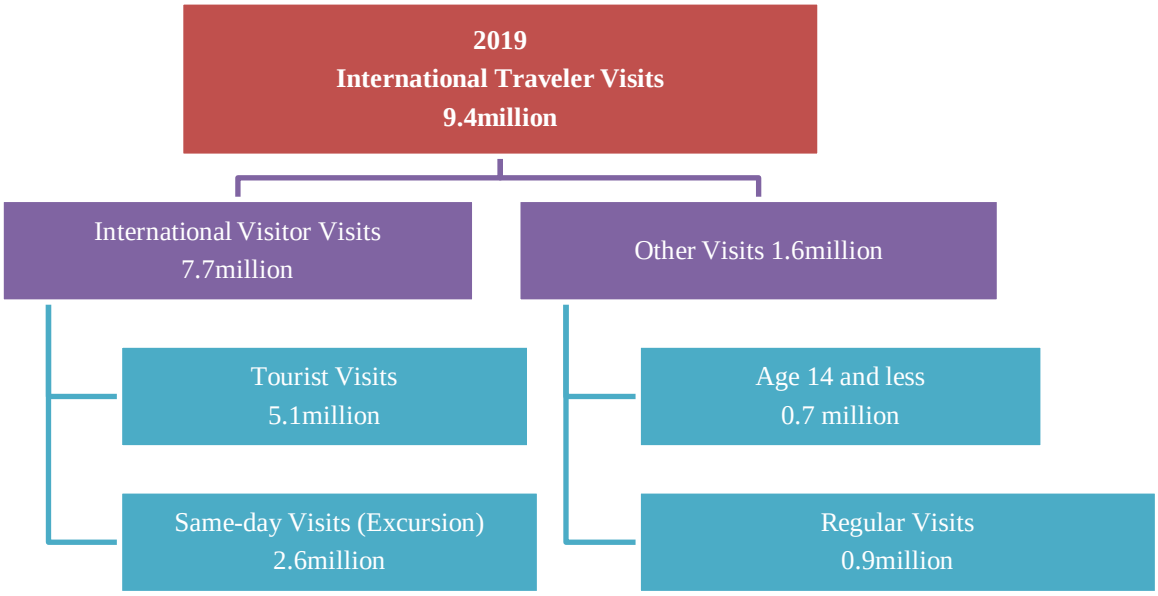
Table 2 - Total contribution of Travel and Tourism 2020

Total contribution of Travel and Tourism to (%)	Regional Overview 2020						
	North America	Caribbean	Latin America	Europe	Africa	Middle East	Asia Pacific
GDP	-42,2	-58,0	-41,1	-51,4	-49,2	-51,1	-53,7
Employment	-27,9	-24,7	-23,4	-9,3	-29,3	-17,4	-18,4

Source: Travel and Tourism Economic Impact Research May 2020(WTTC)

As mentioned above, there is direct correlation between tourist flows and travel insurance market capability. According to world-wide rules, international trip planning includes insurance service, and for some countries or region entrance - as in the Schengen Area - it is a strong prerequisite. Consequently, outbound tourist quantity describes number of used travel insurance service [See figure 3 and 4].

Figure 3 – International Travelers 2019



Source: Georgian National Tourism Administration statistical report 2019

Table 4- International Travelers 2019-2020

Country	2019	2020	Change	% Change
International Traveler Trips	**9.357.964**	**1.747.110**	**-7.610.854**	**-81,3%**
Other (non-tourism)	**1.632.190**	**233.689**	**-1.398.501**	**-85,7%**
International Visitor Trips	**7.725.774**	**1.513.421**	**-6.212.353**	**-80,4%**

Source: Georgian National Tourism Administration statistical report 2019-2020

Understanding the full assessment of the situation in the travel insurance market, it is important to consider statistical data from the past short-term period and compare it with the current data.

For US residents traveling internationally, the Travel Insurance industry provides coverage for unexpected travel and medical expenses. It should be pointed out, that insurance covers domestic travels to a lesser extent. In general, travel insurance policies include trip cancelation, delay protection, baggage and other personal effects protection, emergency medical assistance and accidental death coverage. The industry in the US primarily derives revenue from premiums, which averaged 5.0% to 10.0% of consumers' total travel expenses over the five years leading to 2020 (Travel Insurance Industry in the US 2020).

There was expected decline in Travel Insurance industry in 2020 due to a sharp decrease in travel activity (Travel Insurance Industry in the US 2020). Accordingly, there was a spike in trip cancellation claims due to numerous global travel restrictions. This is expected to hamper the industry's profitability.

5. DISCUSSIONS

In 2019 the global travel insurance market continued to grow and, its size was valued at USD 19.2 billion. Prospects forecasted based on past data showed that that amount was about to reach USD 39.3 billion by 2027. Travel insurance covers the expenses incurred and minimizes several types of risks during travel (WTTC).

In order to draw appropriate conclusions and to understand the impact of the global pandemic on tourism development, in particular on the sale of travel insurance, it is necessary to analyze results of statistical data of tourist flows and their economic effects. Using the example of Georgia, the author will try to see the impact of recent events on travel insurance market development [see Tables 5 and 6].

Table 5- Outbound Visitor Survey Tourist Trips 2019

2019 Outbound Visitor Survey Tourist Trips									
I Quarter		II Quarter		III Quarter		IV Quarter		Total	
Quantity	% Share	Quantity	% Share	Quantity	% Share	Quantity	% Share	Quantity	% Share
269.834	55,7%	325.630	58,0%	417.655	59,7%	344.088	54,7%	1.357.207	57,2%

Source: Georgian National Tourism Administration statistical report 2019

Table 6 - Outbound Visitor Survey Tourist Trips 2019

2020 Outbound Visitor Survey Tourist Trips				
I Quarter	II Quarter	III Quarter	IV Quarter	Total
Quantity	Quantity	Quantity	Quantity	Quantity
15,822	12,230	18,883	23,290	51,306

Source: Georgian National Tourism Administration statistical report 2020

As it is demonstrated from the tables above, outbound tourism flows from Georgia have decreased from 1.357.207 to 51,306 which is approximately 4% of previous year results. One needs to keep in mind that travel insurance is rarely used for domestic trips and, therefore this

kind of service is mostly concomitant with tourism packages planned for outbound travelers. With the aim to understand travel insurance market distributions in Georgia and generalize this approach, it is important to calculate or collect statistical data about outbound travelers. Consequently, based on the above-mentioned data we can come to conclusions about the decreasing number of travel insurance realization (-96%).

This decreasing number of travel insurance uptake in Georgia is very disastrous for business. Therefore, it is a big challenge to find a solution for further development. Tourism in one of the most sensitive economic fields, that has been affected by the global pandemic. With the new initiatives to open countries and restart business activities related to Tourism, consequently, the travel insurance market faced many problems and new rules. Tourism and insurance companies are trying to involve new, Covid-19 coverage offers in their service and, therefore, increase sales.

For the purpose of this paper, we have studied tourism companies operating in Georgia, in particular Kutaisi city tour operators. The study covered the maximum number of tourism companies – 22 - who are working and nowadays are trying to implement mandatory issues caused by Covid -19. The interview contained 8 main questions, related to the challenges and conditions before and during pandemic period. The survey was conducted with the managers or executives of the companies. The result are presented in Table 7.

Table 7 - Tourism Organizations Survey- Integration of new Insurance services in tour packages 2021

Service type	Number %	Additional service
Organizing insurance requirements including Covid -19 PCR Test	**40 %**	
Organizing insurance requirements including Covid -19	**35%**	
Organizing only standard insurance requirements	**25%**	**Introducing about some flight companies, with Covid Insurance or booking tickets with those companies.**

Source: Performed by the author

According to our survey it is possible to conclude that tourism and, consequently, the travel insurance market moving forward to develop new insurance covers.

It can be pointed out that two contradictory trends are emerging. The Insurance market size will decrease due to the less tourist flows, however, the penetration of travel insurance in tourism planning with these pandemic conditions will become more essential.

6. CONCLUSIONS

Over the last period, travel insurance has become an essential part of tourism planning, in particular in relation to international travel. Therefore, there are several trends demonstrating travel insurance market development:

- ✓ Travel insurance market size is directly correlated with outbound tourism flows;
- ✓ Travel insurance market size has decreased all over the world and also in Georgia. When compared to 2019, the market decreased by -96% in 2020;
- ✓ Due to the travel insurance market shrink, its penetration in travel planning is becoming more essential;
- ✓ Tourism companies are trying to implement local or pandemic conditions in travel planning and, therefore, insurance organization.

Following the above and with the intention to increase tourism activities and social-economic development, travel insurance content is one of the key factor for the safe travel planning during and post pandemic periods.

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Behavioural evolution of consumers of banking services in the COVID-19 pandemic situation

Larisa MISTREAN[a]

[a] Associate Prof. Dr. Academy of Economic Studies of Moldova, Department of Investments and Banking Activity, Republic of Moldova

ABSTRACT

Managing customer relations is one of the main contemporary challenges facing banks, especially in terms of new social changes and major changes in human behaviour, generated by the COVID-19 crisis. The currently drifting economic climate affects all of the existing and potential customers and consumer behaviour, being much more demanding on the products and services purchased, their particularities, the conditions proposed by banks, prices and the bank-customer relationship.
The new segmentation generated by the pandemic puts additional pressure on banks, which have a difficult task: to better understand these new behaviours and to meet consumer requirements with relevant products and convenient services. Whatever the options, banks must be receptive to the current needs of consumers of financial products and services and to the behaviour they must adopt in order to remain relevant on the market.
The general objective of this study is to provide a practical perspective on the impact of the pandemic crisis on consumer behaviour of banking products and services.

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mistrean_larisa@yahoo.com

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1. INTRODUCTION

The COVID-19 crisis has generated, in a very short time, a transformation in the way people buy and consume. Coronavirus concerns cause customers to deeply adjust their behaviour in the buying process. The severe economic shock caused by the COVID-19 pandemic and the exceptional measures to limit its spread have a profound negative impact on banking consumers. Businesses are facing supply chain disruptions, temporary closures and reduced demand, and individuals are facing unemployment and declining incomes. In the case of the Republic of Moldova, all these negative effects that influence the behaviour of consumers of banking products and services are amplified by the political crisis that persists. Even under these conditions, banks are responsible for maintaining liquidity flows and should continue to assume their duty to finance the economy, to continue to lend to individuals and businesses, within the limits of prudent behaviour.

However, the current crisis is at the same time an opportunity to change the banking business, which requires additional efforts, collaboration, customer involvement, as well as a rethinking of the development model and exploring new opportunities of the bank-customer relationship. These involve not only the digitalisation and modernization of financial services and the activity of banks, but also the development of skills and a modern education system for the consumer of banking services and the promotion of a sustainable bank-customer relationship.

2. LITERATURE REVIEW

Ensuring compliance in consumer protection will have an increasing impact on the banking sector. The impact of COVID-19 on consumer behaviour of banking products and services has been reflected in several researches and market studies.

The effect of the COVID-19 crisis was felt in the public and private sectors, and at the social level, changing consumer preferences, but also the way it relates to current and future activities. Researchers (Cârstoiu, 2020) observed similar patterns of the Romanian consumer with the consumers from other countries such as the USA, the United Kingdom, France or Germany. These changes are expected to be long-lasting, depending on the constraints and evolution of COVID-19 (and its economic impact). Therefore, banks will have a difficult task: to better understand these new behaviours and to meet the requirements of consumers with relevant products and convenient services, respectively, to adapt their business models to social changes related to the COVID-19 crisis.

The measures imposed by the authorities on lockdown and social distancing to reduce the spread of the virus have led to a considerable increase in the number and value of online transactions. Craven (2020) considers that "Customers' changing preferences are not likely to go back to preoutbreak norms". Changing the consumer behaviour of customers will lead to a transformation of the business model of banks, especially the modernization of distribution channels as the most affected banking dimension (Pop, 2020).

Baicu (2020) states that retail consumers have been forced to use predominantly cashless payments at the expense of cash and digital channels rather than traditional channels, striving to adapt and fully accept new channels and technologies.

Certain trends in consumer behaviour have been identified, driven by measures to limit physical contact and cash use during the pandemic: the value of account balances with digital banks in Southeast Asia has increased; the process of opening online bank accounts by small and medium-sized enterprises in Malaysia has intensified; the limit for contactless payment in the UK has been increased (Hoe, 2020).

Current developments bring digital payments to the fore (Auer, 2020). At the moment not all digital payments are immune. For instance, debit and credit card transactions generally require a signature or a PIN entry at a merchant owned device for larger transactions. Contactless card payments, which are

popular in several countries, do not require a PIN for small transactions. Recently, authorities, banks and card networks in Austria, Germany, Hungary, Ireland, the Netherlands, the United Kingdom and elsewhere have set higher transaction limits for contactless payments. Digital wallets or other smartphone-based payment interfaces (e.g. stored card details or QR codes) where no physical contact of the same object by multiple persons takes place are further potential solutions.

The Monetary Authority of Singapore (Coelho, 2020) has requested financial institutions to implement safe distancing measures in all aspects of their business operations, especially customer touch points. The Federal Financial Institutions Examination Council recommends that banks consider providing employees with appropriate hygiene training and tools and implementing social distancing techniques to reduce face-to-face contact by using, for example, teleconference calls, flexible work hours and telecommuting. The European Central Bank calls for banks to establish adequate measures of infection control in the workplace and highlights the importance of worker education. With the same objective, the Central Bank of the United Arab Emirates directs banks to replenish automated teller machines (ATMs) with unused banknotes.

In order to reduce consumer dependence on territorial subdivisions, banks should encourage the use of remote services by launching "positive and safety-oriented messaging" (Buehler, 2020). From this perspective, banks need to take into account the degree of access to products and services of all consumer segments, especially for older people, who are more reluctant to use digital services. In this context, banks should simplify their online interfaces and provide support to customers, including educational materials on how to use online channels (eMarketer, 2020). For example, Singapore's DBS bank has organized webinars and personalized courses to train its customers and facilitate their use of digital channels (Finextra, 2020).

Under current conditions, banks should develop digital capabilities that ensure a "human touch", allowing them to better interact with customers and really support them in the buying process (for example, live chat or video calls) (Vessey, 2020). McCarty (2020) also emphasizes the importance of chat for consumers of banking products and services during the social distancing imposed by Covid-19.

The transition to digital payments could have a negative impact on older and non-bank consumers, which necessitates the maintenance and use of cash in circulation (Auer, 2020).

To bolster trust in cash and guarantee universal acceptance, several central banks have actively communicated that risks are low and taken further actions. The Bank of England (2020) has noted that "the risk posed by handling a polymer note is no greater than touching any other common surfaces such as handrails, doorknobs or credit cards". The Bundesbank has advised the public that the risks of transmission through banknotes are minimal and that a sufficient supply of banknotes is guaranteed. The Bank of Canada has asked retailers to stop refusing cash payments. The South African Reserve Bank has counteracted scams by clarifying that there is no evidence of transmission by cash and it is not withdrawing cash from circulation. The People's Bank of China began in February to sterilise

banknotes in regions affected by the virus. The Fed confirmed that it was quarantining bills arriving from Asia prior to recirculation. Central banks in South Korea, Hungary, Kuwait and other countries have also moved to sterilise or quarantine banknotes, and thus ensuring that cash leaving central bank currency centres does not carry pathogens. Central banks or governments in India, Indonesia, Georgia and several other countries have encouraged cashless payments (Auer, 2020).

The Deloitte Global Marketing Trends 2021 study (Deloitte, 2021) points out that the current context is rapidly changing the behaviour of consumers, who seem to prefer digital channels, 66% saying that the pandemic has made them appreciate quality technology solutions more. The health crisis has contributed not only to the transition to digital technologies, but also to the creation of a model for the coming years. According to the results of the study, 63% of respondents say they will continue to use digital technologies more often even after the pandemic ends.

The migration to digital channels has proved imperative for the banking sector; the next step is their development for the post-COVID-19 reality, which will increasingly focus on online and business adaptability.

Globally, there is a new consumer, who is financially constrained, who is much more advanced in the use of digital technologies and is more careful and selective in making purchasing decisions.

The KPMG (2020) study "Adapting to the evolution of consumers in the new reality" shows that COVID-19 has a global and lasting impact on consumer needs, preferences and behaviours, which determines the need for companies to change their thinking and way of operating in accordance with these changes.

The results of this survey showed that the top priorities for consumers of the banking products and services are value for money and personal security, as well as ease of access (including better functionality of the bank's website and remote service applications). Research shows that trust is a key attribute for banking (45%), with research showing a clear improvement of trust in the bank (+ 15%), almost all consumers are saying that trust in their bank is at least as much as before COVID-19 (96%) (KPMG, 2020).

Understanding how consumers act can help shape the future product and meet distribution preferences in a post-COVID-19 era (PwC, 2020). Banks will need to respond to lasting social change, including how consumers select products and distribution channels, to meet individuals' financial needs. Behavioural changes may accelerate the shift of the branch concept away from transactions toward a more complex, high-value operation. Decisions on how to distribute and the relevance of the product will be the key to successful banking. Customers are increasingly expecting individualized offers, and banks will need to use their databases to manage their customers, products, and pricing strategy to fully meet their expectations.

It is obvious that new - digital banks need to work harder to increase the level of consumer confidence, they need to promote the key factors that best suit their offer (digital security, ease of use, and value for money).

In order to provide individuals and businesses with the benefits of digital financial services, to facilitate the interoperable use of digital identities across the EU and to eliminate fragmentation of the EU digital market, the Digital Finance Strategy has been developed. A functioning single market for digital financial services will help improve access to financial services for consumers and retail investors in the EU through more innovative, diversified and inclusive banking, investment and insurance services (CE, 2020). By 2024, the EU should implement a sound legal framework that allows for the use of interoperable digital identity solutions, allowing new customers quick and easy access to financial services ("on-boarding").

The transfer of business activity in the online environment was the rapid measure adopted by Moldovan banks, because the use of digital tools allows for the increase of resource efficiency, productivity, but also competitive power. (Economic, 2020)

Melamedov (2020) underlines that adoption of digital solutions will have an impact on the long term, even after the coronavirus pandemic and the traditional banks have to learn from the experience of digital financial institutions “neobanks” and fintechs, and partnerships with fintechs could be a way for banks to introduce new products and services (World Economic Forum, 2020).

3. DATA AND METHOD

Our research aims to produce generalizable knowledge about the impact of the COVID-19 on the behaviour of the consumers of banking services. The researchers begin with specific observation, which are used to produce conclusions drawn from the research papers, Bank for International Settlements and others central banks publications and the National Bank of Moldova database, National Bureau of Statistics of the Republic of Moldova database. The content analysis was done in order to analyse the data, which was gathered from the statistics website and reports.

The research methods used include: analysis of statistical data, comparison, chain indices, and graphs. The obtained results showed that COVID-19 has led banks to react promptly to changes of consumer consumption behaviour. Among the methods of socio-human sciences, those that become complementary in this research are mainly: the analysis of the financial situation of consumers of banking services, analysis of the behavioural evolutions of the banking clients in the Republic of Moldova during COVID-19 crises; comparative method; observation. Next, the method of examination shows the evolution of the behaviour of the consumers of banking services in the Republic of Moldova and how banks can strategically respond to COVID-19 challenges.

4. THE IMPACT OF THE COVID-19 ON CONSUMER FINANCE

The slowdown in economic activity as a result of measures to prevent the transmission of the new coronavirus, such as reduced mobility, has had significant repercussions on the population's income.

To better understand the impact that the coronavirus pandemic has on consumers of the banking products and services, we will analyse how the virus has affected their financial situation.

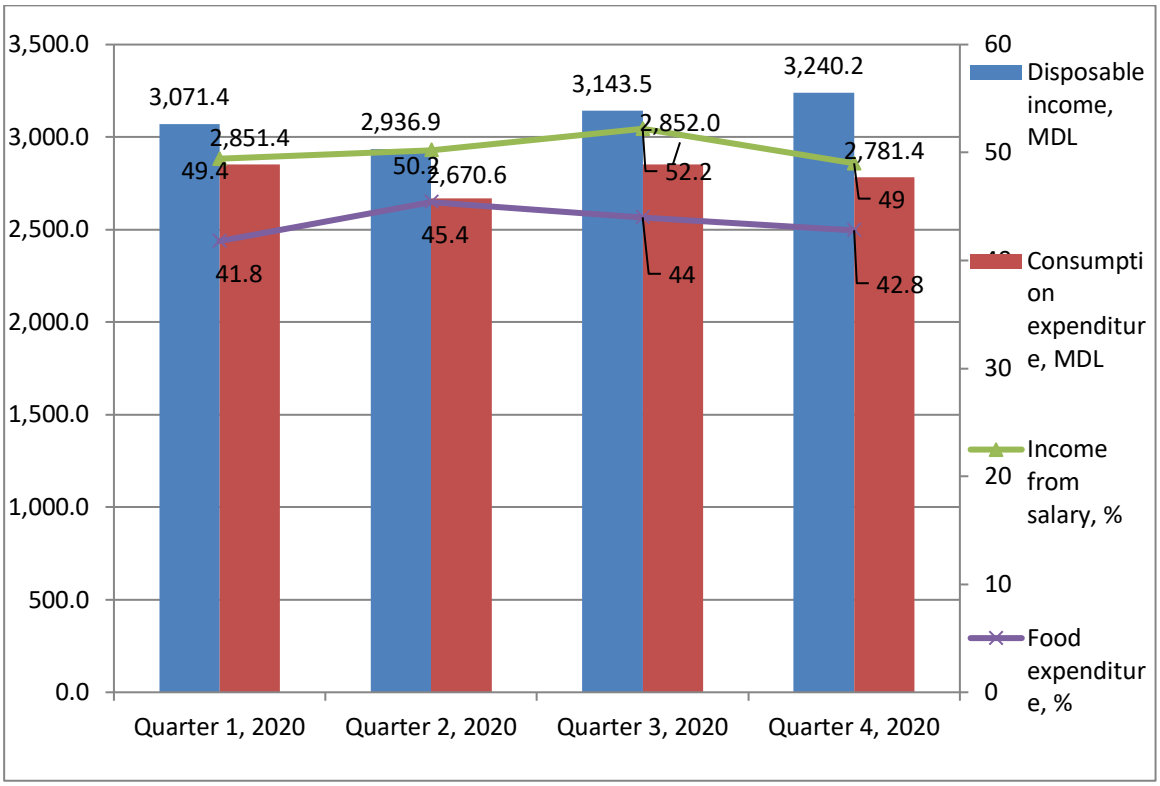

Figure 1: Evolution of the monthly value of personal income and expenses, MDL

According to the data of the National Bureau of Statistics in 2020, the disposable income of the population amounted to an average of 3096.6 MDL per person per month, increasing by 7.5% compared to the previous year. In real terms (with the adjustment to the consumer price index) the incomes of the population registered an increase of 3.6%.

Earnings are the most important source of income of the population, with a share of 50.2% in total income, which remained at the level of the previous year. The available income of the population is divided in two: 92.8% comes from money sources, and the other 7.2% represent income in kind. In absolute values, the value of money income amounted to 2875.1 MDL per month on average per person, and those in kind - 221.5 MDL. Money revenues are more significant for the urban environment (96.8%), and in the case of the rural population their contribution is 89.3%.

The average monthly consumption expenditures of the population, in 2020, amounted to an average of 2791.2 MDL per person and remained practically at the same level of the previous year. In real terms (with the adjustment to the consumer price index) the population spent on average 3.5% less compared to 2019. Most of the expenditure is for food consumption - 43.5%. For housing and communal services, an average person allocated 16.1% of total consumption expenditures, and for clothing and footwear - 8.8%. The other expenses were directed for housing (5.6%), transport services (5.5%), health (4.7%), telecommunications (4.7%), etc.

However, many consumers have seen their personal finances negatively affected since the crisis hit. While lower disposable income and general economic uncertainty have led to reduced spending on clothing, services, gadgets and restaurants, spending on food has risen as consumers have stockpiled products.

Money transfers from abroad remain a significant source for individuals' budgets. On average, they represent 12.9% of total revenues or 0.5 percentage points more compared to 2019. The data presented in the Table 1 show that the value of transfers from abroad has increased considerably during the pandemic period, representing an important source of financing the need for financial resources of the population. It is obvious that about 65% of the value of transfers were made in euros and about a third in USD.

Table 1: Money Transfers from Abroad in Favor of Individuals, mil USD

	Total inflows		of which (share %):		
	Total	Including via banks	USD	EUR	RUB
Jan 2020	86,65	71,31	37,9	59,1	3,0
Feb.. 2020	94,68	79,55	36,0	60,2	3,8
Mar.. 2020	95,13	76,44	38,1	57,4	4,5
Apr.. 2020	92,14	74,85	40,0	58,1	1,9
May 2020	134,54	115,34	36,8	61,6	1,6
June 2020	143,24	121,48	36,7	62,0	1,3
July 2020	148,82	124,92	36,2	62,4	1,4
Aug.. 2020	126,44	107,33	35,4	62,9	1,7
Sept.. 2020	148,87	124,95	35,0	63,0	2,0
Oct.. 2020	136,52	113,78	33,7	64,3	2,0
Nov.. 2020	131,87	108,75	32,8	65,3	1,9
Dec.. 2020	147,84	118,95	33,2	64,5	2,3
Jan 2021	105,82	85,56	32,9	64,9	2,2
Feb.. 2021	113,53	92,43	31,2	66,5	2,3

The results of the research "Influence of the COVID-19 pandemic on the individuals" in the second quarter of 2020 accomplished by the National Bureau of Statistics of the Republic of Moldova showed that the COVID-19 pandemic created a number of impediments to the daily activities of individuals and significantly influenced their plans and intentions. At the same time, the pandemic, due to its magnitude, in addition to the socio-economic impact, has a considerable impact on the mood of the population.

The research data shows that the value of income and the structure of expenditure have undergone significant changes. Thus, the size of disposable income per person differs by groups of individuals depending on whether they experienced difficulties during the pandemic. Respondents who lost their jobs in the country have 37.4% lower incomes compared to individuals who continue to work.

At the same time, there are some differences between the consumption expenditures of individuals who faced difficulties during the pandemic. Food expenditure decreased by 15.8% and the value of savings used to cover daily expenses increased by 9.6%. Individuals who lost their jobs spent about 17.5% less on themselves compared to those who continue to work.

5. TRENDS IN CONSUMER BEHAVIOUR AND ITS IMPACT ON BANKS ACTIVITY

The pandemic imposed a different approach to the bank's activity in order to facilitate consumers' access to the necessary products. Banks from the Republic of Moldova have provided customers with online banking tools so that they can perform simple, convenient operations, anytime and anywhere, have automatically extended the validity of cards, implemented foreign exchange at ATMs, provided access to online sales tools, and announced measures to defer payments on loans to individuals and legal entities. Today, in addition to paying bills, credit instalments, and making online transfers, bank customers can open a deposit account through the web application, apply for loans online, exchange currency at ATMs and so on.

Despite the fact that the COVID-19 pandemic affected the financial situation of consumers of banking products, banks registered a positive evolution of the value of the main products, with few exceptions at the beginning of the period. Thus, in February 2021, the new deposits attracted on time amounted to 2234.5 million MDL, increasing by 17.4% compared to February 2020. The volume of attracted deposits constituted:

- in the national currency - 1462.0 million MDL (-2.6% compared to the previous month and + 25.7% compared to February 2020);
- in foreign currency recalculated in MDL - 772.5 million MDL (-3.1% compared to the previous month and + 4.4% compared to February 2020).

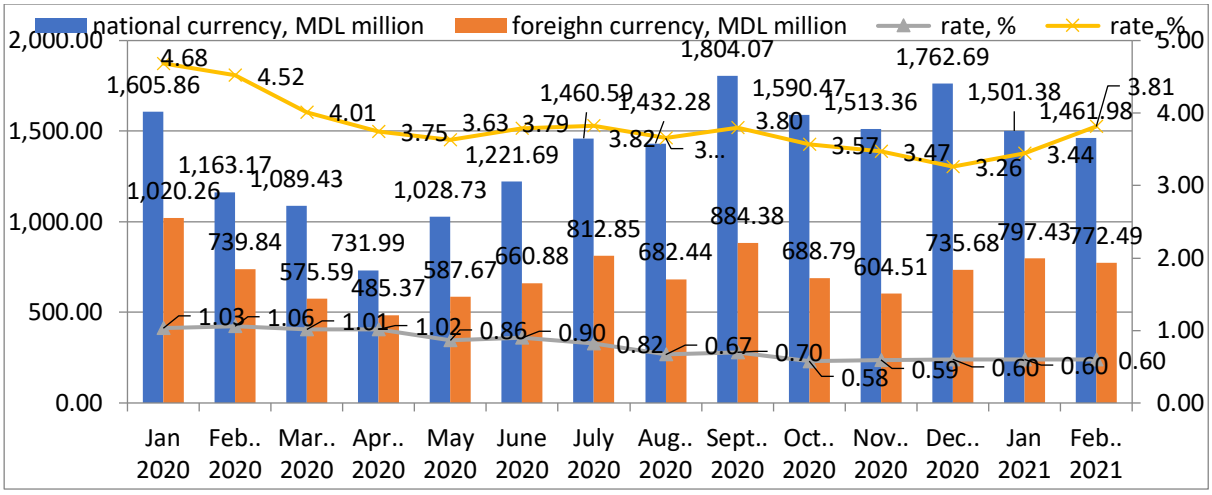

Figure 2: The weighted average interest rates and volumes on new attracted deposits

The share of deposits attracted in the national currency amounted to 65.4% while that in foreign currency amounted to 34.6%. In April 2020, the new deposits in MDL the banks managed to attract decreased by 32.8% when compared to March 2020 and by almost 55% when compared to January 2020. According to the National Bank, in April the volume of new deposits in MDL was approximately 732 million MDL. In May, this amount was 1.03 billion MDL, and in February 2021 - 1.46 billion MDL, given that the interest rate is continuously decreasing, except for February. The

value of new deposits in foreign currency had approximately the same evolution, only with much more modest amplitudes.

The new deposits were mainly represented by individual deposits amounting to 79.4% (50.8% being the deposits attracted in the national currency and 28.6% those in foreign currency). From the perspective of placement terms, the most attractive were deposits with terms from 6 to 12 months with a share of 29.0% of total deposits attracted on time (deposits of individuals accounted for 25.9% of total deposits).

The average rate for new deposits attracted in time in the national currency was 3.81%, and for those in foreign currency - 0.60%. Compared to the previous month, the average rate has evolved:

- the new deposits attracted on time in the national currency increased by 0.37 pp. Legal entities placed deposits with an average rate of 2.92%, individuals who practice an activity with an average rate of 2.94%, and other individuals with an average rate of 4.08%;
- the new term deposits in foreign currency have not changed. Legal entities placed deposits with an average rate of 0.85%, individuals who practice an activity with a rate of 0.50%, and other individuals with an average rate of 0.55%.

Compared to February 2020, the average rate on deposits in the national currency has decreased as did that of the foreign currency deposits. The new deposits from individuals decreased the most, both in MDL and in foreign currency. For example, for a year, the volume of new deposits in foreign currency decreased almost by half - from 867 million MDL to 448 million MDL.

Companies, on the contrary, have increased their placement of new deposits, especially in foreign currency. Compared to February 2020, their volume increased 2.5 times in March - from 57.5 million MDL to 127.6 million MDL. The same thing happened in the case of deposits in MDL of legal entities. These increased from 267 million MDL to 380 million MDL. However, if we compare the attraction of new deposits from legal entities in January and March, the volume of new deposits decreased by 15% compared to January. Compared to March 2019, the total volume of legal entities' deposits increased by over 50% - from 324.5 million MDL to 507.6 million MDL. Such differences in the volumes of deposits of legal entities attracted are caused by the fact that most often, they place short-term deposits for 1 month.

It should be mentioned that the total volume of all bank deposits in both MDL and foreign currency increased, from February to March 2020, by half a billion MDL, or by 0.3%, to 70 billion MDL. However, this increase is mainly due to the devaluation by 0.5% of the Romanian leu in that period, as the volume of deposits of citizens and businesses in foreign currency increased, but decreased in MDL.

In February 2021, the new loans granted amounted to 2673.2 million MDL, increasing by 12.5% compared to February 2020. The structure of loans granted in the reporting month evolved as follows:

- 74.1% represent loans in national currency, which amounted to 1981.1 million MDL (+ 42.2% compared to the previous month and + 21.7% compared to February 2020);

- 24.4% represent loans in foreign currency, whose volume recalculated in MDL amounted to 652.8 million MDL (+ 0.4% compared to the previous month and -6.4% compared to February 2020);
- 1.5% belong to loans attached to the exchange rate, which amounted to 39.3 million MDL (-44.3% compared to the previous month and -21.7% compared to February 2020).

Table 2: Average interest rate on interest bearing demand deposits in national currency

	Business		Individuals performing an activity		Individuals	
	amount, mil	rate, %	amount, mil	rate, %	amount, mil	rate, %
January 2020	9.006,15	1,66	31,81	0,22	2.572,85	0,92
February 2020	9.135,94	1,68	22,66	0,22	2.805,70	0,90
March 2020	8.487,63	1,59	23,69	0,20	2.982,83	1,04
April 2020.	7.039,38	1,37	18,56	0,21	2.530,58	0,83
May 2020	6.931,48	1,30	11,26	0,20	2.498,11	0,82
June 2020	7.502,55	1,21	13,39	0,21	2.459,74	0,97
July 2020	8.145,41	1,20	25,95	0,21	1.547,00	1,23
August 2020.	6.667,32	1,14	20,89	0,21	1.386,94	1,21
September 2020	8.394,61	1,13	40,45	0,22	1.431,79	1,23
October 2020	8.163,79	1,16	39,26	0,22	1.486,88	1,21
November 2020	8.488,51	1,17	38,95	0,22	1.459,40	1,16
December 2020	9.600,64	1,33	60,48	0,20	1.810,58	1,15
January 2021	8.427,07	1,40	45,72	0,23	1.120,58	1,18
February 2021	8.726,59	1,40	28,85	0,31	1.289,76	1,18
March 2021	9.987,06	1,41	21,94	0,26	1.316,11	1,18

Table 3: Average interest rate on interest bearing demand deposits in foreign currency

	Business		Individuals performing an activity		Individuals	
	amount, mil	rate, %	amount, mil	rate, %	amount, mil	rate, %
January 2020	837,91	0,22	0,04	0,25	93,54	0,33
February 2020	591,05	0,23	0,08	0,25	101,82	0,31
March 2020	1.006,40	0,24	0,00	0,25	85,78	0,32
April 2020.	897,25	0,23	0,00	0,00	55,32	0,47
May 2020	515,96	0,25	0,00	0,00	78,08	0,32
June 2020	1.366,37	0,14	0,00	0,00	200,34	0,25
July 2020	646,26	0,23	0,00	0,00	132,77	0,28
August 2020.	641,23	0,24	0,00	0,00	91,65	0,31
September 2020	663,35	0,22	0,00	0,00	112,04	0,28
October 2020	799,63	0,22	0,00	0,00	101,40	0,33
November 2020	737,27	0,21	0,00	0,00	93,79	0,29
December 2020	937,51	0,23	0,00	0,00	117,85	0,28
January 2021	974,89	0,22	0,05	0,25	66,51	0,35
February 2021	640,72	0,21	0,03	0,25	76,97	0,31
March 2021	947,77	0,22	0,00	0,00	123,91	0,30

From the perspective of the grant terms, the most attractive were the loans with terms from 2 to 5 years with a share of 53.4% of the total loans granted. Legal entities hold 34.7% of these total loans. Loans in national currency were mainly represented by loans to legal entities (53.5%). Non-financial

companies accounted for 48.6% of total loans in national currency (of which 49.0% went to trade). Loans in foreign currency were mainly requested by non-financial companies (94.7%), the major share (58.9%) going to trade.

The average rate on new loans granted in the national currency was 7.40%, for those in foreign currency - 4.13%, and for those attached to the exchange rate - 4.41%. Compared to the previous month, the average rate has evolved:

- for loans in national currency rates decreased by 0.28 percentage points (p.p.). Loans were granted to legal entities with an average rate of 8.35%, to individuals who practice an activity - a rate of 8.96%, and to other individuals - a rate of 6.08%;
- for foreign currency loan rates increased by 0.03 p.p. Legal entities were granted loans with an average rate of 4.13%, other individuals - with a rate of 7.02%, and individuals who practiced an activity did not resort to foreign currency loans.
- the loans attached to the exchange rate increased by 0.30 p.p. Loans were granted to legal entities with an average rate of 4.16%, to individuals who practice an activity - with a rate of 5.25%, and to other individuals - with a rate of 4.68%.

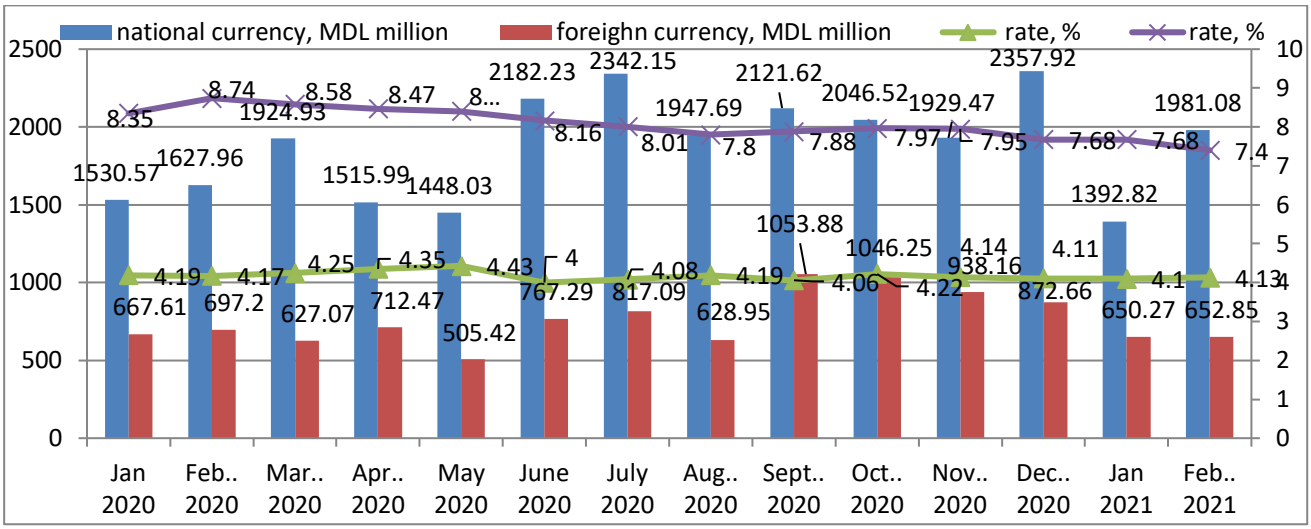

Figure 3: The weighted average interest rates and volumes on new granted loans

Compared to the similar period of the previous year, the average rate on loans granted in the national currency decreased by 1.34 p.p., on those loans in foreign currency they decreased by 0.04 p.p., and on those attached to the exchange rate it decreased by 1.20 p.p.

Banks have had to find a balance between on the one hand, reducing lending to reduce the risk of credit default, and on the other hand the need to maintain the flow of profits necessary for the operation, payment of obligations to shareholders, to the state and to one's development. The demand for bank loans from the population at this point in time will most likely create an ambiguous trend: on the one hand, the reduction in disposable income, together with the ratchet effect of consumption, will encourage the demand for consumer loans in general, and on the other hand, both due to pessimistic

expectations about the repayment capacity and the (normal) reluctance of banks, this demand for bank loans (or acceptance of credit applications) will decrease.

During the analyzed period, there is an increase in card transactions, which indicates the willingness of users to have a cashless payment instrument, unconditional on the need to receive certain salary or social payments.

The share of active cards remained constant during the analyzed period. Social cards are the category with the highest rate of activity (75.3%), with 61.8% of the number of operations performed with social cards being non-cash payment operations, but in value, cash withdrawals represent 80.2% of the total operations performed.

Table 4: Information regarding the activity of payment service providers with payment cards from the Republic of Moldova

	Quarter 1, 2020	Quarter 2, 2020	Quarter 3, 2020	Quarter 4, 2020
cards in circulation	**2.047.832**	**2.088.822**	**2.153.139**	**2.182.076**
active cards	1.235.470	1.213.476	1.264.739	1.324.843
salary cards	978.188	975.412	954.825	961.321
social cards	402.218	408.989	418.269	395.033
number of operations	**21.657.791**	**21.760.308**	**24.930.257**	**27.679.650**
cash withdrawals	6.398.692	5.815.075	6.645.069	6.911.528
non-cash payments	15.259.099	15.945.233	18.285.188	20.768.122
value of operations	**17.451.082.612**	**16.889.120.218**	**19.692.825.402**	**21.614.322.561**
cash withdrawals	12.580.537.460	12.058.540.617	14.154.257.534	15.089.306.583
non-cash payments	4.870.545.152	4.830.579.601	5.538.567.868	6.525.015.978
self-service terminal	**22.639**	**1.134**	**1.143**	**1.120**
ATM	1.121	1.134	1.143	1.120
POS terminals	**21.056**	**21.504**	**22.442**	**23.727**
installed with merchants	18.598	19.044	19.970	21.234
including contactless	13.973	15.012	16.136	18.383
installed with merchants	2.458	2.460	2.472	2.493
including contactless	422	420	431	438
e-commerce platform	**412**	**439**	**482**	**533**

During the third and fourth quarters of 2020, card activity indicators maintained an upward trend, with the number of cards in circulation increasing by 6.6% (134 244 cards) compared to the first quarter and by 8.5% compared to the same period of the previous year, and the number of non-cash payments made with cards issued in the country increasing by 27.8% compared to the first quarter and by 39.8% compared to the similar period of the previous year.

With the increase of the number of cash withdrawals in the fourth quarter, the value of cash withdrawals also increases during the analysed period, but we can follow an increase of the value of non-cash payments too.

Automated remote service systems are becoming increasingly popular among users. The total number of holders of automated remote service systems compared to the same period of the previous year

amounted to 1.9 million at the end of the fourth quarter of 2020, increasing by 28%. Of the total number of holders of automated remote service systems, 78.7% (1,640,536 holders) are registered in the automated systems of banks and 21.3% are registered in the solutions offered by non-banking service providers.

Thus, there is an increase in the number of holders of automated remote service systems at the end of the fourth quarter of 2020 compared to other quarters, which is mainly due to the considerable increase in users of mobile-payments, in the context of launching and promoting by PSP several mobile applications, as well as the constant increase in the number of registered users in internet-payment systems.

Table 5: Number of holders by types of Automated Remote Serving Systems

	Qurter 1, 2020	Qurter 2, 2020	Qurter 3, 2020	Qurter 4, 2020
Internet - payments	696.225,00	729.127,00	791.530,00	849.722,00
Mobile - payments	732.604,00	778.346,00	649.454,00	732.328,00
PC - payments	1.217,00	1.242,00	1.255,00	1.282,00
Telephone- payments	57.438,00	57.262,00	57.223,00	57.204,00
Grand Total	**1.487.484,00**	**1.565.977,00**	**1.499.462,00**	**1.640.536,00**

The number of active holders recorded an increase of 45.1% compared to the same period of the previous year, due to the need to use automated remote service systems to make payments, especially in the context of the epidemiological situation in the country, caused by the COVID-19 pandemic.

Table 6: Number of transactions performed through Automated Remote Service Systems

	Qurter 1, 2020	Qurter 2, 2020	Qurter 3, 2020	Qurter 4, 2020
Internet - payments	1.469.563,00	1.797.724,00	1.638.654,00	1.704.839,00
Mobile - payments	1.891.578,00	2.749.831,00	2.886.079,00	3.614.846,00
Total for individuals	**3.361.141,00**	**4.547.555,00**	**4.524.733,00**	**5.319.685,00**
Internet - payments	2.403.386,00	2.349.443,00	2.749.153,00	2.934.816,00
Mobile - payments	878	365	615	740
PC - payments	24.149,00	24.074,00	28.604,00	30.527,00
Total for legal entities	**2.428.413,00**	**2.373.882,00**	**2.778.372,00**	**2.966.083,00**

In the fourth quarter of 2020, approximately 8.3 million transactions were made through the banks' automated remote service systems, 43.2% (2.5 million) more than in the first quarter of 2020, of which 64.2% were performed by individuals, and 35.8% by legal entities.

The value of all transactions performed through automated systems for remote service by individuals and legal entities during the fourth quarter of 2020 amounted to approximately 212.6 billion MDL , increasing by 63.3% (82.4 billion MDL) compared to the first quarter of 2020, with 97.7% of the value of transactions belonging to legal entities.

Table 7: The value of transactions performed through Automated Remote Service Systems, MDL

	Qurter 1, 2020	Qurter 2, 2020	Qurter 3, 2020	Qurter 4, 2020
Internet - payments	2.067.710.959,80	2.041.601.375,90	2.341.712.739,80	2.528.467.401,50
Mobile - payments	1.251.543.122,30	1.490.771.998,30	1.685.827.395,90	2.439.715.299,40
Total for individuals	**3.319.254.082,10**	**3.532.373.374,20**	**4.027.540.135,70**	**4.968.182.700,90**
Internet - payments	125.937.722.464,60	116.340.309.626,90	138.770.605.413,90	206.161.485.314,50
Mobile - payments	5.344.241,70	5.598.891,60	12.257.102,30	18.876.851,10
PC - payments	934.281.333,80	802.095.519,10	1.167.227.907,90	1.430.280.558,00
Total for legal entities	**126.877.348.040,10**	**117.148.004.037,60**	**139.950.090.424,20**	**207.610.642.723,60**

During the fourth quarter of 2020, there is an increase (1.91 times) in the amount and the value (1.95 times) of transactions done through mobile-payments applications made by individuals. Legal entities mainly used internet-payments solutions to carry out transactions, registering an increase of 22.2% (approximately 531 thousand) in the number of transaction and an increase of 22.3% (approximately 460.8 million) in the value of transactions compared to the first quarter 2020. E-commerce is becoming an increasingly popular tool for the economy.

6. CONCLUSION

We can conclude that the COVID-19 pandemic is ongoing and its magnitude and economic impact remain unknown. The COVID-19 pandemic and the disruption of market conditions at national and global level have a negative effect on the activity of most business segments, on the operational capacities of economic entities and, respectively, on the population. Obviously, this situation could substantially adversely affect the activity of the bank debtor, its prospects, operating results or financial situation and its ability to meet its obligations to the bank. There is no guarantee that governmental or other actions will lead to a prompt and appropriate improvement in these market conditions if the situation continues to deteriorate or if additional restrictions are imposed, or whether the current or new restrictions will be in effect for an extended period of time.

Banks were directly affected by the COVID-19 crisis, being forced to rethink their communication, sales, and marketing strategy, to revise or even renegotiate existing contracts and to analyse the directions of the evolution of their activity. Migration to digital channels has proved imperative for them, the next step is their development for the post-COVID-19 reality, which will place more and more emphasis on online and on the adaptability of banking business to consumer requirements. Changing trends in consumer behaviour could mean that building trust with customers is more important than ever.

To the extent that one can predict what the "new normal" will be for consumer behaviour, there are several assumptions. In order for banking businesses to respond effectively to post-crisis purchasing patterns caused by the coronavirus crisis, they should recognize the following trends:

- Online transactions and the use of remote service systems will become the main trend - after a period of intensified digital connectivity, customers will perceive fewer barriers to seek the assistance of technology in their daily lives.
- The need for high transparency of the operations performed and details on the conditions of delivery of products and services, aimed at increasing the degree of customer confidence in the bank.

Changing trends in consumer behaviour after Covid-19 mean that banks will have to adapt to the new requirements and needs. Of course, many things will continue to change both in the way banks act and the way they interact with their customers, but also in the provision of new products and services,

especially in terms of digitizing customer service processes. Digitization remains a priority, in order to offer customers, the best and safest solutions in their current business and in their collaboration with business partners and, of course, with the bank.

The increasing use of digital transactions during COVID-19 is expected to continue, requiring banks to re-evaluate their channel mix to ensure robust and secure multi-channel experiences.

The future of consuming banking products and services is a combination of online and offline, based on a smartly built supply chain, to respond to a consumer whose preferences are constantly changing.

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The Effect of Global Risk Indicators on Developing Country Stock Exchanges: The Case of BRICS-T

Ender BAYKUT[a,*], **Selver DIYAR** [b]

[a]Assoc. Prof., Afyon Kocatepe University
[b]MBA Student, Afyon Kocatepe University

ABSTRACT

Global risk factors have great impacts on the economies and financial markets. It is observed that the stock markets of countries are affected by globalization especially in times of global crisis. To this end, CDS, VIX and Credit Ratings have started to be examined recently in order to decrease global risk factors. CDS, VIX, and Credit Ratings were determined as global risk indicators and these variables were used as independent variables to detect the effect on BRICS-T (Brazil, Russia, India, China, South Africa and Turkey) stock market returns. Daily data sets of these variables from 2008 to 2020 were gathered for each country. After preliminary analysis, ARDL model was determined as the best-fitting model for each data set. According to ARDL Bound test approach, except for China, a long-term relationship between variables for the all-remaining (Brazil, Russia, India, South Africa, and Turkey) countries was detected. It means that global risk indicators affect the returns of stock markets in emerging markets.

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Corresponding author:
ebaykut@aku.edu.tr
(Assoc. Prof. Ender BAYKUT)

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1. INTRODUCTION

Countries, as well as, financial markets are affected by global risk factors and leave deep marks on their stock markets and economies. It is common knowledge that risk factors increase, especially in times of crisis. Therefore, it is important to anticipate risk factors and minimize the risk at all times and even more in crises periods. Risk is a factor that can occur at any time and can do great damage. Risk factors have created many risks, especially before and after the 2008 global crisis. At the same time, it can be seen that its effects are great for individual and institutional investors and observed that the effects of some global crises continue for years. As a result, global crises have left much credit, financial, operational, and strategic damages on developing and developed countries. Even if the crisis starts in a country, it can spread all over the world or most of the financial markets. Therefore, risk management must be managed correctly in order to minimize the impact of crises. During times of crises, from the past to the present, great traces were left on the economies when the crises could not be detected in advance and correctly. Risk factors must be analysed well in order to minimize and predict outcomes of the risks of these crises. First, the risk should be at the lowest or reasonable level for investments.

This is a pre-requisite for investors to make the correct investment. The lower the risk, the more attractive it is for investors to get involved in the financial markets.

There are many global risk indicators for financial markets. Some of them are common and popular but others are not. This paper targets to determine the effects of global risk factors on the developing BRICS-T (Brazil, Russia, India, China, South Africa, and Turkey) countries' stock markets. To this end, CDS (Credit Default Swaps), VIX and Credit Ratings are used as global risk indicators in this current research.

CDSs create an important place for investors. Investors do not predict a situation such as non-payment when the maturity of their financial instruments is up. Among the risks investors take, this is the most preferred method because it contains the least amount of risk. It can also be said of replacing a country's own credit risk with another country. Credit rating notes are considered as the numerical evaluation of the credit ratings of countries. A decision can be made by looking at the credit rating notes in order to understand a country's investment-note situation. The VIX index is not calculated separately for countries and is evaluated on a grade. The VIX index can be regarded as the most striking issue recently. The VIX index is also known as the fear index. Therefore, the VIX index not only shows short-term changes but also fluctuations in risk perception. Besides, the VIX index is used to detect volatility or how fast prices change during time. In addition, the VIX index is seen as a way of measuring market sentiment, and especially the degree of fear among market participants.

The rest of the paper is organised as follow. In the following section, variables and the theoretical framework of the study are explained one by one. For the second part of the study, a literature review is prepared based on previous studies. After the explanations of methodology and data set, findings and results are summarized. Study ends with conclusion and recommendations.

1.1. Risk and Global Risk Indicators

The source of the word risk comes from French. The word originating from the French language, is actually "hazard". When the dictionary meaning of the word "hazard" is examined, it is defined as the danger of injury (Ozbilgin: 2012: 88). Risk can be explained as a threat that prevents events that may or may occur in the future. Also, risk can prevent situations where goals can be achieved. The risk is seen as the possibility of situations that may occur instantly or in the future. Risk can lead to opportunities as well as threats. In addition to being considered as neutralising the negative impact of unexpected events, risk can also mean creating opportunities from negativities with a new perspective over time (Ankara: 2013: 1). Apart from the definition of risk, that of risk management is also important for practitioners. Risk management is the controlling of effects of negative developments on institutions, the management of uncertainties by developing strategies through risk assessment. There are various strategies, namely, transferring the risk to another segment can be a form of risk aversion, mitigating the negative effects of the risk, and accepting some of the consequences of risks. Financial risk management can be described as managing risks through the exchange of financial instruments (Durak: 2009: 4). In this study, risk

factors are examined from a global perspective and VIX, CDS and credit ratings are determined as global risk indicators. L. Tappan first initiated credit rating agencies between 1837 and 1841 in relation to companies' failure to fulfil their commitments after the collapse of the US economy. In 1909, Moody's companies started to provide ratings such as 'A', 'B' and 'C' and the first credit ratings were created. Subsequently, the Fitch Company was established. In 1941, Standard and Poor's (S&P) company was established and these were and have remained the three major companies for credit ratings (Kargi: 2014: 356). In the globalized world, credit rating agencies have increased in importance with the emergence of financial crises. There have been improvements in credit ratings from past to present. It is seen that the importance of credit ratings, which were of little importance at first, has increased in importance recently. These institutions are the institutions that guide investors in the right way, even if they have differences in terms of grading.

Credit default swaps (CDS) are a type of insurance against a particular company's default risk. The company is referred to as the reference asset and it is called the credit default event. It is a contract between two parties called the protection buyer and the protection seller. Under the contract, the protection buyer is compensated for any damage arising from a credit event on a reference instrument. In return, the protection buyer makes periodic payments to the protection seller (The Economic Times: 2020). While credit rating emerged as a tool to express credit risk: Credit Default Swaps (CDS) emerged as an instrument that transfers credit risk and over time has become a credit risk measuring instrument. In this respect, credit rating grades and CDS premiums are important tools that show credit risk (Senol: 2012: 49). Credit default swaps (CDSs) proved to be one of the most successful financial innovations of the 1990s. They are vehicles that provide insurance against a particular company that does not pay its debts. The company is known as the reference asset and the default of the company is known as the credit event. The buyer of the protection makes periodic payments to the protection seller at a predetermined fixed rate each year. Payments continue until the end of the contract's life or a loan event (Hull and White: 2003: 3).

The VIX volatility index is an index that measures the degree of fear found in the Chicago Board Option Exchange Volatility index. Another name for the VIX index is the fear index. The VIX index was established in 1993. Since the VIX index follows the volatility in the markets, it is referred to as the fear index. The increase and amount of expected dividends in the VIX index are calculated using binomial methods. The VIX index was initially calculated on the S&P 100 index. After 2003, options were followed on the S&P 500 index. In 1993 the Chicago Board Options Exchange (CBOE) introduced a volatility index based on the prices of index options. This was an implied volatility index based on option prices of the S&P100 and it was traced back to 1986. Until about 1995 the index was not a good predictor of realized volatility (Brenner, Shu and Zhang: 1989: 63; Jung: 2015: 189). The VIX is an index, like the Dow Jones Industrial Average (DJIA), that is computed on a real-time basis throughout each trading day. The only meaningful difference between the VIX and DJIA is that the VIX measures volatility and the DJIA measures price (Whaley: 2009: 98).

The VIX Index, CDS premiums and credit ratings are the main variables of this study and the authors examined the impact of these variables on BRICH-T countries based on time series analyse methods. In the following part, literature review of similar studies is summarized.

2. LITERATURE REVIEW

The literature review part consists of three parts. These are studies related to credit ratings and its effect on stock markets, VIX Index, and CDS premiums and their impact on financial markets, especially on emerging markets. Firstly, we perused the impression of credit rating scores on stock markets in developing countries. Although credit rating agencies are not of great importance for governments and stock exchanges, credit ratings are accepted as an essential tool for decision-making. It has been determined that credit ratings, particularly in emerging markets, are one of the most crucial parts for institutional investors. Assessment of credit ratings on emerging markets are those mostly subjected to studies (Mihaelajeno, 2015; Afonso et.al. 2012; Fatnassi et.al., 2014; Hull et.al., 2004; Brooks et.al., 2004; Hilscher and Wilson, 2016; Cantor and Packer, 1996; Reisen and Maltzan, 1999; White, 2010; Hooper et.al., 2008; Reinhart, 2002; Kim and Wu, 2011; Aizenman, et.al., 2013; Benmelech and Dlugosz, 2010; Kaminsky and Schmukler, 2002). The findings of these studies address the positive correlation between credit rating and stock market returns. This means that increases in the credit rating create an increase in the stock markets while the opposite is also valid, whereby a decrease in the credit rating create a decrease in stock market returns. The effects of credit ratings on Turkey's stock market is also one hot topic in the literature review, especially for researchers in Turkey. There are a considerable number of studies (Pirgaip, 2017; Tutar et al., 2011; Ovali et al., 2020; Çağlak et al., 2018; Tekin, 2018; Iskenderoglu and Balat, 2018; Yıldırım et al., 2017; Kargi, 2014; Toraman and Yuruk, 2014) that found that negative movement of credit ratings led to a decrease in stock market returns, especially in Borsa Istanbul Stock Indices. The second risk indicator for the global markets is the VIX index. There are many studies in the literature review to test the effect of the VIX Index on financial markets. Some of these studies focus on the relationship between BIST Indices and VIX Index (Başarır, 2008; Kaya, 2015; Kula and Baykut, 2017; Sarıtas and Nazlioglu, 2019; Bayrakdaroglu and Celik, 2015; Gunay, 2019; Erdogdu and Baykut, 2016; Akcalı et.al., 2019), while some of them dissected the efficacy of VIX ındex on emerging markets (Korkmaz and Çevik, 2009; Adjasi et.al., 2008; Mikhaylov, 2018; Oner et.al., 2018; Jayasuriya, 2005; Aizenman and Marion, 1999; Iskenderoglu and Akdag, 2020; Gursoy, 2020; Silva, 2002; Ozdemir, 2020). A significant amount of these studies concluded that the VIX index harms stock markets and economies, especially in emerging markets. Studies about credit default swaps and their effect on financial markets are also popular in the literature review. Kırca et al. (2018), Yenice et al. (2019), Conkar and Vergili (2017), Reyhan and Gazel (2019), Bektur and Malcioglu (2017), Celik and Boztosun (2010), Ozkan and Cakar (2020) examined the CDS and BIST Index from a different perspective. An intensive amount of these studies have found a negative impact of CDS values on BIST Indices. So as with the VIX Index, the CDS rating also has adverse effects on

Turkey's stock markets. In addition to studies about CDS premium in Turkey, there is a sufficient amount of studies (Arestis et al., 2001; Levina and Zervos, 1998; Demirer et al., 2010; Bologna and Cavallo, 2002; Buberkoku, 1997, Park and Bae, 2004; Kassimatis, 2002; Puliga et al., 2014; Aksoylu and Gormus, 2018; Ericsson et al., 2009; Sahin and Sumer, 2014; Brigo et al., 2012; Abdellahi et al., 2017, Dullmann and Sosinska, 2007; Vurur and Ozen, 2020) that focus on the effect of CDS premiums, especially on emerging markets. Their findings are parallel to the results of studies on BIST Indices.

To test the impact of VIX, CDS and credit ratings on emerging markets, the authors had to choose the best-fitted model to detect long-run relationship between variables. In the next part of the study, the methodology is examined and briefly explained.

3. METHODOLOGY

Based on the unit root test result of the variables, we have a different level of unit root for the emerging market (BRICS-T) stock exchanges and VIX, CDS, and Credit ratings. This is why, in order to test the long-run relationship between dependent and independent variable, ARDL model will be applied. The data set of this study consists of stock market indices of BRICS-T (dependent variables) and VIX, CDS, Credit ratings from 2008 to 2020.

3.1. Autoregressive Distributed Lag Bound Test

ARDL (Autoregressive Distributed Lag Bound) Test is also known as ARDL Bound Test. The ARDL bound test was developed in 2001 by Muhammad Hashem Pesaran and Sangcheol Shin. This test is used to examine the concept of cointegration with the combination of the series for at least two non-stationary series. Besides, the ARDL bound test method has recently become a more effective and frequently used method compared to the cointegration tests of Johansen (1988), Johansen Juselius (1990) and Engle-Granger (1987) (Turna: 2017: 80). ARDL Test has many advantages compared to other cointegration methods. In contrast to other cointegration techniques, ARDL test does not impose a restrictive assumption that all variables under study should be combined in the same order (Şimşek: 2016: 71). ARDL approach is based on the least squares method and unlike classical cointegration analysis, it is not necessary to apply a unit root test beforehand in ARDL analysis (Esen et.al. 2012: 256). ARDL does not have the conditions to be stationary like other cointegration tests. In addition, it aims to express a stationary combination for two non-stationary series. In addition, ARDL has more advantages than other cointegration tests. The ARDL model provides an advantage over other cointegration tests since the variables are not taken into account in the integration degree. It brings about spurious regression in non-stationary time series depending on time series. At the same time, the difference is made in series in order to ensure stability.

When applying ARDL, this is performed in two parts. First, for the ARDL test, the variables of the subject and model are examined, and categorised as long term or short term. Flexibility will be decided by using the ARDL test in the test results. At the same time, under the condition that there is a cointegration relationship, long and short runs are tested among variables. In order to determine lag

lengths, long and short term relationships between dependent and independent variables are determined. To determine lag lengths, AIC and SHC (Schwartz) selection criteria of dependent and independent variables are used. On the other hand, the smallest criterion among the lag lengths constitutes the lag length of the model (Baykut: 2020: 101). The first unconstrained error correction model defined for the ARDL test by Pesaran and Shin is given below:

$$\Delta y_{t=a_0} + \sum_{i=1}^{m} a_{1i}\,\Delta y_{t-1} + \sum_{i=0}^{m} a_{2i}\,\Delta M_{t-i} + \sum_{i=0}^{m} a_{3i}\,\Delta E_{t-i} + a_4 y_{t-1} + a_5 M_{t-1} + a_6 E_{t-1} + \mu_t$$

In order to determine that there is an ARDL test cointegration relationship, the coefficients of the first period lags of dependent and independent variables are tested collectively by applying the F-statistics test (Wald test) to determine significance. H0 hypotheses expressing the absence of cointegration between variables of the ARDL test are formed. These H0 hypotheses are as follows:

$H_0: a_1 = a_2 = \ldots = a_k = 0 \longrightarrow$ No cointegration hypothesis

ARDL test is the alternative H0 hypothesis expressing the presence of cointegration in variables is as follows:

$H_1: a_1 \neq a_2 \neq \ldots\ldots\ldots\ldots\ldots \neq a_k \neq 0 \longrightarrow$ Cointegration exists alternative hypothesis

The ARDL technique is preferred when results are I(0) and I(1), or when there were both combinations dealing with variables integrated in different order. However, if the situation is I(2) for the ARDL model, this technique becomes disabled. One also notes that when using the ARDL test technique, there is only one long-term relationship between basic variables of small size. If the basic forms have a long-term relationship, this is determined by the F-statistics (Wold Test). The distribution of F-statistics is not standard regardless of whether the variables in the system are I (0) and I(1) (Nkoro and Uko: 2016: 81). Although there are no requirements for ARDL testing, unit root testing is recommended. In order to avoid misapplication, prediction and interpretation based on forecasting and policy stance, it is necessary to investigate the necessary conditions that reveal the ARDL co-integration technique. If the conditions are complied with, it may lead to inconsistent and unrealistic estimates with the erroneous determination of the model and its effect on the estimation and policy (Nkoro and Uko: 2016: 63). ARDL bound test can be formulated as follow (Baykut: 2020: 101):

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i}\,\Delta Y_{t-i} + \sum_{i=0}^{m} \alpha_{2i}\Delta X_{t-i} + \alpha_3 X_{t-i} + \alpha_4 X_{t-1} + e_t$$

In the ARDL test, after the long-term is determined, the optimum length structure should be selected using standard criteria such as Swartz Bayesian (SBC) or Akaike Information (AIC). Therefore, the next step is to determine the long-run and short-run coefficients in the models. The long-term formula for the ARDL test is as follows (Özçalık: 2014: 367):

$$Y_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i} Y_{t-i} + \sum_{i=0}^{m} \alpha_{2i} M_{t-i} + \sum_{i=0}^{m} \alpha_{3i} E_{t-i} + \mu_t$$

Error correction term is used in ARDL short run model. The short run dynamic model can be presented as follows (Özçalık: 2014: 367):

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{2i} \Delta Y_{t-i} + \sum_{i=0}^{m} \alpha_{3i} \Delta M_{t-i} + \sum_{i=0}^{m} \alpha_{4i} \Delta E_{t-i} + \alpha_1 EC_{t-i} + \mu_t$$

In the ARDL error and short-run test, the ARDL long model formulation with Y dependent variables and two independent variables (E and M) can be predicted by the above formulas by econometrics and statistics programs. The EC in the ARDL test formula shows the Error Correction Model. ARDL Error Correction Model aims to show how soon shocks that occur due to independent variables will stabilize in the long term.

4. ANALYZE AND FINDINGS

In the analyse part of the paper, the first part consists of descriptive statistic and unit root test applied to detect structure of the data set. The paper aims to expose the long-run relationship between global risk indicators and emerging markets stock market. After determining whether the data sets are stable or not, the long-term relations of the countries were examined by applying the time series model. To this end, the first section of the analyses is focussed to generate descriptive statistic. The descriptive statistic of the data set is provided in Table 1.

Table 1: Descriptive statistics BRICS-T Countries

Country	Variable	Mean	Min.	Max.	Standard Dev.	Jarque Bera	Observation
Turkey	VIX	19.16711	9.14	82.69	8.55	7030	2893
	CDS	1823.72	110	3209.22	104.57	1241.15	2613
	BIST-100	817.37	445.85	1479.91	195.96	95.44	2613
Brazil	VIX	19.16711	9.14	82.69	8.55	7030	2893
	CDS	193.5874	87.97	521.36	84.83	1290	2893
	Bovespa	66466.59	36234.69	119527.6	18312.48	479.25	2893
Russia	VIX	19.16711	9.14	82.69	8.55	7030	2893
	CDS	200.81	54.64	781.26	112.62	8683.22	2710
	RTSI	1823.72	553.62	3209.22	547.70	148.94	2710
India	VIX	19.16711	9.14	82.69	8.55	7030	2893
	CDS	109.81	95.07	271.49	37.33	120.23	926
	Nıfty-50	9994.25	6970.60	12362.30	1496.01	77.66	926
China	VIX	19.16711	9.14	82.69	8.55	7030	2893
	CDS	81.99	27.68	256.69	33.52	2408.23	2542
	SSEC	3272.14	1817.72	5353.75	679.06	39.15	2542
South Africa	VIX	19.16711	9.14	82.69	8.55	7030	2893
	CDS	201.6	103.75	507.93	65.14	2258.91	2779
	JTOPI	39555.13	16230.19	55484.28	10436.59	267.37	2779

After obtaining the descriptive statistics of the series, a high volatility was observed in the data set in the relevant period. It should also be taken into account that there were global financial crisis and corona virus effects in this period. Even if the number of data of the countries is different, there is an increasing momentum in the stock market returns of developing countries. This situation arises from the graphs of the stock market data of each country index. In addition, VIX index and CDS premiums generally follow a stable course, except in crisis periods. High volatility is observed in the data for these two variables only in times of crisis. After the descriptive statistics were obtained, the unit root tests of the series were performed and reported in Table 2.

Table 2: Unit Root Test Results

Country	Variable	Level	First Difference	Decision
Turkey	VIX	-5.742118 (0.0000)	-	*I(0)*
	CDS	-3.437911 (0.0467)***	-	*I(0)*
	BIST-100	-2.394224 (0.3824)	-33.44413 (0.0000)***	***I(1)***
Brazil	VIX	-5.742118 (0.0000)	-	*I(0)*
	CDS	-2.630122 (0.2667)	-25.04225 (0.0000)***	***I(1)***
	BOVESPA	-1.590885 (0.7967)	-36.00386 (0.0000)***	***I(1)***
Russia	VIX	-5.742118 (0.0000)	-	*I(0)*
	CDS	-4.412383 (0.0021)	-	*I(0)*
	RTSI	-3.119988 (0.1017)	-51.99437 (0.0000)	***I(1)***
India	VIX	-5.742118 (0.0000)	-	*I(0)*
	CDS	-3.317598 (0.0640)	-8.005912 (0.0000)***	***I(1)***
	NIFTY-50	-1.974654 (0.6139)	-29.14221 (0.0000)***	***I(1)***
China	VIX	-5.742118 (0.0000)	-	*I(0)*
	CDS	-4.050393 (0.0012)***	-	*I(0)*
	SSEC	3.076236 (0.1122)	-49.47439 (0.0000)***	***I(1)***
South Africa	VIX	-5.742118	-	*I(0)*

		(0.0000)		
	CDS	-4.493923 (0.0015)***	-	*I(0)*
	JTOPI	-3.353917 (0.0580)	-25.04225 (0.0000)***	***I(1)***

****** Significant at 5%.***

As a result of the unit root test analysis, different levels of unit root for each data set were obtained. VIX index is the same for all countries and calculated globally. Since the unit root result of different orders was obtained for each variable, it was decided to use the ARDL model to determine the long-term relationship between the series. Because of the different unit root level of variables, the ARDL model was deemed the best model for the assessment of relationship between stock exchanges and global risk indicators. For this purpose, the ARDL model was applied for all country data and the best fitted ARDL models are shown in Table 3.

Table 3: Model Selection

Country	Stock Exchange	VIX	CDS	Best Fitted Model	Selected Model
Brazil	***I(1)***	*I(0)*	***I(1)***	***ARDL***	***ARDL (2,3,4)***
South Africa	***I(1)***	*I(0)*	*I(0)*	***ARDL***	***ARDL (2,2,3)***
China	***I(1)***	*I(0)*	*I(0)*	***ARDL***	***ARDL (2,3,4)***
India	***I(1)***	*I(0)*	***I(1)***	***ARDL***	***ARDL (2,1,3)***
Russia	***I(1)***	*I(0)*	*I(0)*	***ARDL***	***ARDL (2,1,3)***
Turkey	***I(1)***	*I(0)*	*I(0)*	***ARDL***	***ARDL (4,4,4)***

In order to determine the fitted ARDL model, firstly, the suitable lag length must be detected. To detect appropriate lag length, the VAR model was generated, applied, and summarized in Table 4. In the last column of Table 4, the most suitable ARDL model lag length for each country is given. After determining the most suitable lag length, the ARDL Bound test application phase was started and the results are shown in Table 4. In the ARDL Bound test approach, in order to have a long-term relationship between variables, the detected f statistic must be higher than the upper bound value. If the f statistic is lower than the lower bound, there is no long-term relationship, and if the f statistic is between the lower and upper bound, no definite relationship can be mentioned. The f statistic between the lower and upper bounds is expressed as the grey area and is generally not reported. While reporting, calculations should

be made according to the significance levels of 1%, 2.5%, 5% and 10%. Based on these rules, results are summarized in the following table.

Table 4: Bound Test Results

Country	k	*f-statistic*	Critical values at the significance level in 1%		Critical values at the significance level in 2.5%		Critical values at the significance level in 5%		Critical values at the significance level in 10%	
			Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound
Turkey	2	**7.55**	4.99	5.85	4.37	5.16	3.88	4.61	3.38	4.02
Brazil	2	**5.42**	4.99	5.85	4.37	5.16	3.88	4.61	3.38	4.02
Russia	2	**4.74**	4.13	5	3.55	4.38	3.1	3.87	2.63	3.35
China	2	**3.93**	5.15	6.36	4.41	5.52	3.79	4.85	3.17	4.14
S. Africa	2	**9.59**	4.13	5	3.55	4.38	3.1	3.87	2.63	3.35
India	2	**9.81**	4.99	5.85	4.37	5.16	3.88	4.61	3.38	4.02

According to the results obtained after the application of the ARDL model, there is a long-term relationship between the variables in all countries except China. 5% significance level is considered sufficient to determine the relationship between variables in social sciences. From this perspective, statistically significant relationships were found in most of the established ARDL models starting from the 2.5% significance level. F statistic values obtained in the model established for Turkey is significant at the 1% significance level. This f-statistic value was determined to be higher than the upper limit value at all levels. The same is true for the model established for South Africa and India. In the ARDL model established for the data set of South Africa and India, the long-term relationship between variables is valid at 1% significance level. On the other hand, in the analyses for Brazil and Russia, no statistically significant relationship was found at the 1% significance level. Just after 1% significance level, f statistic is significant for 2.5%, 5% and 10% level. Whereas, there is no statistically significant relationship detected for China based on ARDL Bound test. It means that, VIX, CDS and stock exchange variables are not cointegrated in the long-run. So, CDS and VIX ındex values are not a meaningful decision criteria for the China stock market. For the rest (Turkey, Brazil, Russia, South Africa and India) CDS and VIX index numbers must be taken into consideration for the investment decisions relating to the stock markets.

5. CONCLUSION

Through globalization, the borders surrounding various countries have disappeared. The crisis that occurs in one country, thanks to globalization, is spreading quickly among other countries. Hence, any crisis can be said to go beyond any geographical barriers. Risks increase due to developments in markets and economies between countries. Accordingly, given the problems that occur in the markets in this

globalized world, risk management and risk protection methods have had to be addressed in all countries. Although a crisis might start in one country, this could cause havoc across the whole world. The 2008 crisis can be cited as the most important example. Although the 2008 crisis emerged in the developed country, it affected the economies of the whole world from one day. This crisis caused great damage to the economies of the whole world. Countries that want to avoid certain crisis and risks have tried to implement measures to protect countries' economies. They aimed to keep the economies of the country under control through indices such as CDS, Credit rating and VIX. Despite the fact that the credit rating method is the most commonly used method, one has to consider that it carries a little risk. However, CDSs also carry little risk and protect the investors from said risks. For this reason, CDS are the most traded products among loan derivatives and are very popular in the liquid market. The VIX index is seen as the subject that has been followed and researched recently. Countries try to avoid risks by following the VIX index, that is, the fear index.

In this study, the effects of global risk indicators on developing country stock markets were examined. To this end, BRICS-T (Brazil, Russia, India, China, South Africa and Turkey) countries are determined as an emerging market for the current research. The data set of the study covers a period between 2008 and 2020. This period contains both global financial crises and the coronavirus pandemic. Both of them affected the stock markets very negatively. To determine the relationship of global risk indicators and stock markets, ARDL model was determined as the best fitted model for each stock market just after applying unit root test. Based on the ARDL model, it was determined that 5 out of 6 countries showed that there was a significant relationship between the variables. Except for China, there is a statistically significant relationship between CDS premiums, VIX index and stock market returns of emerging markets. It means that, VIX and CDS premiums significantly affect the returns of Turkey, Brazil, Russia, South Africa and India stock market indices. Therefore, investors should take into account VIX and CDS premiums when investing in these countries and especially in their securities. These outputs are consistent with the previous studies by (Buberkoku, 1997; Levina and Zervos, 1998; Arestis et al., 2001; Bologna and Cavallo, 2002; Park and Bae, 2004; Dullmann and Sosinska, 2007; Ericsson et al., 2009; Demirer et al., 2010; Brigo et al., 2012; Sahin and Sumer, 2014; Puliga et al., 2014; Kaya, 2015; Erdogdu and Baykut, 2016; Kula and Baykut, 2017; Abdellahi et al., 2017; Aksoylu and Gormus, 2018; Sarıtas and Nazlioglu, 2019; Gunay, 2019; Akcalı et.al., 2019; Vurur and Ozen, 2020) in the literature. For further studies, is the authors recommend to carry out research on MSCI Emerging Markets Index countries by applying not only CDS and VIX Index but also MOVE Index and JP Morgan Volatility Index to detect the effects of risk indicators on emerging markets stock indices.

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Evaluation of financial statements of sports clubs for 2019 and 2020 operational periods in terms of the covid-19 pandemic and research in terms of financial risk

Adnan Sevim

[a] Anadolu University, Faculty of Economics and Administrative Sciences, Department of Business Administration, Accounting and Finance Department, asevim@anadolu.edu.tr, Research Article, https://orcid.org/0000-0002-0864-3719[b]Add

ABSTRACT

The Covid-19 pandemic and the accompanying uncertainties deeply affected the activities and financial structures of businesses and caused negative effects on their financial statements in many respects. Sports clubs are at the top of the list of businesses that suffer the most from the negativities of the pandemic process and experience a lot of loss in their financial and operational activities. Considering the developments both in Europe and in the World, the temporary postponement of sports matches, the start of competitions without spectators, the restructuring of club debts have seriously affected sports clubs, which are currently experiencing economic difficulties, deteriorate their liquidity, cash flows and increase uncertainty by making debt payments difficult. In addition, as the impact of risks on future performance increases, risk management practices have gained importance. In this context, information on the current ratio, cash ratio, financial leverage ratio, financing ratio, debt / equity ratio, and financial risk ratio obtained from the financial statement data for the period of 2019 and 2020 were used to evaluate the financial risk levels of 12 sports clubs. The deterioration in the financial structures of the sports clubs most affected by the pandemic process was examined and the risks encountered were discussed. In addition, the comparative financial analysis results were evaluated by analysing the effect of the financial structure and financial reporting of the clubs.

ARTICLE INFO

Keywords:
Risk, Liquidity, Financial Reporting, Financial Analysis, Fair Play, Football Clubs, European Football Leagues, TFF, UEFA, FIFA

Corresponding author:
asevim@anadolu.edu.tr
Prof. Dr. Adnan Sevim

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1. INTRODUCTION

The COVID-19 epidemic, which started in the People's Republic of China and spread all over the world, deeply affects and transforms our daily life. The World Health Organization's announcement of the virus to the world on January 30, 2020 and its subsequent acceptance of the virus as a pandemic on March 11, 2020 are important turning points that transform our lives from our individual life to our social life. The measures taken against the epidemic and preventive measures against the epidemic, both in the world and in Turkey, primarily affected human behaviour and this situation has changed the consumption habits, social

relations and economic preferences in daily life. It has been inevitable that the economic, social, cultural and technological developments caused by the epidemic negatively affect the businesses and their activities. These negative developments manifest themselves as uncertainty in the markets, disruptions in supply chains, interruptions, production delays, fluctuations in demand, and decrease in sales and productivity.

Sports clubs are at the top of the businesses most affected by the COVID-19 outbreak. Competitions postponed due to the epidemic, unsuccessful sports activities caused sports clubs to be deprived of their most basic sources of income. This situation has revealed significant uncertainties in the cash management, continuity, operating processes, contracts and estimations of the clubs and influenced them to change their strategies. In this context, financial reports, which reveal the activity results, financial status, cash management and economic performance of sports clubs, reflect the complex, uncertain and difficult to forecast period of the new period, as in all economic activities, in the process that develops with the pandemic declaration. Therefore, the significant uncertainties created by the negative effects of COVID-19 in the economic order and in the financial reporting processes and systems of sports clubs reveal this new reality, as well as serious concerns about the continuity in the future.

2. COVID-19 PANDEMIC PROCESS

The environment of uncertainty created by the COVID-19 pandemic continues to affect business activities and processes in many ways, since such an event has not been encountered before and it is different from the crises experienced in the past. Since changes in people's consumption and purchasing behaviour affect their economic preferences, the deterioration in expected cash flows in the short term also disrupts the general structure of business activities in the long run. In addition, since it is not known when the pandemic will end and life will return to normal, the disruptions and delays in the raw material, supply chain, production, sales and distribution channels in the economic cycle increase the uncertainty in the process. Consequently, the adversities originating from Covid-19 disrupt the market order, cause fluctuations in supply and demand, and businesses that shut down with a decrease in productivity cause both customer and employment loss. However, the deterioration in international markets and the sharp declines in the stock markets cause stagnation of investments, failure to fulfill contractual obligations, increase in

unemployment, proliferation of bankruptcies and suppression of the financial system (McKinsey and Company, 2020).

Economic fluctuations caused by the Covid-19 pandemic pose significant risks in sustaining business activities. The pandemic effects can cause even the most basic activities to fail, as businesses are established on a continuity basis, have an indefinite life, and their financial statements are arranged in accordance with the principle of continuity of the business. This situation, when we consider the experienced conditions and events together, is effective in explaining the lack of suitable environment for activities, the existence of serious doubts about continuity and the uncertainties caused by these events and conditions in the footnotes of the financial statements (AASB, 2020; Mazars, 2020). Disclosures, action plans and supplementary additional information on this subject should include the effects of significant uncertainties and the judgments and evaluations made by the business management against them (Adana and Özbirecikli, 2020). In addition, comprehensive evaluations should be made in the footnotes regarding the changes in the previous periods that affect the current period and how the liquidity risk is evaluated, the nature of the risk assessment procedures and the responses to these risks and their effects on the financial statements (BDS, 570: 10-11). In this context, important evaluations and decisions to be made regarding the continuity of uncertainty conditions will contribute to the understanding of the financial situation and performance and to the access of all stakeholders to the financial information they need.

3. EFFECTS OF COVID-19 PANDEMIC ON SPORTS CLUBS

Although the preventive measures, restrictions and policies that came with the Covid-19 pandemic affected the activities of many businesses, they affected sports clubs more and more directly, and brought club activities to a halt. Quarantines imposed by public authorities, calls to stay away from crowded environments and prohibitions for gathering have seriously affected and put pressure on sports clubs operating with large-scale participation, and as a result of these decisions, the revenues of the clubs have suddenly decreased. Despite the continuation of contractual obligations, the liquidity and cash flow problems caused by the decrease in revenues and the resulting losses caused the clubs to be in a difficult situation in addition to increasing their capital requirements (Deloitte, 2020). Therefore, sports clubs whose cash flows have deteriorated, cannot make a profit and are faced with insufficient cash have produced solutions with measures to reduce existing expenditures, control costs, restructure short-term liabilities and do not spend unnecessarily,

in order to keep their businesses alive, with the least damage from this process. They sought ways out (ICAEW, 2020).

Postponements and cancellations that directly affect sports clubs cause the removal of important income sources such as broadcasting, sponsorship, advertising and matchday revenues, as well as affecting the sports activities of the clubs. In addition to these, the inability to organize international tournaments combined with the economic and social problems brought by Covid-19, sports clubs in Europe have been deprived of the expected income. Considering the fact that approximately 80% of the sponsorship and broadcasting revenues of the tournaments held by UEFA are shared with the federations of the participating countries, the level of the versatile losses of sports clubs is better understood when the revenues of the teams from the competitions that will result in victory and tie. Considering the fact that professional and amateur sports activities in the sports industry are deprived of these important sources of income will leave them with many problems to continue their activities, it has become inevitable that the losses and possible damages that may be experienced will be at record levels (Akkaş, 2020; Gough, 2020).

Sports clubs find themselves in the production of goods and services by establishing economic enterprises in order to increase their income other than sports activities and to create new sources of income. These income items, which are established in order to diversify the sources of income and to generate income by making the best use of sports activities; Stadium revenues consist of facility and rental revenues, and sales revenues of products with logos or licenses. In the process that started with the postponement and cancellation of the competitions in the Covid-19 pandemic, these economic activities were also affected, and many facilities and stores stopped their activities within the scope of quarantine measures. The table showing the estimated revenue losses of the affected European Football Leagues in the 2019-2020 season is as follows:

Table 1: Estimated income losses of european leagues (million euros)

Country	Matchday revenues	Broadcasting revenue	Trade revenues
England	180	800	300
Spain	170	600	200
Germany	140	400	250
Italy	100	450	150

France	60	200	140

Source: (Lange, 2020)

While the contractual obligations of sports clubs continue, failure to hold the matches will primarily affect the ticket revenues on the day of the match and there will be a financial loss in important income sources that is difficult to foresee, as advertising and sponsorship revenues will not be obtained in an environment without spectators. In addition, the continuation of the administrative activities of the club causes serious problems in fulfilling its financial obligations, making contractual wage payments to athletes and paying debts to financial institutions. Therefore, in the current structure, related party problems between the association and the company, inadequate use of resources, accumulated losses from previous years, loss of capital and being in debt cause club revenues to be unable to meet its expenses. In this case, when the difficulties in fulfilling the financial obligations and the problems in meeting the UEFA Fair Play Criteria combined with the Covid-19 pandemic, the existing problems became more unbearable, deeply shaking the continuity of the clubs and moving away from the sustainable structure. In terms of forming the subject of the study, the mentioned risks and their effects will be examined in the following title.

4. ASSESSMENT OF RISKS AND RISKS

Risk refers to the possibility of an undesirable situation occurring and expresses uncertainty. When the financial structures of football clubs are analysed it is seen that they are more affected by financial risk and exchange rate risk. Financial risk is an unsystematic risk and it is possible for businesses to control themselves. Especially companies that want to take advantage of the leverage effect of debt borrow high amounts (Ercan and Ban, 2012). Therefore, depending on the change in debt amount, the level of risk incurred varies for each enterprise (Aksoy and Tanrıöven, 2007). Risk, which is defined as a positive or negative return, depending on financially future alternatives, or as a positive or negative difference between actual value and expected value, is generally the possibility of encountering unexpected consequences arising from uncertainties about future events. On the other hand, risk is the measurable part of uncertainty, and if the probability estimation for the future is made objectively, risk is called uncertainty if it is done subjectively (Usta, 2012).

Financial risks faced by businesses; It is possible to group them under four headings as market risk, liquidity risk, credit risk and operational risks. Market risk of these; It is the

possibility of financial loss arising from unexpected changes in exchange rate, interest rate, security and product prices (Bolak, 2004). This risk constitutes an important part of the financial risks faced by businesses in both financial and non-financial sectors. Liquidity risk also appears as a funding risk and can be defined as the inability to provide the needed funds on time and at the desired cost or the inability to dispose of the assets at the desired time and price. Credit risk, on the other hand, can also be named as counterparty risk, and it arises from the failure of the person or institution with whom the company has financial transactions to fulfil its obligations. Operational risk arises from irregularities and insufficiencies in transaction processes or management. Operational risk is related to personal errors, systemic errors, inadequate controls and procedures (Ercan and Ban, 2012).

With risk management practices, eliminating negative risks, reducing their negative effects or making them create opportunities for the business; It becomes possible to evaluate the opportunities by increasing the probability of realization or the effects of positive risks. It is not enough to carry out risk management studies alone, and these studies should also be disclosed to the public. In this way, it will be possible for information users outside the company to take into account the risks of the relevant businesses and the work related to the management of these risks, and take these factors into account while making decisions. Therefore, risk management is a process that starts with steps in the form of identifying, evaluating, and managing risks, and in short, businesses identify their own risks and respond to them in a beneficial way. Since it is not a static but a dynamic process, the risk management process continues with controls and improvement studies after the implementation of the prepared plan. For this reason, it is necessary to make continuous reviews and to monitor the up-to-dateness and effectiveness of the risks identified and the counter steps taken.

5. THE METHODOLOGY OF THE RESEARCH AND THE RESULTS

In this part of the study, regarding the information obtained from the financial reports of 2019 and 2020 of the sports clubs from France, Italy, Germany, England, Turkey and Spain, which are the most affected by the Covid-19 pandemic; In addition to explanations about the purpose, importance and scope of the research, the method of data collection and the analysis process of the obtained information will be included.

5.1. The Purpose and importance of the research

The level of impact of the Covid-19 pandemic on football clubs and the risks they face can be understood from the amounts expressed in the financial reports and their explanatory footnotes. The fact that sports clubs use a special fiscal period and the end date in the financial statements is May 31, provides very useful information in terms of seeing these effects and makes it easier to see the pandemic effect. Since the acceptance of the Covid-19 pandemic as a pandemic on March 11, 2020 and the subsequent taking of preventive measures directly affect the normal activities of football clubs during the season, pandemic problems can be seen easily from these reports. In this context, in this heading of the study, first of all, financial information of four major football clubs in Turkey in the 2019/2020 Spor Toto Super League Cemil Usta season were reached. In addition, 8 big football clubs, whose financial reports were published France, Italy, Germany, England and Spain (FIGES), were added, and the independent audit reports and annual reports of 12 football clubs for 2019 and 2020 were reached. Based on this information obtained, financial information regarding the pre and post pandemic was collected, the effects it created on the financial structure and the differences in reporting were analyzed. The collection and analysis of all this information includes critical information in terms of seeing the first impact of the Covid-19 pandemic on financial reports and tracing these effects, and it is also important in terms of being a source for the work to be done.

5.2. Scope and method of the research

The financial reports of the football clubs to be examined for research purposes have been obtained from the Public Disclosure Platform (PDP-KAP) in Turkey and from the investor relations section on the websites of the relevant enterprises. Financial reports of football clubs of FIGES, on the other hand, were accessed from each club's own website, and in some cases, access was made to the reports from common platforms disclosed to the public. In this context, with the addition of clubs in various countries, 4 of which are in Turkey, the financial reports of a total of 12 football clubs, which are listed in the table below and whose reports have just been published, were analyzed by content analysis method, the data were systematically gathered and financial information were summarized. In addition, summary information collected within the scope of the study were evaluated with financial analysis methods, inferences were made regarding the results obtained, and predictions for the future were also included with explanations of Covid-19.

Table 2. List of sports clubs and reports examined within the scope of the research

Number	Country	Sport club	Report Date	Report Date
1	Turkey	Beşiktaş	31 May 2019	31 May 2020
2	Turkey	Fenerbahçe	31 May 2019	31 May 2020
3	Turkey	Galatasaray	31 May 2019	31 May 2020
4	Turkey	Trabzonspor	31 May 2019	31 May 2020
5	England	Manchester United	30 June 2019	30 June 2020
6	England	Celtic	30 June 2019	30 June 2020
7	England	Everton	30 June 2019	30 June 2020
8	England	Rangers	30 June 2019	30 June 2020
9	Italy	Juventus	30 June 2019	30 June 2020
10	Italy	Inter	30 June 2019	30 June 2020
11	France	Olympique Lyonnais	30 June 2019	30 June 2020
12	Germany	Borussia Dortmund	30 June 2019	30 June 2020

Financial analysis techniques were used to evaluate the risks and calculations were made regarding the current ratio, cash ratio, financial leverage ratio, financing ratio, debt / equity ratio and financial risk ratio. In the calculation of the financial risk ratio, equity is divided by the net debt amount obtained by deducting the receivables from the total debt amount. If this ratio is higher than 1, it is considered as low risk and if it is less than 1, it is considered as high risk. The high rate of this ratio indicates that the equity is strong and the profits of the previous years also made significant contributions to the business. In addition, although there are various formulas developed to measure the financial risks of businesses, it has been evaluated that this ratio will express the financial risk ratio more accurately in sports clubs. The ratios used and their formulas are given in the table below.

Table 3: Used Ratios and Formulas

Used ratios	Formulas
Current rate	Current Assets / Short Term Liabilities
Cash rate	Cash and Cash Equivalents / Short Term Liabilities
Financial leverage ratio	Total Liabilities / Total Assets
Financing rate	Equity / Total Liabilities
Debt / equity ratio	Total Liabilities / Equity

Financial risk ratio	Equity / (Total Liabilities-Total Receivables)

5.3. Research results

As a result of the research, the risks arising from the Covid-19 effect are clearly seen in all the annual financial reports of all clubs that expired in 2020. This effect is reflected in the content of the financial statements as well as being expressed in the additional explanations and footnotes in the financial reports. In this title, the effects in the financial reports of the club due to the Covid-19 pandemic will first be summarized over the amounts reflected in the tables, compared with the previous period, and then the footnote explanations related to the subject will be included. Evaluations on financial structure, reporting and risks will be expressed together in the conclusion section.

5.3.1. Effects on the structure of financial statements

Based on the information obtained from the annual financial reports of football clubs in our country that ended on May 31, 2019 and May 31, 2020, the comparison of the financial information of four major football clubs that are open to the public is summarized as follows.

Table 4: Summary of the financial statements of the big four football clubs in Turkey (annual)

Beşiktaş (TL)				
Account group / items	**31 May 2020**	**31 May 2019**	**Difference**	**%**
Cash and cash equivalents	68.280	1.614.327	-1.546.047	-95,77
Current assets	1.042.320.212	765.496.198	276.824.014	36,16
Fixed assets	367.245.391	385.824.301	-18.578.910	-4,82
Short term liabilities	1.180.294.098	1.608.892.069	-428.597.971	-26,64
Long term liabilities	1.522.097.405	357.599.722	1.164.497.683	325,64
Equity	-1.292.825.900	-815.171.292	-477.654.608	58,60
Revenues	497.829.215	621.350.216	-123.521.001	-19,88
Net profit loss	-154.804.664	-305.711.408	-171.992.888	56,26
Net working capital	-137.973.886	-843.395.871		
Fenerbahçe (TL)				
Account group / items	**31 May 2020**	**31 May 2019**	**Difference**	**%**
Cash and cash equivalents	13.758.016	7.948.189	5.809.827	73,10
Current assets	1.891.630.353	1.835.479.217	56.151.136	3,06
Fixed assets	199.407.804	144.905.806	54.501.998	37,61
Short term liabilities	1.910.790.580	1.437.897.012	472.893.568	32,89
Long term liabilities	982.023.759	1.191.179.749	-209.155.990	-17,56
Equity	-801.776.182	-648.691.738	-153.084.444	23,60
Revenues	544.326.007	707.779.639	-163.453.632	-23,09
Net profit loss	-477.704.296	-205.996.193	-271.708.103	131,90

Net working capital	-19.160.227	397.582.205		
Galatasaray (TL)				
Account group / items	**31 May 2020**	**31 May 2019**	**Difference**	**%**
Cash and cash equivalents	564,152	9.276.870	-9.276.306	-99,99
Current assets	307.549.474	364.752.468	-57.202.994	-15,68
Fixed assets	1.486.221.951	1.070.098.555	416.123.396	38,89
Short term liabilities	910.431.417	1.289.689.681	-379.258.264	-29,41
Long term liabilities	1.203.104.048	417.865.681	785.238.367	187,92
Equity	-319.697.459	-272.671.217	-47.026.242	17,25
Revenues	899.733.044	927.493.705	-27.760.661	-2,99
Net profit loss	-46.709.780	24.169.019	-70.878.799	-293,26
Net working capital	-602.881.943	-924.937.213		
Trabzonspor (TL)				
Account group / items	**31 May 2020**	**31 May 2019**	**Difference**	**%**
Cash and cash equivalents	1.755.914	5.252.594	-3.496.680	-66,57
Current assets	162.509.222	75.083.723	87.425.499	116,44
Fixed assets	465.941.504	505.129.265	-39.187.761	-7,76
Short term liabilities	302.242.699	624.974.889	-322.732.190	-51,64
Long term liabilities	881.402.146	475.555.919	405.846.227	85,34
Equity	-555.194.119	-520.317.820	-34.876.299	6,70
Revenues	446.321.394	361.740.062	84.581.332	23,38
Net profit loss	-36.299.742	-66.013.568	29.713.826	-45,01
Net working capital	-139.733.477	-549.891.166		

Unlike the special accounting period in Turkey, other European football clubs publish their annual financial reports on 30 June 2020. In this context, the summary of the financial information of 8 football clubs, 4 from England and 4 from Europe, which have been published so far and known globally, are as follows:

Table 5: Summary of the financial statements of the 4 football clubs selected from England

Manchester United (Sterling)				
Account group / items	**31 June 2020**	**31 June 2019**	**Difference**	**%**
Cash and cash equivalents	51.539.000	307.637.000	-256.098.000	-83,25
Current assets	224.806.000	388.323.000	-163.517.000	-42,11
Fixed assets	1.158.660.000	1.108.202.000	50.458.000	4,55
Short term liabilities	398.344.000	428.844.000	-30.500.000	-7,11
Long term liabilities	633.890.000	652.479.000	-18.589.000	-2,85
Equity	351.232.000	415.202.000	-63.970.000	-15,41
Revenues	509.041.000	627.122.000	-118.081.000	-18,83
Net profit loss	-23.233.000	18.881.000	-42.114.000	-223,05
Net working capital	-173.538.000	-40.521.000		
Celtic (Sterling)				
Account group / items	**31 June 2020**	**31 June 2019**	**Difference**	**%**
Cash and cash equivalents	22.406.000	34.057.000	-11.651.000	-34,21

Current assets	52.153.000	62.126.000	-9.973.000	-16,05
Fixed assets	92.107.000	80.935.000	11.172.000	13,80
Short term liabilities	49.929.000	44.414.000	5.515.000	12,42
Long term liabilities	12.864.000	16.885.000	-4.021.000	-23,81
Equity	81.467.000	81.762.000	-295.000	-0,36
Revenues	70.233.000	83.410.000	-13.177.000	-15,80
Net profit loss	-368.000	8.738.000	-9.106.000	-104,21
Net working capital	2.224.000	17.712.000		
Everton (Sterling)				
Account group / items	**31 June 2020**	**31 June 2019**	**Difference**	**%**
Cash and cash equivalents	56.404.000	27.429.000	28.975.000	105,64
Current assets	125.653.000	112.660.000	12.993.000	11,53
Fixed assets	249.446.000	284.832.000	-35.386.000	-12,42
Short term liabilities	124.811.000	230.661.000	-105.850.000	-45,89
Long term liabilities	250.288.000	166.831.000	83.457.000	50,02
Equity	70.932.000	160.802.000	-89.870.000	-55,89
Revenues	185.882.000	187.664.000	-1.782.000	-0,95
Net profit loss	-139.869.000	-111.815.000	-28.054.000	25,09
Net working capital	842.000	-118.001.000		
Rangers (Sterling)				
Account group / items	**31 June 2020**	**31 June 2019**	**Difference**	**%**
Cash and cash equivalents	11.126.000	1.037.000	10.089.000	972,90
Current assets	41.038.000	23.860.000	17.178.000	71,99
Fixed assets	77.748.000	75.230.000	2.518.000	3,35
Short term liabilities	72.338.000	49.224.000	23.114.000	46,96
Long term liabilities	14.654.000	16.982.000	-2.328.000	-13,71
Equity	31.794.000	32.884.000	-1.090.000	-3,31
Revenues	59.033.000	53.171.000	5.862.000	11,02
Net profit loss	-17.462.000	-11.277.000	-6.185.000	54,85
Net working capital	-31.300.000	-25.364.000		

Table 6: Summary of financial statements of 4 football clubs selected from Europe

Borussia Dortmund (Euro)				
Account group / items	**31 June 2020**	**31 June 2019**	**Difference**	**%**
Cash and cash equivalents	3.157.000	52.120.000	-48.963.000	-93,94
Current assets	51.793.000	93.150.000	-41.357.000	-44,40
Fixed assets	451.466.000	391.754.000	59.712.000	15,24
Short term liabilities	8.186.000	12.972.000	-4.786.000	-36,89
Long term liabilities	172.547.000	86.094.000	86.453.000	100,42
Equity	334.337.000	389.518.000	-55.181.000	-14,17
Revenues	442.126.000	446.030.000	-3.904.000	-0,88
Net profit loss	-49.662.000	25.844.000	-75.506.000	-292,16
Net working capital	43.607.000	80.178.000		
Inter (Euro)				
Account group / items	**31 June 2020**	**31 June 2019**	**Difference**	**%**
Cash and cash equivalents	16.898.000	15.664.000	1.234.000	7,88

Current assets	107.588.000	130.681.000	-23.093.000	-17,67
Fixed assets	449.515.000	429.088.000	20.427.000	4,76
Short term liabilities	99.409.000	53.820.000	45.589.000	84,71
Long term liabilities	320.376.000	323.619.000	-3.243.000	-1,00
Equity	137.318.000	182.330.000	-45.012.000	-24,69
Revenues	85.578.000	144.941.000	-59.363.000	-40,96
Net profit loss	27.607.000	72.646.000	-45.039.000	-62,00
Net working capital	-212.788.000	-192.938.000		
Juventus (Euro)				
Account group / items	**31 June 2020**	**31 June 2019**	**Difference**	**%**
Cash and cash equivalents	5.917.079	9.744.722	-3.827.643	-39,28
Current assets	258.319.852	165.339.035	92.980.817	56,24
Fixed assets	910.026.571	751.170.621	158.855.950	21,15
Short term liabilities	403.604.924	360.215.100	43.389.824	12,05
Long term liabilities	486.611.963	499.997.934	-13.385.971	-2,68
Equity	239.204.587	31.242.712	207.961.875	665,63
Revenues	573.424.092	621.456.394	-48.032.302	-7,73
Net profit loss	-89.682.106	-39.895.794	-49.786.312	124,79
Net working capital	-145.285.072	-194.876.065		
Olympique Lyonnais (Euro)				
Account group / items	**31 June 2020**	**31 June 2019**	**Difference**	**%**
Cash and cash equivalents	32.941.000	11.962.000	20.979.000	175,38
Current assets	111.294.000	103.342.000	7.952.000	7,69
Fixed assets	591.949.000	526.341.000	65.608.000	12,46
Short term liabilities	182.746.000	118.829.000	63.917.000	53,79
Long term liabilities	290.430.000	244.422.000	46.008.000	18,82
Equity	230.067.000	266.431.000	-36.364.000	-13,65
Revenues	180.693.000	220.854.000	-40.161.000	-18,18
Net profit loss	-36.606.000	6.404.000	-43.010.000	-671,61
Net working capital	-71.452.000	-15.487.000		

5.3.2. Comparative financial analysis results of clubs

Based on the information obtained from the annual financial reports of football clubs for 2019 and 2020, the comparative financial analysis results of 12 sports clubs are summarized as follows:

Table:7 Comparative financial analysis results of football clubs

Comparative financial analyis results of football clubs													
Number	Football Clubs	Current rate		Cash rate		Financial leverage ratio		Financing rate		Debt / equity ratio		Financial risk ratio	
		2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
1	Beşiktaş	0,4758	0,8831	0,0010	0,0001	1,7080	1,9172	-0,4145	-0,4784	-2,4124	-2,0903	-1,1429	-1,2782
2	Fenerbahçe	1,2765	0,9900	0,0055	0,0072	1,3276	1,3834	-0,2467	-0,2772	-4,0529	-3,6080	-0,7389	-0,7409
3	Galatasaray	0,2828	0,3378	0,0072	0,0000	1,1901	1,1783	-0,1597	-0,1513	-6,2623	-6,6110	-0,1912	-0,1657
4	Tnabzonspor	0,1201	0,5377	0,0084	0,0058	1,8968	1,8834	-0,4728	-0,4691	-2,1151	-2,1319	-0,4987	-0,5350
5	Manchester United	0,9055	0,5644	0,7174	0,1294	0,7226	0,7461	0,3840	0,3403	2,6043	2,9389	0,3875	0,3553
6	Borussia Dortmund	1,0820	0,3002	0,6054	0,0183	0,1775	0,3429	4,5243	1,9377	0,2210	0,5161	7,9632	2,6329
7	Inter	2,4281	1,0823	0,2910	0,1700	0,6743	0,7535	0,4831	0,3271	2,0701	3,0570	0,6924	0,4148
8	Celtic	1,3988	1,0445	0,7668	0,4488	0,4285	0,4353	1,3338	1,2974	0,7497	0,7708	2,2792	2,3741
9	Everton	0,4884	1,0067	0,1189	0,4519	0,7120	0,8410	0,4045	0,1891	2,4719	5,2881	0,4786	0,2102
10	Juventus	0,4590	0,6400	0,0271	0,0147	0,9386	0,7619	0,0363	0,2687	27,5332	3,7216	0,0380	0,2956
11	Rangers	0,4847	0,5673	0,0211	0,1538	0,6681	0,7323	0,4967	0,3655	2,0133	2,7361	0,7580	0,5570
12	Olympique Lyonnais	0,8697	0,6090	0,1007	0,1803	0,5769	0,6728	0,7335	0,4862	1,3634	2,0567	0,7648	0,5054

5.3.3. Effects of disclosures in financial reports

Since the Covid-19 effect deeply affects football clubs in Europe, the negative effects seen in the structure and rates of the financial statements are also expressed in financial reports from many angles. Disclosures in the financial reports, future estimates, policies and footnotes on measures taken by the management regarding the significant uncertainty experienced are summarized as follows:

a) Due to the Covid-19 pandemic, social and economic activities were negatively affected and it was decided by the Ministry of Youth and Sports to postpone all leagues as of March 31, 2020. On May 28, 2020, it was announced by the Turkish Football Federation (TFF) that the Super Toto Super League would restart on June 12, and within the scope of preventive measures, the current competitions were postponed and left to the following dates. As a result of these developments, there was a significant decrease in performance-based revenues and these revenues were extended to the next periods. In addition, due to the end of the 2019 and 2020 Spor Toto Super League Cemil Master Season on July 26, 2020, the revenues for the completion degree of the league could not be recorded. In the deferred league, which was completed in July, the revenues of 8 football competitions for performance could not be reflected as income in the financial statements dated May 31, 2020, and were transferred to the next period.

b) Due to the Covid-19 pandemic, the football club management, professional athletes and technical staff could not be paid in full for the events after the reporting date. Due to Covid-19, the Association of International Football Federations (FIFA) published a circular numbered 1714 on April 07, 2020 and the Turkish Football Federation defined the Covid-19 epidemic as "force majeure" with a similar opinion on April 08, 2020 In this context, it recommended that both parties work together in order to protect the interests of both clubs and athletes, and to postpone the payment or a reasonable reduction in the contract price by mutual agreement. Within the framework of this decision, discussions are ongoing on the issue of discounts on the fees written in the contracts with the athletes included in the assets of the balance sheet of the clubs and their warranty wage obligations. In disputes arising out of disputes or termination of the contract, the trial process is still continuing in the debt lawsuits filed against the club within FIFA.

c) In the financial statements prepared for the principle of continuity of clubs, the increase in period assets slowed down due to Covid-19, but the increase in short-term liabilities accelerated. In this situation, the club's net working capital turned negative and significant uncertainty began to appear in terms of fulfilling short-term liabilities. In addition, when the losses in the equities in the current period and in the previous years are taken in to account, there is a situation of being in debt according to the 376th Article of the Turkish Commercial Code. However, the financial difficulties experienced by the clubs are expected to be overcome with the measures taken by the club management and the breakthroughs that will be made with additional income contributions. Likewise, if the club management's future expectations and cash flow plans are realized, it is considered that these negative effects and important uncertainties will disappear.

d) As of March 23, 2020; the Presidency announced that sports clubs whose cash flows have deteriorated due to Covid-19 will postpone loan principal and interest payments and provide additional financing support. Within the scope of the Economic Stability Shield Package stated in this announcement, negotiations were held with creditor banks and a postponement of interest payments on loans was requested for 6 months. In addition, the club's negotiations with various banks on loan debts and their structuring, and the restructuring request for tax debts are also ongoing.

e) The decrease in club revenues, the deterioration of cash flows, the existence of significant uncertainties regarding the activities and the inability to predict the

reasonable effects of a second wave that may occur in the Covid-19 pandemic on the financial statements required additional measures to be taken for the effective management of existing resources. In this context, additional decisions were taken to support all kinds of additional income-increasing and resource-generating measures, to keep current expenditures at the optimum level and to strengthen the financial structure. In addition, the wages of the athletes, technical staff wages and the rental fees of the athletes, which are recognized in the "Cost of Sales" account of the income statement for the period, were suspended to the next period due to the extension of the season until June and July, and were deferred and accounted for in accordance with the periodicity principle.

f) The cessation of sports activities caused significant losses in broadcasting rights, sponsorship, naming rights and advertising revenues of the clubs. The effects on the recognition of these losses have the power to affect the activities to be carried out in the future. In this context, these revenues, corresponding to the deferred period, were accounted for in the account of liabilities arising from customer contracts. In addition, assumptions made for financial status and estimates for cash flows continue to be uncertain, together with cyclical developments. Licensed merchandising stores are closed, stadium revenues disappeared, lack of broadcasting revenues, fluctuations in interest and exchange rates negatively affect the borrowing of clubs and bring financial difficulties.

g) Considering the results of the financial analysis, the change in the current ratio and cash ratio is significant compared to the previous year. The significant change in the cash ratio in all selected clubs in our country and abroad reveals the loss of income and the difficulty of cash management experienced during the pandemic process. The fact that the cash ratio approaches 0 (zero) in Beşiktaş and Galatasaray clubs in Turkey also indicates the magnitude of the risk encountered. Although similar decreases are observed in the clubs abroad, the situation of the clubs in our country gives important clues about the sustainability of cash and cash management.

h) During the pandemic period, finding additional funds for clubs to continue their activities and going into borrowing for this has affected the change in leverage ratios. The clubs' need to borrow more and restructuring their debt payments both in Turkey and abroad cause serious changes in financial leverage ratios and financing ratios.

i) Approaching the subject in terms of financial risk ratio, it is accepted that if the equity of the clubs is strong, the ratio will be lower and there will be no problems in fulfilling

their obligations. The insufficient equity of the clubs in our country and the continuing losses accumulated from the past years increase the financial risk ratio of our country's clubs. In addition, although similar situations are observed in clubs abroad, it is understood from the results that the pandemic increases the risks, causes adverse effects on liquidity and involves significant uncertainties in fulfilling the obligations.

5. CONCLUSION

The acceptance of Covid-19 as a pandemic and the subsequent preventive measures have affected the economic life all over the world and left businesses faced with significant uncertainties. Postponement of international organizations and sports competitions, and the cessation of sports activities by regulatory organizations such as FIFA and UEFA caused deterioration in the financial structures and cash flows of football clubs in our country and in Europe. In this context, in the study, the financial statements and independent audit reports of 12 football clubs in our country and in Europe for the period of 2019 and 2020 were examined, the effects of the Covid-19 pandemic were investigated and taken into account in the evaluations.

When looking at the financial structure of the 12 football clubs examined, the risks they face and the effects seen in their reporting, the first thing that stands out is the change in cash and cash equivalents. This effect, especially seen in the current ratio and cash ratio, is important in terms of clearly revealing the problems experienced by the clubs. The amount of cash kept before the pandemic decreased significantly after the pandemic. When we consider the deterioration of cash flows of businesses, even if this situation is accepted as normal, it is certain that the most important issue of the future will be cash management and liquidity. In addition, the decreases in current assets were tried to be compensated by short term borrowings and the net working capital was negatively affected and turned negative. Therefore, the decrease in working capital, which will help clubs in their normal operating cycle, carry out their routine transactions, and manage debt-to-debt relations, will have the power to influence short, medium and long-term decisions in addition to the club's problems in fulfilling its obligations. However, increases in both short-term and long-term borrowing amounts are currently considered as a requirement, but decreases in equity pose a threat to the continuity of the business in the upcoming periods. With the increase in the financing

ratio and the debt / equity ratio, the borrowing levels have also increased and the financial risks have become more visible. As a matter of fact, this situation has also been expressed in the independent audit reports and it has been especially emphasized in the matters highlighted in the auditor's opinion paragraph.

The decreases in revenues caused by the cessation of sportive and commercial activities have an effect on both revenue and profit / loss for the period. As the revenues of almost all clubs decreased and their contractual liabilities continued, the activities related to the period resulted in a loss. Especially, when we consider the cumulative losses from past years in clubs in our country, the size of the risk faced by the clubs will be better understood. Within the scope of the study, it is a realistic estimation that the effect seen in the annual reports will continue to a great extent, that the decrease in assets and the increase in borrowings will continue, and that the sufficient improvement in revenue and profitability will not be realized in a short time.

Nowadays, where the economic effects of the Covid-19 pandemic are still continuing, the problems experienced by football clubs should be resolved with long-term structural solutions rather than short-term, even if the epidemic is significantly controlled. In this context, ensuring that club activities are transparent and accountable, sharing information with a corporate governance approach, using assets and resources efficiently, and improving the financial situation in accordance with the UEFA Fair Play criteria and ensuring a balanced budget, will minimize the problems that may occur in such cases, It will reduce the degree of risks and contribute to the formation of a sustainable financial structure.

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Investigation of the Relationship Between Brent Oil and Cryptocurrencies During the COVID-19 Pandemic Period

Abdulkadir Kurt[a] **, Veysel Kula**[b,*]

[a]n MSc in International Trade and Finance Graduate, Afyon Kocatepe University
[b] Prof., Faculty of Economics and Administrative Sciences, Afyon Kocatepe University

A B S T R A C T

The function of money plays an essential and indisputable role in developing trade. Typically, banknotes and coins are usually introduced by central authorities. However, Bitcoin, which emerged after the 2008 crisis, was considered the original cryptocurrency and contributed to money in an unprecedented dimension as it is the first decentralized peer-to-peer payment network. Cryptocurrencies are in constant interaction and have a casualty relationship, among other variables, with Brent Oil. This study attempts to investigate the relationship between Bitcoin, Ethereum and Brent Oil price movements using 210 daily data extractions between 10.12.2019 and 01.10.2020, featuring the period of the start and spread of the COVID-19 pandemic. In this study, the casualty relationship among Brent Oil, Bitcoin and Ethereum was examined with the Granger Causality test. As a result of the study, a bidirectional casualty relationship was determined between Brent Oil and Ethereum. However, a one-way causality relationship was also found between Brent Oil and Bitcoin. On the other hand, there is no causality relationship between Ethereum and Bitcoin.

A R T I C L E I N F O

Keywords:
Bitcoin, Ethereum, Brent Oil, Cryptocurrencies, Granger Causality Test, COVID-19

Corresponding author:
kula@aku.edu.tr
(Veysel Kula)

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1. INTRODUCTION

With the emergence of humanity, the need for consumption, production and trade (shopping) has also emerged. People's consumption and production predate trade, with the need for shopping arising over time. Although people first realized exchange transactions with barter, complexities led people to use a standard exchange variable. In history, animals, wheat and barley were used as a means of exchange for the first time, and then these products were replaced by precious metals such as silver, copper and iron. With the introduction of gold money, gold and coins became widespread in trade. Due to the security problems of its storage, gold and coins were abandoned, and leather money, the first documented type of banknote, was invented. With the development and globalization of the world, this type of money has left its place to paper money, which is lighter and more practical. However, with the acceleration of technology and trade, this development was also insufficient. As needs and habits changed over time, cash has started being replaced by digital currencies. Today, the last conception of money is crypto money. As Karadağ and Aymelek (2019) put forward, one of the most crucial turning points in the history of money was experienced during the 2008 financial crisis. With this crisis,

global companies came to the point of bankruptcy. The cost incurred for rescuing these companies with the help of states has now been placed on people's shoulders. During this process, cryptocurrencies have emerged as traditional coins have somehow started losing their reputation.

On the other hand, petroleum is today amongst the most essential raw materials and has become of indispensable importance in commercial life. Apart from commercial uses, it is among the most valuable energy sources. In addition to being used as raw material, it is also used in production and logistics. Since it can affect other markets, movements in oil prices draw considerable attention. As indicated by Kılıç (2017: 67), the most crucial feature that distinguishes Brent Petrol from other oils is its low production and logistics costs. However, oil moving westward from Europe, Africa and the Middle East is priced according to the Brent Oil price. Thanks to this feature, Brent Petrol is regarded as an international indicator.

In this study, the relationship between cryptocurrencies expressed as the money of the future, and Brent oil, which has experienced the worst price level in the last 30 years, will be examined. The selected period between 10.12.2019 and 01.10.2020 chosen for analysis enables us to reveal the price relationship for the period marked by the COVID-19 pandemic.

2. LITERATURE REVIEW

Explaining the relationship between oil prices and macroeconomic indicators has gained importance, especially since the 1972 and 1979 oil crises. In that regard, researches by Hamilton (1983) and Trehan (1986) appear to be among the first renowned studies, with the research by Papapetrou (2001) also being a frequently cited study in the literature. Hamilton (1983) and Papapetrou (2001) focused on the relationship between oil, unemployment and gross national product. On the other hand, Trehan (1986), followed by other researchers such as Fratzscher et al. (2014), Babatunde (2015), Arfaoui and Rejeb (2017), Delgado (2018), and Liu et al. (2020), focused on the interaction between exchange rates and oil.

Another section of research on oil (for example, Arfaoui and Rejeb, 2017; Yun and Yoon, 2019; Corbet et al., 2020b) focused on examining its relationship with stocks. Another set of studies on oil is about the effect of COVID-19 on the price of oil. For instance, Sansa (2020) found that oil prices were negatively affected by the number of COVID-19 cases and the COVID-19 outbreak.

There are frequently cited studies in the literature on oil within the context of Turkey. Some of these studies (Abdioğlu & Değirmenci, 2014; Eyüboğlu & Eyüboğlu, 2016; İşcan, 2010; Kapusuzoğlu, 2011) focused on measuring the relationship of oil prices with stock prices. Furthermore, another part of the researches probed the relationship between oil and BIST indices (Timur and Günay, 2019; Kiracı, 2020). Finally, another group of studies examined the relationship among COVID-19, gold and oil (Sarı and Kartal, 2020; Gülhan, 2020; Çevik et al., 2020).

On the other hand, studies on cryptocurrencies have started to appear in the literature following the article by Satoshi Nakamoto titled "Bitcoin: A Peer-To-Peer Electronic Cash System" in 2008. Since then, cryptocurrencies have taken up their share in econometric studies alongside domestic and foreign currencies. Similar studies using exchange rates have been performed this time by using cryptocurrencies.

In general, a significant part of the studies regarding cryptocurrencies (Eswara, 2017; Miglietti et al., 2019; Yarovaya et al., 2020) focused on exchange rates. Another vital part of the studies on cryptocurrencies (Kostika and Laopodis, 2019; Maghyereh and Abdoh, 2021; Conlon et al., 2020; Lahmiri and Bekiros, 2020; Caferra and Vidal-Tomas, 2021; Kjaerland et al., 2018) examined the relationship between cryptocurrencies, stocks and stock market performance. Another brand of studies (for example, Burggraf et al., 2020; Ghorbel and Jeribi, 2020) probed the interaction between cryptocurrencies and fear indices. Some other studies, such as Corbet et al. (2020a), James et al. (2020) and Mnif et al. (2020), investigate the effect of COVID-19 on cryptocurrencies. Finally, there are researches on cryptocurrencies (for example, Derbali et al., 2020; Yin et al., 2021; Ghazani and Khosravi, 2020; Nunes, 2017; Ji et al., 2019) that have focused on oil and gold.

When it comes to the research in Turkey, an essential part of the studies on cryptocurrencies in Turkey (Yıldırım, 2018; Kamisli, 2019; Pirgaip et al., 2019; Aghalıbaylı, 2019; Gürsoy, Tunçel and Sayar, 2020; Gül,2020; Deniz and Teker, 2019; Deniz and Teker, 2020; Deniz, 2020) focused on the interaction between cryptocurrencies and gold. Another group of studies (Dirican and Canoz, 2017; Hamid and Talib, 2019; Erdas and Çağlar, 2018; Gürsoy, Tunçel and Sayar, 2020) examined the relationship between cryptocurrencies and indices. There are studies (for example, Ağan and Aydın, 2018; Özyeşil, 2019; Çakın, 2019; Dere, 2019; Aghalıbaylı, 2019 and Gül, 2020) focusing on cryptocurrencies and exchange rates. The relationship between cryptocurrencies and Brent oil has been the subject of a limited number of studies by Gül (2020), Deniz and Teker (2019), Deniz and Teker (2020), and Deniz (2020).

Using daily data between 7 August 2015 and 23 January 2020, Gül (2020) evaluated the effect of adding selected cryptocurrencies (Bitcoin, Ethereum, Ripple) into portfolios with several assets, including Brent oil. The study results revealed that with the addition of cryptocurrencies to portfolios, overall higher returns were obtained, and lower risk levels were achieved.

Deniz and Teker (2019), by using daily data between the period of 28.04.2013 and 23.07.2019, aimed at identifying the interaction between Bitcoin, Brent oil and gold. According to their results, gold and Brent oil prices do not substantially affect daily Bitcoin prices. In their later study and using a daily database between 3 April 2018 to 31 December 2019, Deniz and Teker (2020) included two more cryptocurrencies, namely Etherium and Ripple, together with Bitcoin in their analysis. The analysis revealed that only Bitcoin has a short term impact on gold prices. Furthermore, no causality was found between Ethereum, Ripple, gold and Brent oil.

In her Masters Dissertation, Deniz (2020), using the same period as Deniz and Teker (2020), but widening the scope of cryptocurrencies by employing seven types (Bitcoin, Ethereum, Ripple, Tether, Bitcoin Cash, Bitcoin S.V. and Litecoin), searched for the price relationship

between gold, Brent oil and the selected seven cryptocurrencies with high market values. The same results were confirmed here, with only Bitcoin having a short term impact on gold prices.

As the novel virus in Wuhan, China, was discovered in December 2019, studies mentioned above by Deniz and Teker (2019), Deniz and Teker (2020) and Deniz (2020) do not cover the COVID-19 epidemic period in analyzing the interaction between cryptocurrencies and Brent oil. Therefore, in the current study, daily data between 10 December 2019 and 1 October 2020 were examined to explore the relationship between cryptocurrencies and Brent oil during the spreading stage of the pandemic. Furthermore, since both Bitcoin and Ethereum single themselves out in terms of market capitalization, they are the cryptocurrencies selected to be included in the analysis of the current study.

3. DATA SOURCES AND RESEARCH METHODS

While selecting the data for the analysis, the period between 10.12.2019 and 01.10.2020 was taken as a basis, imminently covering the date of 31.12.2019, when pneumonia cases of unknown cause were first reported by China (Budak and Korkmaz, 2020). Hence, the selected period features well the time when Covid-19 disease started to spread globally. Analysis was carried out using a total of 210 daily data extractions. The data for the three variables, Bitcoin, Ethereum, and Brent petroleum, used in the analysis were taken from the website www.tr.investing.com.

In the current study, as the first step, the Phillips-Perron and Augmented Dickey-Fuller unit root tests were conducted to see whether the series are stationary. As the series turned out to be nonstationary at the level, the same tests were then used on the logarithmically first differenced variables. Finally, as the series became stationary at the integrated level of 1, the Johansen cointegration test was used to decide whether there was a long-run relationship between the series. As for identifying the casualty relationship, the Granger causality test was chosen as it is amongst the widely used causality tests in the literature.

4. RESULTS AND INTERPRETATION

Prior to analyzing time series, the Phillips-Perron (P.P.) and Augmented Dickey-Fuller (ADF) unit root tests were conducted to see whether the series were stationary. As reported in the top part of Table.1, the levels of the series are nonstationary.

Table 1: Unit Root Test Results

---------	*Variables*	**ADF**		**PP**	
		t-statistics	*Probability*	*t-statistics*	*Probability*
Level	**Brent**	-1.120071	0.9223	-1.294625	0.8864
	Bitcoin	-2.444997	0.3553	-2.396530	0.3803
	Ethereum	-2.144194	0.5177	-2.144194	0.5177
Logarithmic difference	**Brent**	-12.42934	0.0000*	-12.45607	0.0000*
	Bitcoin	-17.85550	0.0000*	-17.58353	0.0000*
	Ethereum	-17.58892	0.0000*	-17.28879	0.0000*

Then, the logarithmically first differenced series was created, and the analysis was repeated. As reported in the bottom part of Table.1, after taking their first differences, all series now became stationary, as they are integrated of order 1.

Consequently, the cointegration relationship is explored to see whether there is a long-run or equilibrium relationship between Brent oil and Cryptocurrencies. The Johansen Cointegration Test is run in this study, and the results are reported in Table.2.

Table 2: Johansen Cointegration Test

	Eigenvalue	Trace statistic	0.05 Critical Value	Probability
Zero*	0.240308	131.2328	24.27596	0.0001
At most 1*	0.203082	74.88998	12.32090	0.0000
At most 2*	0.12174	28.35423	4.129906	0.0000

As appears in Table.2, both Trace statistics and Max-Eigen statistics were less than the critical value at the 5% significance level in three models, leading to the rejection of the null hypothesis of no causality between Brent oil and cryptocurrencies. The test, therefore, reveals the existence of three cointegration relationships between Brent oil and Cryptocurrencies. In other words, the variables move together in the long run. Therefore, the Granger Causality test was used as the next step to explore the (Granger) causality relationships between the variables. For this

purpose, the appropriate Vector Autoregression (VAR) model was established, and the maximum number of lags was determined as 3. The test results are provided in Tables 3, 4, and 5.

Table 3: Dependent Variable: Brent oil

Independent variables	Chi-sq	df	Probability	relation
Bitcoin	4.265841	3	0.2342	none
Ethereum	8.011019	3	0.0458	available
ALL	17.73848	6	0.0069	significant

Before reporting the results of the Granger Causality tests, it should be noted that, as Brooks (2008) indicates, the word 'causality' is somewhat of a misnomer, for Granger-causality really means only a correlation between the current value of one variable and the past values of others; it does not mean that movements of one variable cause movements of another. Table 3 reports the model where Brent Petrol is picked as the dependent variable; A (Granger) causality relationship was found between Brent Petrol and Ethereum at the 5% significance level. On the other hand, it appears that Bitcoin does not affect Brent Petrol. The model where Bitcoin is taken as the dependent variable is reported in Table 4.

Table 4: Dependent Variable: Bitcoin

Independent variables	Chi-sq	df	Probability	Relation
Brent	19.23048	3	0.0002	available
Ethereum	0.734533	3	0.8651	none
ALL	19.52948	6	0.0034	significant

As shown in Table.2, Brent Petrol (Granger) causes Bitcoin prices at the 5% significance level. On the other hand, Ethereum does not (Granger) cause Bitcoin prices. Finally, in the last model reported in Table 5, Ethereum is used as the dependent variable.

Table 5: Dependent Variable: Ethereum

Independent variables	Chi-sq	df	Probability	Relation
Brent	14.34224	3	0.0025	available
Bitcoin	5.685076	3	0.1280	none
ALL	21.14453	6	0.0017	significant

According to the results reported in the Table, Brent Petrol (Granger) causes Ethereum prices, whereas Bitcoin does (Granger) cause Ethereum.

The study's overall findings could be succinctly summarized as in Figure.1.

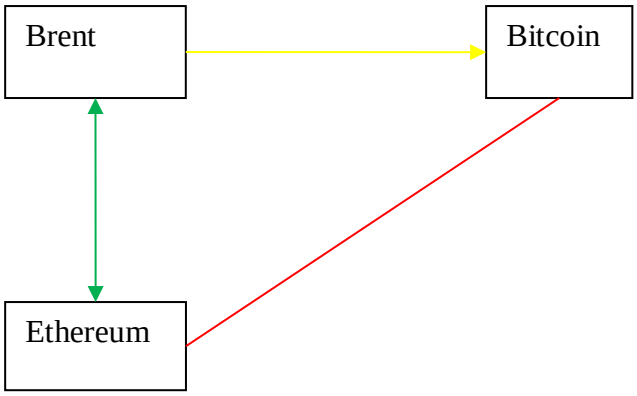

Figure 1: (Granger) Causality Flows

As seen from Figure 1, there is a bi-directional (Granger) causality between Brent Petrol and Ethereum during the Pandemic period. Moreover, (Granger) causality relationship between Brent Petrol and Bitcoin is one way, from Brent petrol to Bitcoin. Finally, Bitcoin and Ethereum are independent of each other, with no (Granger) causality.

5. CONCLUSIONS

The current research attempts to determine the relationship between Bitcoin, Ethereum and Brent Oil price movements during the pandemic. First, the VAR model was used to investigate the relationship between Brent oil, Bitcoin and Ethereum using 210 daily data from 20.12.2019 to 01.10.2020. Then, the direction of the relationship between the variables was determined by the Granger causality test.

As discussed in the literature review, a limited number of studies are available exploring the causality between cryptocurrencies and Brent oil. The results of those studies indicated that Brent oil has no casuality relationship with Bitcoin (Deniz, 2020; Deniz and Teker, 2019; and Deniz and Teker, 2020) and Ethereum (Deniz, 2020; and Deniz and Teker, 2020). However, the findings of this analysis reveal that Brent Petrol has the power to (Granger) cause Bitcoin prices. Another finding of the current study is that Ethereum and Bitcoin prices move independently of each other as there is no (Granger) causality relationship between Ethereum and Bitcoin.

Finally, bidirectional (Granger) causality was found between Brent Petrol and Ethereum. Overall, those causality relationships sound relatively plausible. The global oil market is the most important world energy market because of oil's dominant role as an energy source (Ural, 2006). Therefore, movements in the Brent oil prices appearing to lead those of Bitcoin and Ethereum seem worthy of acceptance. On the other hand, of the two cryptocurrencies covered in the analysis, changes in Ethereum prices, not Bitcoin prices, precede changes in Brent oil prices. This finding seems surprising as Bitcoin has the most name recognition in the markets and has more than twice the market capitalization value of Ethereum. The fact that Ethereum has the potential to revolutionize finance and technology and the bullish sentiment among experts in the field appears to have only grown in 2020 for Ethereum (Divine, 2021) might explain the pioneering role Ethereum takes over in preceding the Brent oil price movements.

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Attitudes and beliefs about minimum wage in Kosovo – results of a public survey

Herolinda Murati-Leka[a*] **and Doruntina Ajvazi**[b]

[a]South East European University

[b]University of Prishtina

ABSTRACT

The minimum wage has long been regarded as a vital tool for ensuring labour market stability, and its impact and implications on employment, poverty reduction, the informal sector, and economic development, in general, have sparked a multi-year discussion. Based on a poll of 635 respondents, we present an analysis of the minimum wage in Kosovo's economy in this study. Our poll results reveal that our respondents had good attitudes toward the minimum wage and its increase in the Kosovo economy, as measured by the standard of living, employment, private sector, poverty reduction, and other factors. Kosovo has the lowest minimum wage in Central and Eastern Europe - 130 euros for those under 35 and 170 euros for those over 35.

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Corresponding author: Herolinda Murati-Leka - muratiherolinda@gmail.com

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Introduction

The minimum wage has long been a subject of research for numerous authors, who have sparked debates over its effects on the Labour market and other sectors. The minimum wage has been an essential part of public policy for more than a century. According to the OECD (2015), the legal minimum wage is the government's most direct policy lever for influencing wage levels, particularly workers in a weak negotiating position. According to Neumark and Wascher (2008), the minimum wage began in New Zealand and Australia in the 1890s and expanded to the United Kingdom in 1909 and then to the United States in the next two decades.

Webb (1912), Stigler (1946), Welch (1974), Brecher (1974), Gramlich (1976), Grossman (1983), Katz and Krueger (1992), Card and Krueger (1993; 1995), Cahuc and Michel (1996), Neumark and Wascher (1992; 1994; 1995), Lee (1999), and many others have written about the minimum wage and its effects. Furthermore, economists are attracted by the minimum wage because they have solid theoretical predictions regarding the direction of the minimum wage's effect on employment and pretty well-accepted methodologies for estimating the magnitude of that impact (Brown, 1988).

Minimum wages have followed an uneven trend in the past, owing to political and economic factors (Horrigan and Mincy, 1993). According to Rutkowski (2003), the minimum wage is a source of significant theoretical and political debate. Furthermore, if a government uses the minimum wage extensively to achieve various economic policy goals, it will, willingly or not, diminish the role of collective wage bargaining to regulate better its development (Eyraud and Saget, 2005).

This article is organized into five sections and analyses the minimum wage and its impacts in Kosovo. Based on several writers, the first section provides a theoretical review of the minimum wage in general and its implications on the Labour market, poverty, other earnings, and informality. The impact of the minimum wage on Kosovo is the subject of the second section. The third section continues with the study data collection instrument and data analysis and the survey outcomes that we did with our respondents. Finally, we present our observations and recommendations in the final section.

2. Literature Review

According to Marinakis (2009), when the International Labour Organization was established in 1919, the minimum wage was applied to a very small number of countries within a limited range. Trade committees for specific industries ("sweat industries") have tried to prevent exploitation in the UK, especially of women and domestic workers. Australia and New Zealand have established minimum wages by industry and region. Six states in the United States and four provinces in Canada have passed minimum wages laws. The textile industry has experience setting minimum wages in France and Norway, especially for domestic workers. (Marinakis, 2009).

Consistent with Suryahadi et al. (2003), as a result of changes in Labour market policy in the late eighties, minimum wages became a vital plank of Labour policy, as is clear from the speed at which the government has hyperbolized its levels. Nevertheless, despite many decades of micro econometric proof, the minimum wage remains a significantly disputed policy (Harasztosi and Lindner 2019). The minimum wage policy will have varied objectives, adopt specific mechanisms and procedures, use different criteria for setting it or ending ulterior changes, and have additional or less broad coverage (Infante et al. 2003). As expressed by Herr and Kazandziska (2011), there are several institutional queries regarding a wage policy that is associated with several country-specific factors, like the development stage of a rustic, the national characteristics of the labour market, the sort of commercial relations and union power, and the economic conditions, as well as several alternative factors.

Belman and Wolfson (2014) argue that employment, specifically the number of jobs, is a state of affairs for disputes regarding wages and their effects. Furthermore, as Del Carpio and Pabon (2017) claim, a large body of literature identifies combination effects such as reductions in formal employment and range of hours worked, hyperbolic states, and additional informal Labour, especially when the wage is exceptionally high.

Policymakers have perpetually seen the wage as a tool to form stability within the Labour market. In addition, Neumark and Wascher (1992), Brown et al. (1982), Aaronson and French (2007) and Meer and West (2015) stated that the minimum wage hurts employment.

On the other hand, Horrigan and Mincy (1993) believe that raising the minimum wage reduces the income gap between workers in two main ways. First, this increase reduces the income gap between older workers and younger workers, and second, this increase reduces the income gap

between high-status and low-status occupational workers (Horrigan and Mincy, 1993). Furthermore, according to Stigler (1946), if the minimum wage is adequate, it must have one of two effects: first, workers whose service value is less than the minimum wage are fired, or second, raise lower wages and efficient worker productivity (Stigler, 1946). As Freeman (1996) asserted, an adequate minimum wage will, at best, make the income distribution beneficial to low-income people and support the bottom of the distribution.

Evidence from traditional econometric research generally shows that when the minimum wage is binding, an increase in the minimum wage increases wages in the formal sector (on a large scale) (Gindling and Terrell, 2005). Furthermore, Grossman (1983) pointed out that, in general, given the relative wages of the skill set, the company's demand for Labour is modelled on the choice of the skill set that minimizes cost. Therefore, the relationship between the minimum wage and wage distribution can be used to infer the low-wage labour market (Cengiz et al., 2019).

The widespread popularity of raising the minimum wage is primarily based on its attractiveness as an anti-poverty policy. It is based on two beliefs: the first is that raising the minimum wage will increase low-income families' income, and the second is that the minimum wage has little effect. In addition, Dolado et al. (1996), OECD (2015), and Clemens and Wither (2019) concluded that the minimum wage improves the standard of living of low-income workers.

However, as mentioned above, the impact of the minimum wage varies from country to country. Therefore, Zavodny (2000) pointed out that implementing a binding minimum wage will reduce the total Labour demand and increase the Labour supply. As the economy develops, Labour relations have shifted from rural to urban areas and have occurred in larger and larger companies. Employers and employees have begun to pay taxes, and workers have received legal protection, which generally includes minimum wage guarantees (Dinkelman and Ranchhod 2012).

Harrison and Leamer (1997) stated that after introducing a minimum wage that increases wages in the formal sector, some workers become unemployed. This will increase the supply of Labour in the informal Labour market, thereby reducing wages in the informal sector (Harrison and Leamer, 1997). Furthermore, if the minimum wage encourages workers to migrate from the formal to the informal sectors, then an increase in Labour supply in the informal sector can, in theory, lower informal wages (Fajnzylber, 2001).

3. An overview of Minimum Wage in Kosovo

For many years, the minimum wage has been seen as a tool for improving the labour market's quality and as well as a challenging issue. However, as we stated above, the effect of the minimum wage can sometimes have a negative effect on the Labour market, reducing poverty and the informal sector.

Kosovo faces significant economic challenges as a new country, including the Labour market. Unemployment remains the main problem in Kosovo, especially for young people, and the minimum wage has not increased since 2011. Based on the Labour Force Survey 2019 by the Kosovo Agency of Statistics, the rate of participation in the Labour force in 2019 was 40.5%, the employment rate was 30.1%, and the unemployment rate was 25.7% (KAS, 2020a).

Table 1. Key indicators of the labour market in Kosovo (%), 2019

Key indicators of the labour market (%)	Male	Female	Total
Rate of participation in Labour force	59,7	21,1	40,5
Inactivity rate	40,3	78,9	59,5
Employment to population ratio (employment rate)	46,2	13,9	30,1
Unemployment rate	22,6	34,4	25,7
Unemployment rate among young people (15-24 years of age)	44,1	60,3	49,4

Source: (Authors' Compilation adapted from KAS, 2020a)

Based on the data of Kosovo Agency of Statistics, in 2012, the average gross salary in Kosovo was 383 Euros, while in 2019 it was 477 Euros, an increase of 94 Euros or 24.5%, while the net salary from 348 Euros in 2012, increased to 430 Euros in 2019, an increase of 82 Euros, or 23.5% (KAS, 2020b).

Figure 1. Average gross and net wage (in Euro), 2012 - 2019

Source: (Authors' Compilation adapted from KAS, 2020)

According to the Eurostat database 2020 and KAS, Kosovo has the lowest minimum wage in Central and Eastern European countries. The graph below shows that the highest minimum wage in the second half of 2020 was recorded in Slovenia (940.58 euros) and the lowest in Kosovo (170 euros), which has not changed since 2011.

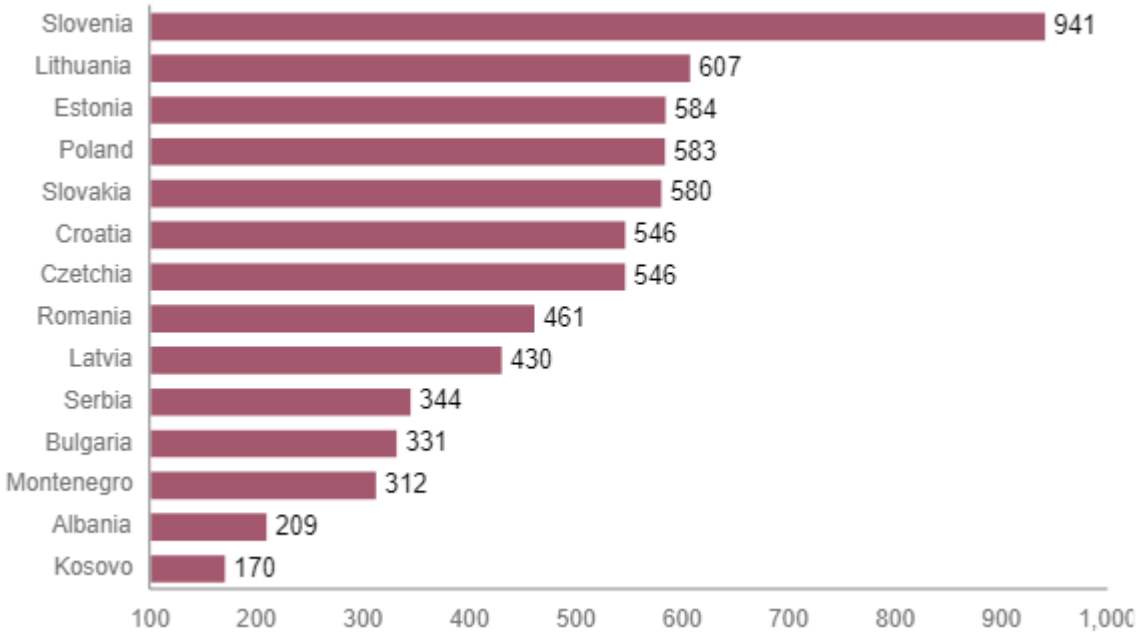

Figure 2. Minimum Wage in Central and Eastern European countries in 2020S2 (in euros)

Source: Eurostat database 2020 for other countries. (Authors' Compilation adapted from KAS, 2020b) for Kosovo

Based on Article 57 of the Labour Law, the Government of Kosovo at the end of each calendar year sets the minimum wage on the proposal of the Economic and Social Council based on the following factors: the cost of living expenses; unemployment rate; the general situation in the labour market; and the degree of competition and productivity in the country (Official Newspaper of the Republic of Kosovo, 2010) . According to the Kosovo Agency of Statistics data, in Kosovo, currently, the minimum wage is 130 euros for employees under the age of 35 and 170 euros for employees over the age of 35, and it has not changed since 2011.

Table 2. The ratio of the minimum wage to average gross and net wage (in Euro) in Kosovo, 2019

Age Group	Minimum wage	Gross (%)	Net (%)
Until the age of 35	130	27,25	30,23
Over 35 years old	170	35,64	39,53

Source: (Authors' Compilation adapted from KAS, 2020b).

4. Instrument for Collecting Research Data and Analyzing Research Data

In this research, we have used primary quantitative data, which has been collected from primary sources chosen randomly. The survey is considered the most relevant data collection instrument for this study. The survey was designed after researching scientific works conducted by other authors on minimum wage. Consequently, we composed a survey with 21 questions. An item consistency test was performed to ensure that the survey questions stood alone as a set. A reliability test has been conducted to verify the quality of the measurement procedure chosen for this study.

While passing these two steps successfully, pilot testing began. After that, the final version of the survey is designed and distributed to the respondents. The time frame for gathering data

from the survey was from the 23rd of March to the 19th of April 2021. The platform Google Forms is used to collect responses. The responses have good representation among different disciplines, job positions, age, education, and wage rate.

The self-administrated survey has been distributed online randomly, and 635 respondents have filled it out. The respondents have been asked to give answers ranging from general ones about their age, level of education, and employment status to more concrete ones, like their opinion about the impact of the minimum wage on other economic phenomena.

The data collected from the survey has been analyzed using SPSS, Statistical Package for Social Science, and the graphs have been designed from the Excel Spreadsheet Database of the survey, generated from Google Forms.

Our survey has been representative, including people of different profiles such as managers, finance officers, administrators, teachers, sales agents, accountants, doctors, and project coordinators.

The survey results show that 40% of the respondents are between 25 and 34 years old, and 37% of them are between 15 and 24 years old. Regarding gender, 50% of respondents are female, and 50% are male. Furthermore, more than half of the respondents have completed their university education (57%), and 59% of the respondents are employed.

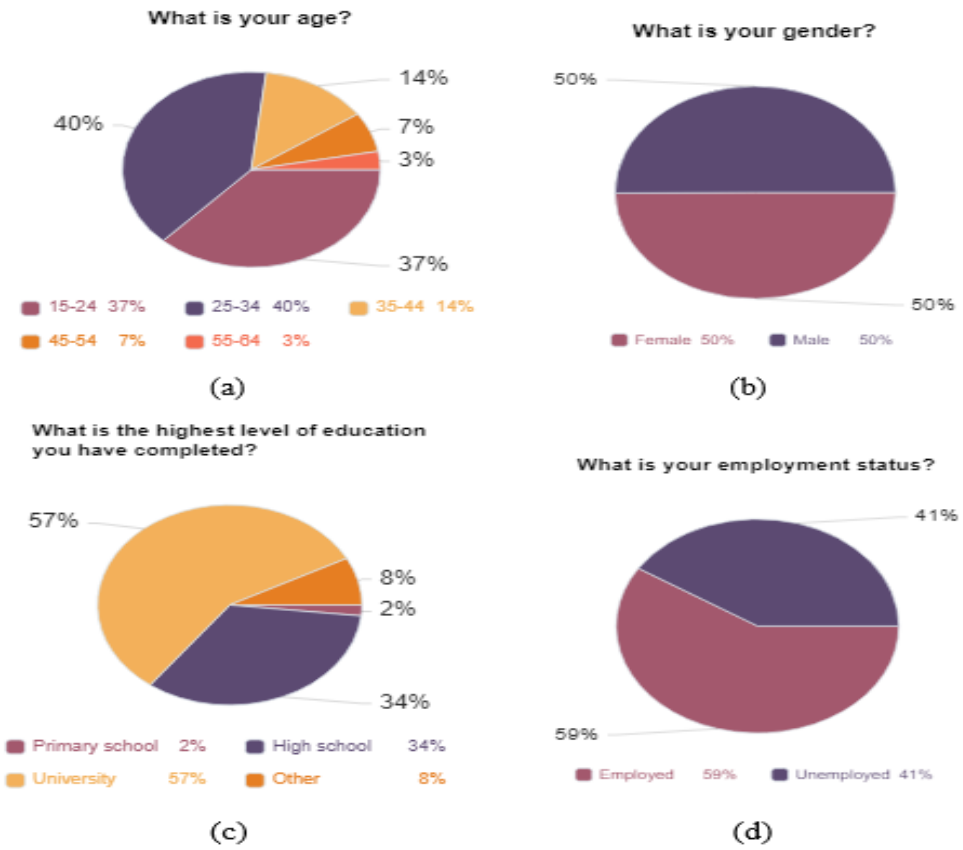

Figure 3. Results about the age, gender, education, and the employment status of the respondents**.**

Source: Data obtained from the author's survey conducted for this paper named "Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."

In the fifth question, respondents were asked their opinion about the minimum wage as a reason why they have difficulty finding a job or are unemployed. 52% of respondents think that there are other factors as well. On the other hand, 40% of respondents think that the minimum wage is why they have difficulty finding a job or are unemployed.

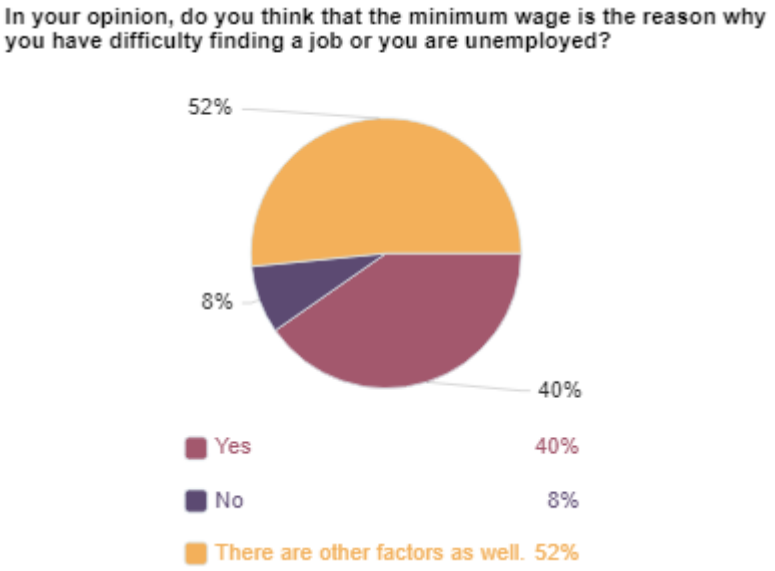

Figure 4. Respondents' attitudes about the effect of minimum wage finding a job or being unemployed.

Source: Data obtained from the author's survey conducted for this paper named "Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."

Most of the respondents (81%) work in the private sector and 36 % of them are paid between 251-450 EUR.

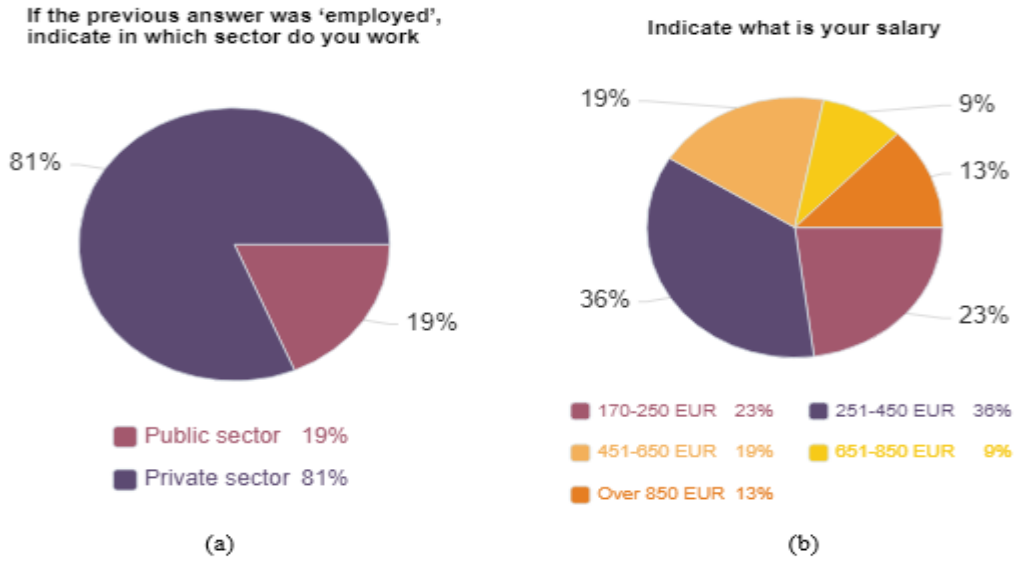

Figure 5. Respondents answers about the sector they work in and their salary.

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

In the question in which respondents were asked for the impact of minimum wage in their work/ career, more than half (70%) of respondents think that minimum wage has/has had an impact on their work/career.

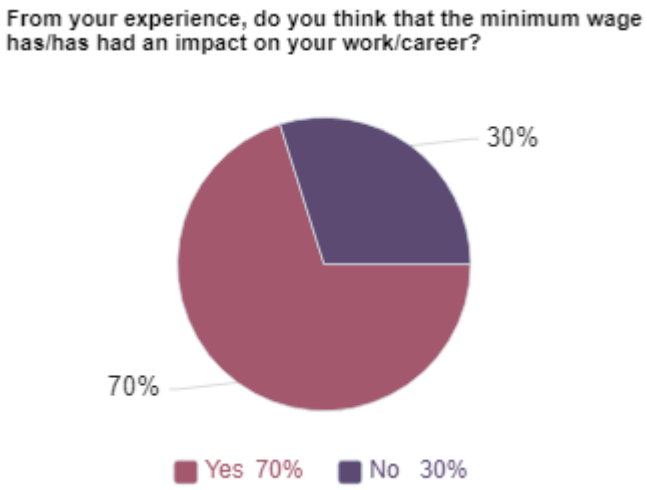

Figure 6. Respondent's answers about the impact of minimum wage on their work/career.

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

Based on our survey results, 68% of respondents strongly agree that the minimum wage in Kosovo should be increased.

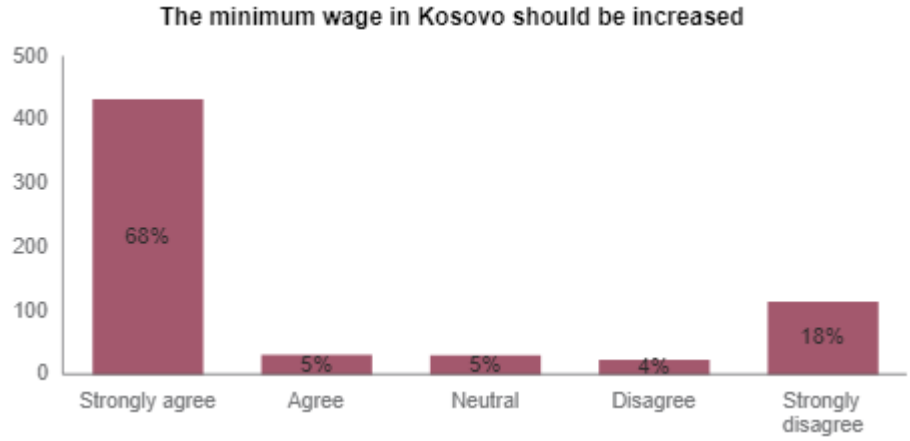

Figure 7. Respondent's answers about increasing minimum wage.

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

Most of the respondents, 75%, strongly disagree, and 18 % agree that the minimum wage in Kosovo is enough to support a family. On the other hand, 18% strongly disagree that the minimum wage is enough to support a family.

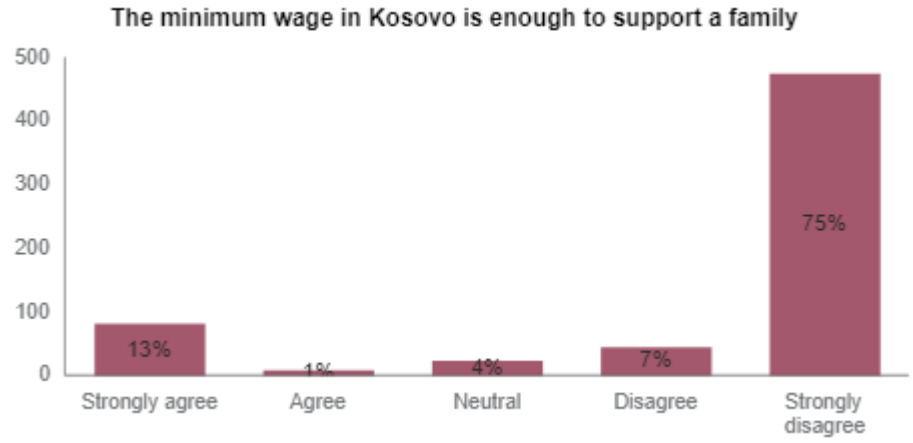

Figure 8. Respondent's answers about minimum wage as family support.

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

For the questions in which respondents were asked about the effect of minimum wage on the standard of living in Kosovo, 95% think that increasing the minimum wage will increase the standard of living in Kosovo.

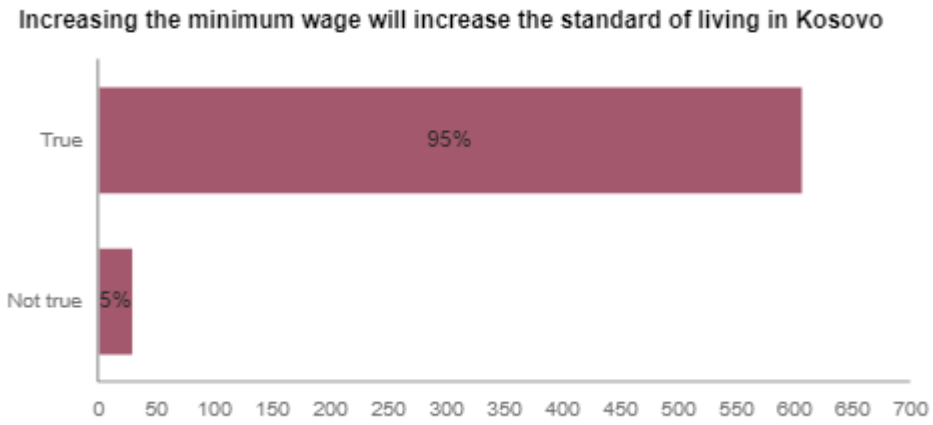

Figure 9. Respondent's answers about the effect of minimum wage on increasing the standard of living in Kosovo.

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

Based on our findings, 93% of respondents think that increasing the minimum wage will do more good than harm to Kosovo's economy. Moreover, our survey findings show that 48% of respondents strongly disagree, and 11 % of them agree that an increase in the minimum wage in Kosovo will cause layoffs. In addition, 24% of respondents are neutral (see Figures 10 and 11).

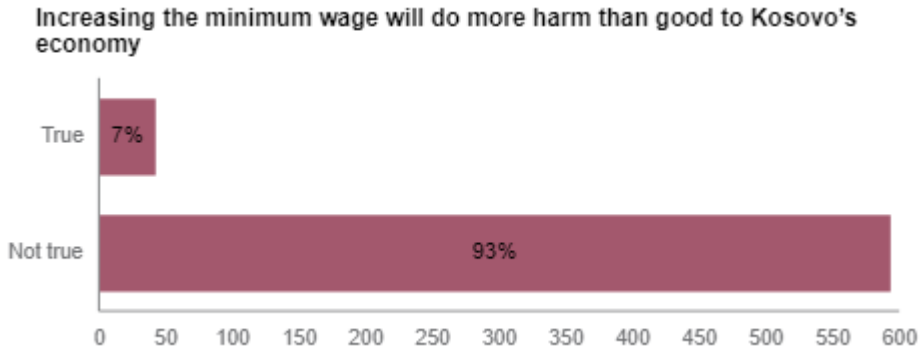

Figure 10. Respondent's answers about the effect of increasing minimum wage in Kosovo's economy.

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

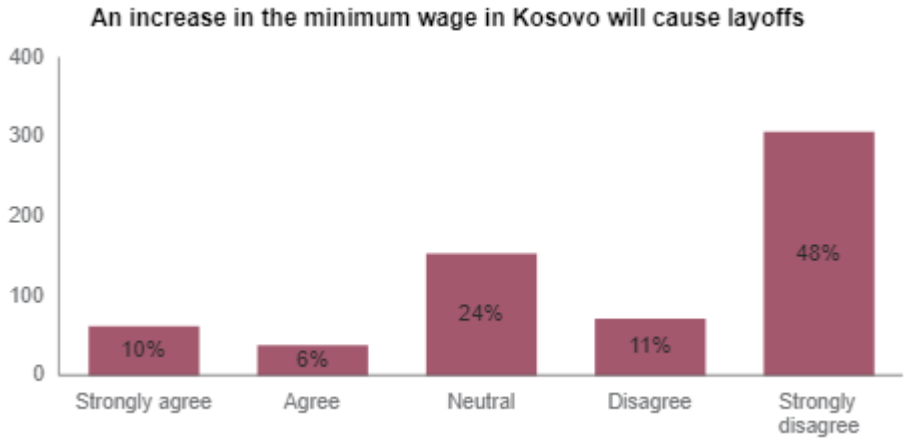

Figure 11. Respondent's answers about the effect of increasing the minimum wage on employment

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

Our results show that 84% of respondents think that the private sector would be affected the most by increasing the minimum wage. On the other hand, 16% of respondents think that increasing the minimum wage would affect the public sector. Furthermore, our survey findings show that 59% of respondents think that an increase in the minimum wage would increase employment. On the other hand, 12% of respondents think that employment will decrease, and 29% have no opinion. Regarding the impact of the increase in the minimum wage in the public sector, 45% of respondents think that employment will increase, 15% think that employment will decrease, and 41% think that there will be no impact (see Figures 12 and 13).

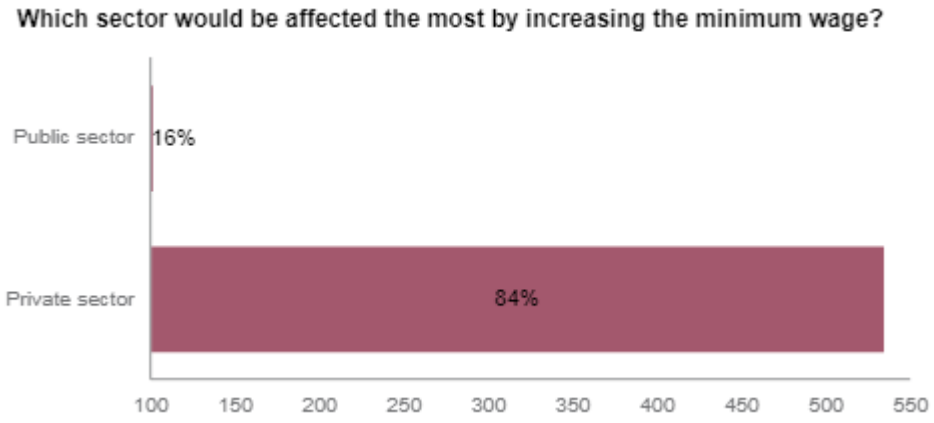

Figure 12. Respondent's answers about the effect of increasing minimum wage in the private and public sector.

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

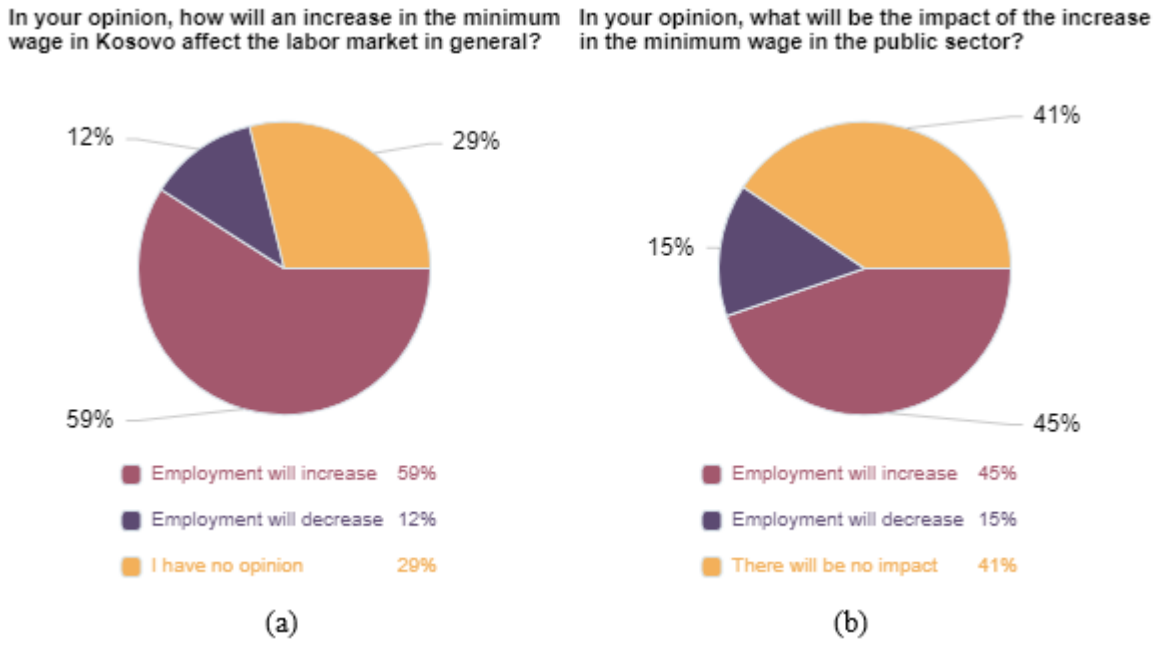

Figure 13. Respondent's answers about the impact of the increase in the minimum wage in the labour market in general and in the public sector.

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

Our findings for the opinion of respondents for the impact of the increase of minimum wage in the informal sector show that 41% of respondents have a neutral opinion, 20% of them strongly disagree, and 18% strongly agree that increasing the minimum wage will increase employment in the informal sector.

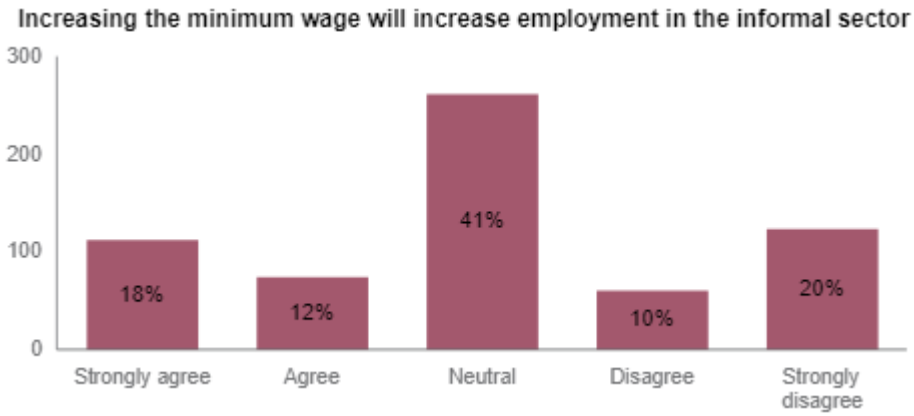

Figure 14. Respondent's answers about the impact of increasing the minimum wage in the informal sector.

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

In the following questions, respondents were asked for their opinion on increasing the minimum wage to reduce poverty in the country. 43% of respondents strongly agree, and 17% agree that increasing the minimum wage will reduce poverty in the country.

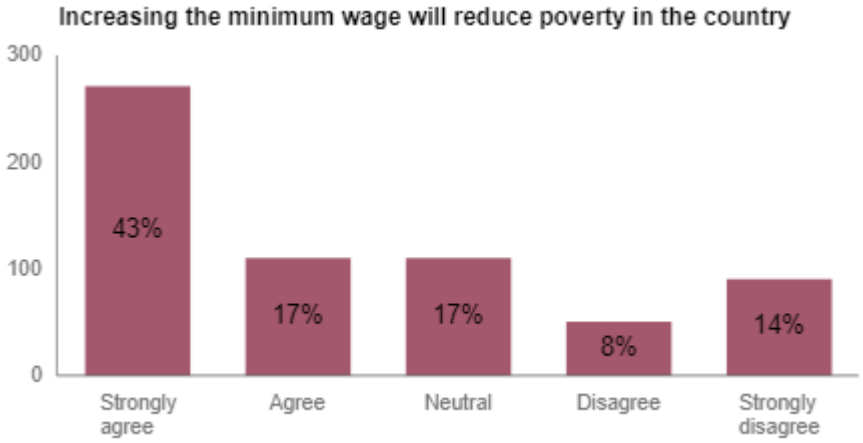

Figure 15. Respondent's answers about the impact of increasing the minimum wage in reducing poverty in the country.

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

Based on the finding from our survey, 75% of respondents agree that the increase in the minimum wage will affect the increase in wages in general.

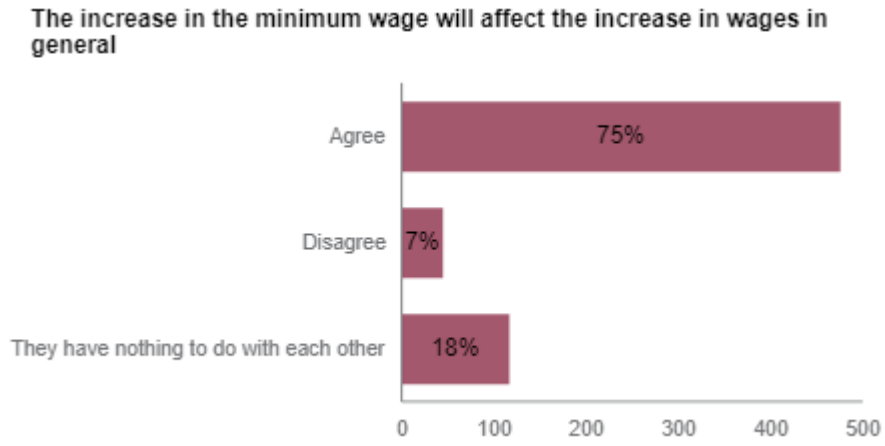

Figure 16. Respondent's answers about the impact of increasing the minimum wage in wages in general.

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

The last questions asked respondents what would their opinion be if the government were to increase the minimum wage. 99% of respondents said they would agree on the matter.

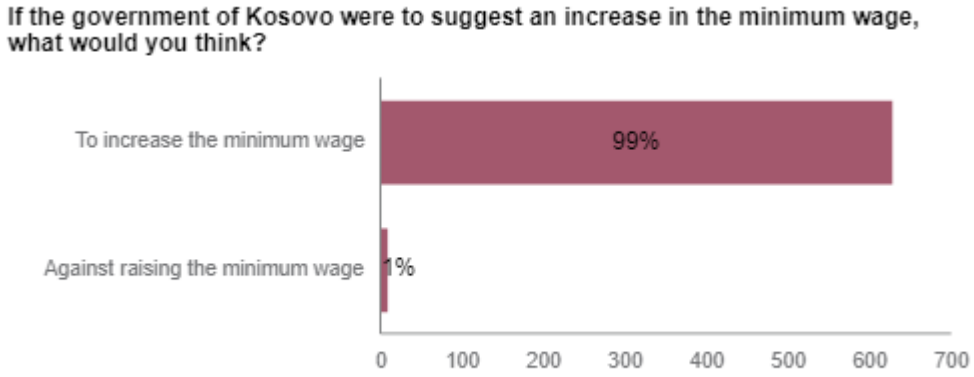

Figure 15. Respondent's answers about their opinion about increasing the minimum wage as a government suggestion.

Source: Data obtained from the author's survey conducted for this paper named *"Attitudes and beliefs about minimum wage and its effect in Kosovo's economy – results of a public survey."*

5. Conclusions and Recommendations

In this paper, we analyzed the effect of the minimum wage on Kosovo's economy based on the survey we conducted with 635 respondents. Ranging from general questions to more specific ones, we have tried to make our survey as representative as possible, including participants from different professions, to see their perceptions and attitudes regarding the minimum wage in Kosovo. According to the results, 70% of respondents think that the minimum wage has impacted their work or career, and 68% strongly agree that the minimum wage in Kosovo should be increased. In addition, 75% of respondents strongly disagree that the minimum wage is enough to support a family. Moreover, 95% of respondents think that increasing the minimum wage will increase the standard of living in Kosovo. Similarly, 93% of them think that

increasing the minimum wage will do more good than harm to Kosovo's economy, and 84% of respondents think that the private sector would be affected the most by increasing the minimum wage.

More than half of the respondents agree that the increase in the minimum wage will affect wages in general, and almost all of the respondents are willing to increase the minimum wage if the government of Kosovo suggests an increase in the minimum wage.

In general, based on our findings, we can conclude that our respondents have positive attitudes and beliefs about the minimum wage and its effect on Kosovo's economy. Because the minimum wage in Kosovo has not increased since 2011, the purpose of this paper is to provide an overview of the minimum wage in Kosovo by making an additional contribution to the existing literature and passing a message to policymakers. Based on our findings, we recommend that the government of Kosovo review the setting of the minimum wage in detail and propose its increase, always after analyzing its effects and consequences.

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Systematic Approach to Internal Control and Audit from the Perspective of Organizational Culture Practiced by Entities of Romania

Cătălina Sitnikov[a], Anca Băndoi[b], Mariana Paraschiva Olaru (Staicu)[c] and Alina Mădălina Belu[d]

[a] Professor PhD, University of Craiova, Faculty of Economics and Business Administration, Romania
[b] Professor PhD, University of Craiova, Faculty of Economics and Business Administration, Romania
[c] PhD Student, University of Craiova, Faculty of Economics and Business Administration, Romania
[d] PhD Student, University of Craiova, Faculty of Economics and Business Administration, Romania

A B S T R A C T

The internal control and audit system is a component of a company's management system that focuses on defining individual employee tasks, identifying and implementing the most efficient methods, implementing the most effective information system, and meeting all stakeholders' needs, expectations, and requirements. The different parts of the internal management control system can be integrated with the other parts of the general management system in order for the internal control objectives to complement the general objectives of an entity, such as development, financing, profitability, and the environment. This integration can make resource planning and allocation easier, formulate complementary goals, and evaluate the entity's overall efficiency. This reflects the current internal control and auditing method at the entity level regarding organizational culture. The study aims to use organized, statistically measurable (by applying markers of dispersion, central tendency, and correlation) evaluative, predictive, and causal methodologies to verify the theories and hypotheses proposed on the subject. Insurance and counselling add value to the entities' activities and aid management in maintaining efficient and effective internal audit and control, assessing the reliability of the information, evaluating the effectiveness and efficiency of operations funds and public property management processes, and ensuring compliance with laws, regulations, and contracts.

A R T I C L E I N F O

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Corresponding author:
Cătălina Sitnikov
inasitnikov@yahoo.com

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1. INTRODUCTION

Organizational culture comprises a series of elements that might be more or less visible depending on how deeply we manage to penetrate its layers. The difficulty in perceiving an organization's culture stems from the diversity of its manifestations, the degree of visibility, and the fact that it includes elements that manifest at the conscious level and at the subconscious level, the rational and sentimental and emotional levels. Organizational culture encompasses all of the collective standards of thinking, attitudes, values, beliefs, conventions, and habits within an organization. We can distinguish some visible elements in the cultural component, such as common behaviours and languages, rituals and symbols. However, we have a lot of less visible components, such as perceptions and representations about what is valued in the organization, myths, and empirical standards about what it means to work well and behave correctly (Kotter and Heskett, 1992). A strong organizational culture is one in which employees' values and principles are aligned with those of the organization.

Internal control and audit should be used as a more formalized element of organizational culture because it starts with a strategy and a mission, analyzes and determines the increase in knowledge of the institution's particularities, involves management in its actions, and provides diagnosis and solutions that can lead to the desired level of success. Internal control and auditing are based on a simple concept: defining rules and adhering to them to ensure the effectiveness of activities taken and the achievement of set objectives (Jim, 2006). The culture will determine whether the rules introduced are easier or more challenging to understand by those who will implement them, will determine the degree of acceptance of the rules and implementation (because employees may perceive them as being in the spirit of their culture or simply as elements of stress), and will generate

Organizational culture, control, and internal audit are activities with a clearly applicative character and, since the work addresses the problems of organization, technology, and finalization, all this was taken into account during the study's development. Due to its impact on the institution's functionality and performance, organizational culture is one of the most approached themes in management, organizational behaviour, sociology, and internal control and audit. Most of the debates center on an organization's ability to contribute significantly to its competitive evolution by mobilizing its resources, particularly human resources. Even if there is still debate about the definition of organizational culture, experts agree that the majority of its constituents contain the foundational values of any institution in which we do not understand and behave. Therefore, a strong organizational culture is considered a significant factor in getting excellent performance from any institution. However, for this to occur, the organizational culture must be in sync with internal control and audit, which, when combined, respond as well as possible to external conditions, the economic environment, and the internal conditions of the entity. Therefore, knowledge of the specific elements of the organizational culture and internal control and audit (as part of the overall organizational culture) is an essential requirement for modern management in the conditions where we are witnessing an increase in the number of members of the institutions. At the same time, the development of internal control and audit from the perspective of organizational culture cannot be accomplished without in-depth research of special-literature.

If assimilated into the corporate culture, internal control and audit can be used to improve an activity, verify how information flows in the company, and identify the location where the resources are used or not. In other words, the question "What can you do in the institution?" can reveal the identification of measures to verify and organize the evidence analysis and the detection of errors or weak areas in some systems.

In terms of organizational culture, checking each internal organization problem will show strengths and weaknesses, system inadequacy, and the possibilities of enhancing their activities, effects, and uses.

The internal control and audit system is that part of the management system of an entity oriented towards the definition of the individual tasks of the staff, the identification and application of the most efficient methods, the introduction of the most effective methods of information, and the needs, expectations, and requirements of all interested parties. In order for the internal control objectives to be complementary to the general objectives of an entity, such as development, financing, profitability, and the environment, the different parts of the internal management control system have to be integrated with the other parts of the general management system. This integration can lead to better planning and allocation of resources, a better definition of complementary objectives, and the evaluation of the overall efficiency of the entity. This reflects the current way of controlling and auditing internally at the level of entities from the perspective of organizational culture. The analysis aims to verify the theories and hypotheses issued on the subject using structured, quantitatively measurable (using indicators of dispersion, central tendency, and correlation) techniques with an evaluative, predictive, and causal character. Insurance and counselling add value to the activities of the entities and support the management of the entities in maintaining efficient and effective internal audit and control, evaluating the reliability of information, effectiveness and efficiency of operations funds and public property management processes, and maintaining compliance with laws, regulations, and contracts.

2. LITERATURE REVIEW

The market economy entails an extensive system of economic and legal relationships between all participants in economic life, who are frequently referred to as players or protagonists in the economic and financial scene. This includes not only businesses and organizations, but also holders of property rights (statutes, stockholders and associations, and private entrepreneurs), domestic and foreign investors, administrative authorities, public or fiscal bodies, banks, bank goods and other values, patrimonial unit employees, and judicial bodies (Deal and Kennedy, 2000). Therefore, implementing a control and internal audit system, as well as its ongoing improvement, is one of the ways to keep the qualitative aspects of a public institution's activities under control.

The internal control and audit system is part of a public institution's management system to define individual staff tasks, identify and apply the most efficient methods, introduce the method, provide information, and satisfy the needs, expectations, and requirements. Since the objectives of internal control are complementary to the general objectives of an entity, such as development, financing, profitability, and environment, the various aspects of the internal management control system can be integrated with other sections of general management (Collins and Porras, 2000). This integration may make it easier to plan and allocate resources, define complementary objectives, and assess the entity's overall efficiency (Morariu et al., 2008).

The literature provides a wide range of definitions for organizational culture in Romania, including material creations, formal and informal conceptual constructions, socialization and indoctrination, rituals, myths, stated and practised theories of action, personalities of leaders, subcultures, host cultures, the history of the organization, humour, and so on. It is the consistent use of an internal model to determine an organization's behaviour, values, and patterns of thought, action, and speech (Jim and Jerry, 2006). The company defines as usual what helps employees discover meaning in their own organization's events and symbols (Hamel and Breen, 2010).

Organizational culture is similar to national culture in that it has roots in history, myths, heroes, and symbols; it evolves around the values passed down through generations; it creates the same type of collective subconscious; and it has a significant impact on the system's ability to change (Drucker, 2014). The organizational climate has a much smaller scope than the organizational culture, which can be thought of as a code, a logical system for structuring actions and meanings that has stood the test of time and serves members of the organization as a guide for adaptation and survival. It is partially a result of organizational members' subjective reactions to the impact of organizational culture on deciding how an individual shares the system's core values and credits and participates in material creation (Jim, 2006).

To correctly assess an organization's culture, a complete diagnosis of the organizational climate is required; however, this is insufficient. Furthermore, conflating the two notions can lead to incorrect conclusions, which is why their distinction is critical (Hamel and Breen, 2018).

Geert et al. (2012) define two levels of corporate culture that are in constant contact and influence one another. The values shared by members of the organization, which tend to drive collective behaviour, are included in the first level, which is unseen, par excellence conservative, and thus difficult to modify. The second is more visible and changeable, refers to the norms of conduct that are passed down to new members of the organization and are linked to a system of incentives and sanctions aligned with the organization's approved and shared values. Finally, the common denominator across these definitions is how things are done in our country (Gary, 2012). One of the most crucial elements to consider when understanding organizational culture is contextualizing the connection between culture and organizations, which may be done in two ways (Pink, 2011). Culture is something that the organization has (possesses), implying the ability to manipulate it, change it as desired, match it with a strategy, and use it as a management tool; culture is something that is organized (anthropological perspective), in other words, the realities experienced in common, something that its members experience.

Internal control within public entites is a concept that has been legislated in Romania for over 20 years, but it has sparked numerous debates and differing viewpoints on how it should be implemented (Petrès and Bunget, 2004). It does not represent a distinct notion, specific to the Romanian public sector, but rather a worldwide concept, generally accepted and implemented in all organizations. Internal control, in essence, is a collection of excellent management practices, historical management experience, and good practices that all businesses must follow. Internal control is crucial for the head of a public entity, as it is the primary tool that aids him in performing his managerial duties (Renard, 2002). For the performance of his/her duties, a manager must adequately operate within a context, such as objectives, plans, indicators, procedures, and risks, which are specific to the internal control system (Plumb, 2000). Therefore, internal control must be included in the measures and actions that must be taken in the context of the reform of public management. It is intended for people in management positions within a public body to facilitate, guide, and order the efforts to be made (Barney, 2006).

Internal control is defined as control that is organized and exercised from within economic and social units, or their immediately higher hierarchical levels, without reaching beyond the organizational system's framework (Bostan, 2000). The internal public audit carried out within Romanian public entities represents a functionally independent and objective activity that provides assurances and advice to management for the proper administration of public revenues and expenditures. The public activity aids the public entity in achieving its objectives. The purpose of an international audit is to evaluate and maintain risk management, control, and governance processes and assist public entities in achieving their objectives through a methodical and systematic evaluation. Internal auditing of the public entity's activities, including insurance and advice, adds value to the activities of the public entity, assists the management of the public entity in maintaining an efficient and effective internal control system, and evaluates the reliability of information, effectiveness, and efficiency of operations (Sascha, 2007).

3. AIM OF THE RESEARCH

The main purpose of the research is to identify the application of internal control and audit from the perspective of organizational culture.

The objectives of the research are:

1. Identifying and analyzing the internal control elements specific to the organizational culture;
2. Identifying and analyzing the internal audit elements specific to the organizational culture;
3. Determining the correlations between the elements of control and internal audit.

Based on studies and theories in the field of literature and personal observations, the following hypotheses have been formulated:

Hypothesis 1: *There is no significant relationship between Ethics and integrity and Attributions, functions, tasks;*

Hypothesis 2: There is a significant positive relationship between attributions, functions, tasks and *competence and performance*;

Hypothesis 3: *There is a significant positive relationship between the monitoring of the performances and the evaluation of the internal control system.*

The components of the internal control and audit architecture, from the perspective of the organizational culture, have a logical succession that aims at the practical application of the management functions.

4. RESEARCH METHODS

The data collection was carried out between February 2021 and June 2021, using the questionnaire. A number of 328 valid questionnaires were obtained.

In order to test the hypotheses formulated in terms of internal control and audit, from the perspective of organizational culture, the questionnaire was divided into six sections:

1. Ethics and integrity;
2. Duties, functions, tasks;
3. Competence and performance;
4. Monitoring the performance;
5. Evaluation of the internal control system;
6. Internal audit.

In the processing and analysis of the collected data, the special statistical research software SPSS (Statistical Package for the Social Sciences) was used, and the Spearman rho Correlation Coefficient was calculated.

5. FINDINGS

In the demonstration process of the existence of the variation between the elements of the internal control and internal audit architecture, from the perspective of the organizational culture, we used the correlation coefficient Spearman rho (Table 1).

Table 1: Spearman rho correlation coefficient values on Ethics and Integrity, Duties, Functions, Tasks, Competence and Performance

Spearman's rho		1. Ethics and integrity	2. Duties, functions, tasks	3. Competence and performance
1. Ethics and integrity	correlation coefficient	1.000	**.923****	**.908****
	Sig. (2-tailed)		.000	.000
	N	328	328	328
2. Duties, functions, tasks	correlation coefficient	**.923****	1.000	**.929****
	Sig. (2-tailed)	.000		.000
	N	328	328	328
3. Competence and performance	correlation coefficient	**.908****	**.929****	1.000
	Sig. (2-tailed)	.000	.000	
	N	328	328	328

Source: developed by the author based on the data collected

Following the analysis of the Spearman rho correlation coefficient, we can observe the following correlations between the elements of the internal control and audit architecture:

1. From the analysis of Table 1 one notes a very significant positive relationship between *1. Ethics and integrity* and *2. Attributions, functions, tasks* (rho = 0.92, df = 328, p <0.001). From the dispersion diagram (Figure 1), it can be observed that the spread of the points is relatively limited, which indicates a strong correlation (R^2 = 0.87). The slope of the scattering of the results is a relatively straight line, indicating a linear relation rather than a curvilinear one.

Staff members who have a high level of ethics and integrity, also score high on attributions, functions and tasks. We could say that Hypothesis 1 is not validated.

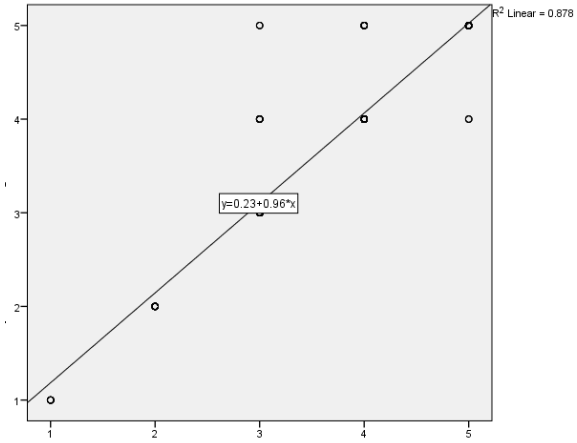

Figure 1. Dispersion diagram - correlation between the elements Ethics and integrity and Attributions, functions, tasks
Source: developed by the author based on the data collected

2. It is possible to observe the existence of a very significant positive relationship between *1. Ethics and integrity* and *3. Competence and performance* ($r = 0.90$, $df = 328$, $p < 0.001$). Figure 2, the dispersion diagram, shows that the spread of the points is relatively limited, which indicates a strong correlation ($R^2 = 0.83$). The slope of the scattering of the results is a relatively straight line indicating a linear relation rather than a curvilinear one. Staff members who have a high level of ethics and integrity, respectively score high on the level of competence and performance.

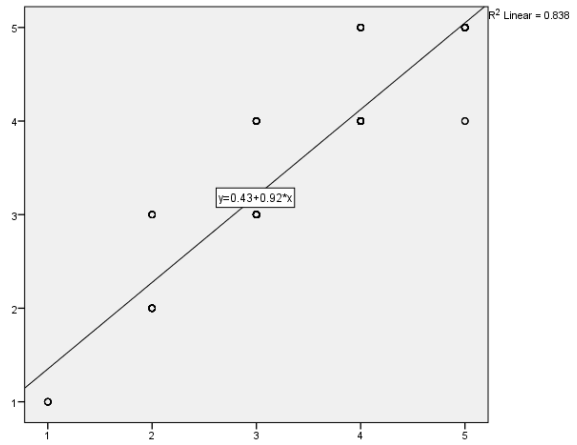

Figure 2. Dispersion diagram - correlation between ethics and integrity and competence and performance
Source: developed by the author based on the data collected

3. Between *2. Attributions, functions, tasks* and *3. Competence and performance* there is a very significant positive relationship ($rho = 0.92$, $df = 328$, $p < 0.001$). The dispersion diagram shows that the spread of the points is relatively limited which indicates a strong correlation ($R^2 = 0.87$). The slope of the scattering of the results is relatively straight line, indicating a linear relation rather than a curvilinear one (Figure 3). Staff members who have a high level of 2. Attributions, functions, and tasks also have a high level of 3. Competence and performance. Thus Hypothesis 2 was validated.

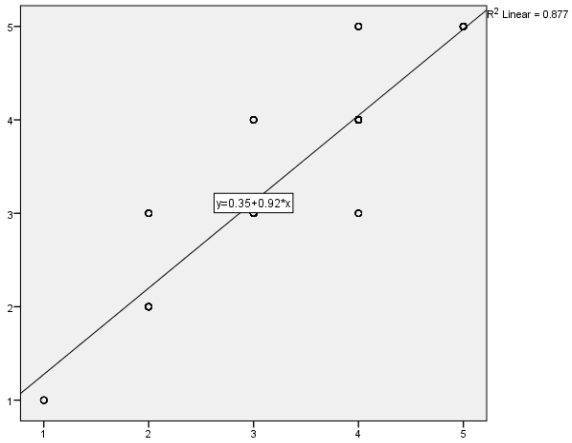

Figure 3. Dispersion diagram - correlation between the elements Attributions, functions, tasks and Competence and performance

Source: developed by the author based on the data collected

The internal control code establishes the requirements regarding the correct elaboration of the job descriptions, specifying the necessity of their clarity as well as of the correlation between the objectives of the compartment, the responsibilities of the manager and the official in charge.

The provision aims to reduce the risk of error by establishing, for the heads of organizational microstructures, the obligation to identify new or complex tasks assigned to subordinate employees. The requirement is necessary as the risk of error is higher for new or complex tasks which is why they should not be assigned to inexperienced employees or without proper training.

Following the analysis of the Spearman rho correlation coefficient, we can observe the following correlations between the elements of the internal control and audit architecture, as shown in Table 2.

Table 2: Spearman rho correlation coefficient results on Monitoring the performance, Evaluation of the internal control system, Internal audit

Spearman's rho		4. Monitoring the performance	5. Evaluation of the internal control system	6. Internal audit
4. Monitoring the performance	correlation coefficient	1.000	**.821****	**.934****
	Sig. (2-tailed)		.000	.000
	N	328	328	328
5. Evaluation of the internal control system	correlation coefficient	**.821****	1.000	**.803****
	Sig. (2-tailed)	.000		.000
	N	328	328	328
6. Internal audit	correlation coefficient	**.908****	**.929****	1.000
	Sig. (2-tailed)	.000	.000	
	N	328	328	328

Source: developed by the author based on the data collected

4. There is a very significant positive relationship between *4. Monitoring the performances* and 5. *Evaluating the internal control system* (rho = 0.82, df = 328, p <0.001). From the dispersion diagram, it can be observed that the spread of the points is relatively limited, which indicates a strong correlation (R^2 = 0.70). The slope of the scattering of the results is a relatively straight line indicating a linear relation rather than a curvilinear one (Figure 4). Hypothesis 3 was partially validated.

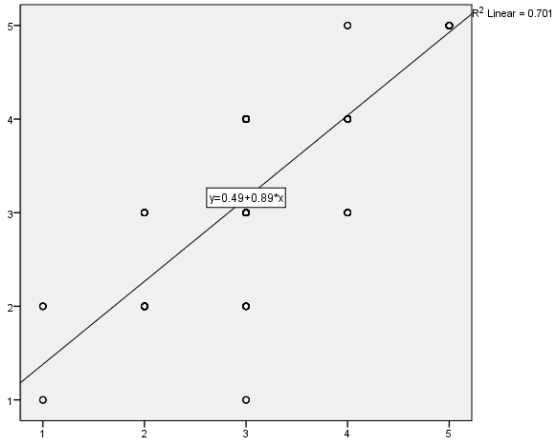

Figure 4. Dispersion diagram - correlation between Performance Monitoring and Evaluation of the internal control system
Source: developed by the author based on the data collected

Staff members who have a high level of performance Monitoring, also have a high level of evaluation of the internal control system.

2. Between *4. Performance monitoring* and *6. Internal audit* there is a significant positive relationship (rho = 0.75, df = 328, p <0.001). The dispersion diagram (Figure 5) shows that the spread of the points is relatively limited, which indicates a moderately strong correlation (R^2 = 0.60). The slope of the scattering of the results is a relatively straight line, indicating a linear relation rather than a curvilinear one.

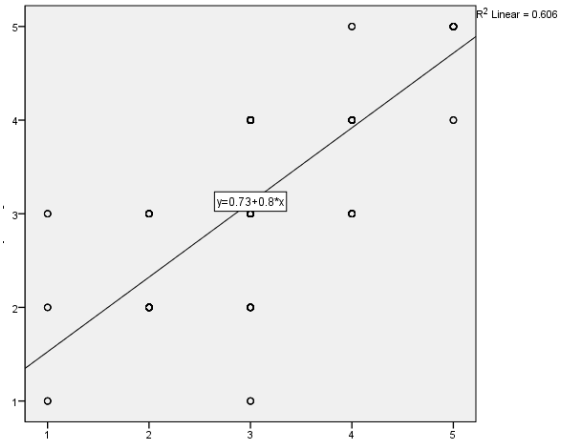

Figure 5. Dispersion Diagram - Correlation between Performance Monitoring and Internal Audit
Source: developed by the author based on the data collected

Staff members who have a high level of performance Monitoring, also have a high level of internal audit.

5. A very high positive relationship is identified between *5. Evaluation of the internal control system* and *6. Internal audit* (rho = 0.80, df = 328, p <0.001). The dispersion diagram (Figure 6) shows that the

spread of the points is relatively limited which indicates a strong correlation ($R^2 = 0.71$). The slope of the scattering of the results is a relatively straight line indicating a linear relation rather than a curvilinear one.

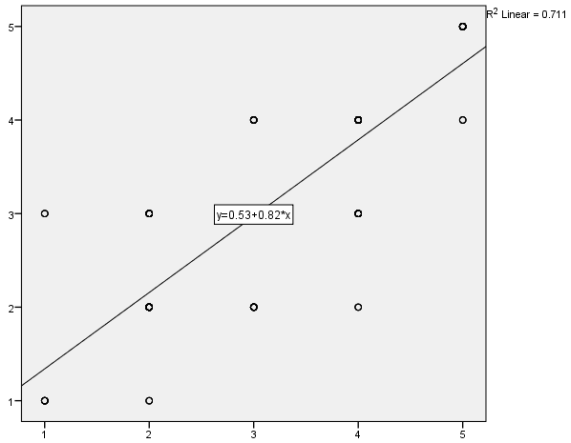

Figure 6. Dispersion Diagram - Correlation between Internal Control System Assessment and Internal Audit

Source: developed by the author based on the data collected

Staff members who have a high level of evaluation of the internal control system, also have a high level of competence in the internal audit.

6. CONCLUSION

From a theoretical point of view, the results obtained offer a perspective on the perceptions of internal control and audit, within the context of organizational culture. Therefore, within any institution where there is a robust organizational culture, with clear, well-structured values, with forms of manifestation of performance-oriented rooms, managers will be able to capitalize on cultural elements in the following manners:

- ✓ designing, promoting and applying a shared vision regarding the place, role and performance of the institution;
- ✓ amplifying the awareness of the positive impact that the values and norms of the institution have;
- ✓ improving the work climate and amplifying employees' performances;
- ✓ promoting and harmonizing individual initiatives with teamwork at all hierarchical levels;
- ✓ accelerating the decision-making process and increasing the degree of responsibilities for employees;
- ✓ amplifying the effectiveness of communications between and within teams;
- ✓ increasing the sensitivity and interest of employees for the adoption of specific symbols, values and behavioural norms.

The process of organizational culture, incorporating internal control and audit, is particularly important for the head of a public entity, as it is the primary tool that helps him in performing the managerial act. The correct application of control and internal audit standards, by each public entity, regardless of the field of activity and specificity, must represent an obligation explicitly assumed by each leader of the organization. In this sense, the existence of a solid organizational culture as well as a properly implemented internal control and audit system is a premise for a correct management act, in accordance with legal provisions, as well as an assurance that the entity operates as expected and that business management is efficient.

The objectives of the internal public control and audit include objective assurance and advice, intended to improve the systems and activities of the public entity; and to support the achievement of the objectives of the public entity through a systematic and methodical approach, which will evaluate and improve the effectiveness of the management system based on risk management, control and process.

The control, internal audit and the organizational culture ensure the thematic and detailed knowledge of the economic-social realities, but it cannot be limited to that. They must make judgments of value by interpreting the states of things or realities ascertained by their continuous reporting to the objectives to be achieved, the rules set in advance or the rules of conduct. In this way, it is possible to determine the registered deviations, establishing their significance and implications, the causes that generated them, and the required measures to avoid their recurrence in the future.

The non-implementation or deficient functioning of the organizational culture, respectively of the internal control and audit system is likely to raise questions about the functioning of the entity, as well as the quality of the managerial act, especially regarding legality, economy, efficiency and the effectiveness of its activities.

The application in practice of the concept of organizational culture, through internal control and audit, proved to be more difficult than anticipated due to the following aspects:

- ✓ the tendency to bureaucratize;
- ✓ lack of practical guidelines for the implementation of the fields of activity;
- ✓ insufficient training of employees of public entities;
- ✓ resistance to change in management and employees of public entities;
- ✓ absence of sanctions in the regulatory framework.

From a theoretical point of view, the results obtained provide a perspective on perceptions of how control and internal audit should be used as a more formalized element of organizational culture. It starts from a strategy and a mission, analyzes and determines the increase of knowledge of the particularities of the institution, involves the management in its actions and offers it the diagnosis, as well as the solutions that can lead to the achievement of the desired level of performance and the established objectives.

Therefore, the internal control and audit must be integrated in the organizational culture of the institution - the culture of internal control and audit will have to change the way of approaching all situations and aspects, by:

- introducing the design of all actions in terms of objectives;
- procedural definition of all activities;
- clear definition of responsibilities at the level of each action;
- identification of risks.

The internal control and audit modalities introduced through its value system, should enjoy authority, have legitimacy and ensure the capitalization of the results.

The originality of the research consists in bringing the three concepts into the discussion of organizational culture, control and internal audit, highlighting the links and interdependence between them and the influence of organizational culture on them. In Romanian and foreign literature, these concepts have often been treated separately.

Future directions of research could be:

- ✓ determining the links between organizational culture, control and internal audit to create premises for their future development;
- ✓ more in-depth analysis of the needs of organizations in terms of the links between organizational culture, control and internal audit;
- ✓ extending the study on highlighting a link between corporate governance and organizational culture, control and internal audit.

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Green Business: Sustainability and Risk Management in Turkish Banking Sector

Asst. Prof. Necla KUDUZ[a,*]
[a] Uşak University, Faculty of Applied Sciences, Accounting and Finance Management, Orcid No: 0000-0002-7910-3314

ABSTRACT

Global warming, climate change, reduction of natural resources, damage to biodiversity all increase poverty and unemployment, amongst other things. Environmental and social problems result from an unconscious lifestyle, excessive production and consumption activities. The starting point of sustainability originates from these environmental problems that have been increasing. Sustainable development means meeting the needs of today without endangering future generations and harming natural resources and attaches importance to environmental and social development as well as economic development. For businesses to survive, they need to consider all dimensions of sustainability. Banking is one sector that has come to the forefront in recent years regarding sustainable management. Although the banking sector does not directly affect the environment, it does have indirect effects. This study aims to examine the extent to which the six banks that signed the Responsible Banking Principles from Turkey pay attention to the dimensions of sustainability in their risk management activities announced on their websites. Although there are studies on sustainable banking or risk management in the literature, there is conceptual confusion when the analysis methods are examined. In this study, the author tries to clarify this issue. Results show that the six banks that signed the Responsible Banking Principles paid attention to the sustainability of the environmental and social aspects in their risk management activities.

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***Corresponding author:**
Necla KUDUZ
necla.kuduz@usak.edu.tr

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1. INTRODUCTION

Rapid population growth, unplanned urbanization, increased and unconscious consumption, and production that have changed dimensions due to technological developments have increased the damage to the world and have become a threat to nature and human health. Many plant and animal species are at risk of extinction because people act unconsciously. For example, deodorants that damage the ozone layer and excessive use of air conditioners have increased the world's temperature every year, so global warming and climate change problems have continued to be on the agenda both in the academic world and in the business world in recent years.

Moreover, thanks to the technological developments experienced after the industrial revolution, the tools used in production have changed, and as a result, production increased, leading to more natural resources and energy being used.

This production and consumption negatively affect ecological life. When the damage caused to the environment by economic activities was ignored, it was understood that the development models, which were only considered economically, were insufficient. With the increase and realization of the effects of environmental problems on human life, the criticism towards the model aiming only at economic development has increased. The search for new methods has begun, and the importance of sustainable development is being understood. Economic growth and development have changed dimensions; people understand the importance of growing without harming future generations. It has become increasingly crucial for businesses to minimize the harmful effects of their activities on the environment. The banking sector, one of the building blocks of any economy, also has indirect effects on the environment. In order to be a sustainable bank, they must give importance not only to economic development but also to sustainable development in their activities.

2. THE CONCEPT OF SUSTAINABILITY AND ITS HISTORICAL DEVELOPMENT

Excessive production and consumption negatively affects ecological life. When the damage caused by economic activities to the environment was ignored, it was understood that the development models, which were only considered economically, were insufficient. With the increase and realization of the effects of environmental problems on human life, the criticism towards the model aiming only at economic development has increased. The search for new methods started, and the importance of sustainable development was highlighted. Economic growth and development have changed dimensions. It has become increasingly important for businesses to minimize the harmful effects of their activities on the environment. The banking sector, which is one of the economy's building blocks, also has indirect effects on the environment. In order to be a sustainable bank, they must give importance not only to economic development but also to sustainable development in their activities (Kaya, 2010: p.77). The first thing that comes to mind when one mentions sustainability is to minimize and try to solve all kinds of problems related to the ecosystem (Moore, 2005: p.192). Sustainability is defined as the ability to maintain the functions, processes and productivity of ecology and ecological systems in the future (Chapin, Torn & Tateno, 1996: p.1017).

From a biological perspective, sustainability is considered protecting and ensuring the continuation of biological diversity; in the sociological sense, it ensures social order and justice, which means ensuring the safe and healthy continuation of society. From an ethical point of view, it is defined as taking measures to protect and maintain sustainable natural resources in nature. (Bayraktutan & Uçak, 2011: p.19). The concept of sustainability, which has an important place in all fields of activity, expresses the complete transfer of today's resources to future generations (Kuşat, 2013: p.4896-4916).

In 1972, diplomats, academics, and NGOs from many different countries established the Club of Rome to raise awareness against unlimited consumption with limited natural resources. In the report titled “Limits to Growth”, published by this club, the contradiction between a limited world and unlimited consumption was addressed, and environmentally friendly development options were announced to society (Meadows et al., 1972: p.12). Sustainability was defined as the activity of leaving resources that can be evaluated and produced as much as the sum of all assets owned for future generations (Hannel, 2014: p.62).

According to Meadowcroft (1997: p.168), sustainability is the act of maintaining the continuity of an existing resource. In order to ensure continuity, the activities carried out must not be likely to cause harm, must be scientifically provable, supportable, and existing conditions must be preserved (Ratiu, 2013: p.127). According to Kagan & Verstratete (2010: p.159), ‘sustainability involves taking into account the similarities and the differences in concept, combining the differences and creating a whole means of continuity’. Some significant developments regarding the concept of sustainability can be summarized as follows (SDK Turkey, 2016: p.9):

1713- Hans Carl von Carlowitz first mentioned the concept of sustainability in the book he wrote in the forestry sector.

1972- At the United Nations Conference (1972) on the Human Environment, environmental problems were discussed, and the United Nations Environment Program (UNEP) was established.

1980- The International Union for Conservation of Nature and Natural Resources (IUCN) published the World Conservation Strategy (WCS) document at its meeting. The Limits of Growth had been published, explaining that unlimited growth is impossible in a world where natural resources are limited.

1987- The concept of sustainable development has become necessary with the Brundtland Report and Our Common Future report published by the World Commission on Environment and Development (WCED).

1990- The Human Development Report was published by the United Nations Development Program (UNDP) to clarify the issues that could not be explained economically.

1992- The United Nations Conference on Environment and Development (UNCED), known as the Earth Summit, was held in Rio de Janeiro. At the conference, an action plan called Agenda 21 was drafted, and it was an agreement between the United Nations Convention on Biological Diversity and the United Nations Climate Change Framework.

1997- The Kyoto Protocol was signed for the problems caused by climate change.

Society is well structured when an appropriate balance is created between sustainability and economic, environmental and social goals. The same can be said for businesses. For corporate sustainability, businesses need to balance economic, social and environmental processes and achieve the most appropriate level of success in their three-dimensional studies. In addition to reaching profitability and productivity targets, businesses should also consider natural resources and social responsibility areas. When they consider these three dimensions, they will make progress on the path of sustainable business. The dimensions of corporate sustainability that enable businesses to be sustainable are as follows: economic sustainability: profitability and efficiency, social sustainability: equality and social, environmental sustainability: natural resources and Environment (Torum & Yılmaz, 2009, p.49).

3. SUSTAINABLE DEVELOPMENT AND ITS DIMENSIONS

Humans' vital activities are made possible through fundamental functions like eating, drinking, and having shelter. Consumption takes place as a result of this effort. In order to meet consumption needs, certain goods and services need to be produced, thus using a lot of energy (Hekimci, 2012: p.11). As socio-cultural and environmental problems started to threaten humanity, the issue of sustainable development, which includes not only economic development but also sustainability, was brought to the agenda for the first time in the United Nations Stockholm Human and Environment Conference in 1972 (Kaya, 2010: p.77). The United Nations Environment Conference has been accepted as the first environmental conference held in the international arena. One hundred thirteen countries, including Turkey, participated in the conference held in Stockholm under the leadership of the United Nations, and environmental problems were discussed. The Human Environment Declaration argued that economic activities needed to be compatible with the environment and that living organisms needed a better environment. As a result, the United Nations Environment Program (UNEP) was established in 1972 (UN, 1972).

Studies on sustainability did not end with the Kyoto Protocol. Climate Change Conferences are one of the most important agenda items of the European Union. With the declaration of the climate crisis by the European Union, efforts to prevent climate change have gained importance. In addition to national and international practices such as the Paris Agreement and ETS (Emissions Trading System), one of the issues that came to the agenda is the European Green Deal (2021). The aim of the European Union is to be the first carbon-neutral continent by 2050. The work of the European Green Deal, which was presented on December 11 2019, started in 2020. Within this context, the European Green Deal presented its efforts to reduce global greenhouse gas emissions and a carbon tax to its commercial stakeholders to reduce carbon emissions arising from international commercial activities. The European Green Deal aims to introduce strategies of "*Biodiversity*", "*From Farm to Table*", "*Clean Energy*", "*Sustainable Industry*", "*Construction and Renovation*", "*Sustainable Movement*" and "*Pollution Elimination*" (Semtrio, n.d.)

Although different disciplines have defined Sustainable Development from their own perspectives after this was first introduced, the concept's environmental and economic aspects were focused on explaining the concept more clearly (Markandya, 2002: 77). Views on sustainable development vary according to environmental ideologies. When the world is considered a closed system, it is necessary to sustainably use natural resources to ensure the existing system's continuity (Sharpley, 2000: p.6-7).

Sustainable Development is based on the continuous protection of natural resources, the use of renewable resources more than non-renewable resources, the transfer of natural resources to future generations and the protection of the Environment (Çakılcıoğlu, 2013: p.27). Sustainable development must first be conceptualized in terms of economic dimensions and ensure the efficient use of resources. Secondly, sustainability activities should focus on protecting the environment, and thirdly, the sustainability of the socio-cultural dimension, that poverty should be prevented on a global scale and people should be treated equally and fairly. These are economic, environmental and social dimensions (Biswas&Biswas, 1984: p.40). Sustainable development consists of four dimensions: *ensuring justice in economic development and income distribution, ensuring unity and equality in social development, protecting the environment and natural resources, and developing technologies that reduce environmental pollution* (Ghazy, 2015: p.44).

According to Franzoni (2015: p.23), 'the dimensions of sustainable development are discussed in terms of economic, environmental and social aspects, and these dimensions direct the behaviour of the society'. *The economic dimension of sustainable development* is the production of goods and services according to sustainability principles. For sustainability to be fully implemented, it must be ensured that the assets, resources and liabilities are managed. The development of agricultural areas, natural and cultural areas should be ensured so that local development does not fall behind (Harris, 2000: p.5). *The environmental dimension of sustainable* development relates to reduction, recycling and *reuse* (Goldsmith & Samson, 2005: p.30). *The social dimension of sustainability is based on* the basic needs of people. It is necessary to protect and develop society's needs and find solutions when there is a problem. The social dimension can only be realized with a strong society. Standards such as tolerance, solidarity, respect, humility, compassion, obeying the law are the essential elements of the social dimension (Woodcraft et al., 2011: p.16).

4. SUSTAINABLE RISK MANAGEMENT AND THE ROLE OF BANKS

Banks, which are included in financial institutions, have an essential role in distributing financial resources (Kaya, 2010: p.76). The role of banks in the economic system is to receive funds from customers and make these funds available to other customers in need through loans. In this sense, there is no direct relationship with the environment in banking activities. The banking sector is one of the sectors with the most negligible impact on the environment compared to mining, pharmacy, chemistry,

petroleum, textile, and other sectors (Thompson, 1998: p.245). Financial institutions' social and environmental impacts occur in two ways: direct (internal) and indirect (external). The effects of direct (internal) and indirect (external) activities of financial institutions on the environment are relatively low compared to other sectors. However, when the sector is considered globally, the amount of waste generated is quite high, such as energy, water and stationery consumption (Pinter et al., 2006:p.2).

In addition, considering that the dimensions of sustainable development are economic, environmental and social, it should consider not only environmental but also social issues. On the other hand, banks, which are the building blocks of the economic system, are of great importance in the successful continuation of the development process. Therefore, banks are expected to integrate sustainability into their corporate strategies, respect the environment, contribute to society, and have a transparent relationship with stakeholders (Özçelik&Avcı, 2014: p.189).

Achieving sustainable banking takes place in four stages: *defensive banking, preventive banking, offensive banking, and sustainable banking.* Banks in the defensive banking phase do not take an active role in the sustainable development process with growth, development, and profitability considerations. However, it is aware that they will make potential cost savings with sustainable development in the preventive banking phase. In addition to internal processes, offensive banking also considers sustainability in external processes. On the other hand, sustainable banking is based on the bank's integrating sustainability into all its activities. The expectation of maximum financial return has left its place to economic, environmental, social and sustainability (Kaya, 2010: p.82).

In order to ensure that the strategies and practices of the signatory banks are in line with the Paris Climate Agreement and sustainable development goals, the Principles for Responsible Banking was published in New York on September 22, 2019, with the participation of 130 banks. Garanti BBVA (2021a, 2021b, 2021c), ING (2021a, 2021b, 2021c) Development Investment Bank (2021a, 2021b, 2021c), Şekerbank (2021a, 2021b, 2021c), TSKB (2021a, 2021b, 2021c), and Yapı Kredi (2021a, 2021b, 2021c) from Turkey are the banks that signed these principles. *Responsible Banking Principles*, established by the United Nations Environment Program Finance Initiative (UNEP FI), aims to achieve sustainable targets through banks' changes in target setting, compliance, transparency and accountability, investor relations, and customer communication (Ercan, 2020).

The six banks that signed the principles of responsible banking in this context emphasized the issue's importance by explaining the transformations that banking will make in all business processes and how these transformations will contribute to society and future generations at a joint press conference. The meeting was held with senior managers from the six banks that signed the initiative, together with a Sabancı University Faculty Member and the Director of the Corporate Governance Forum (iklimhaber, n.d.).

Another issue that concerns the banking sector is the risks arising from the activities and the management of these risks. Even an ordinary individual will face risks in daily life which are significant for financial institutions. Therefore, while continuing their activities, banks should try to recognize the risks, prevent the risks they encounter from getting out of control, and even take precautions before they occur. In recent years, the banking sector has been trying to maintain its existence in an environment full of uncertainty and has been faced with many different risks.

The primary purpose of management in the banking sector is to increase the business assets owned by business owners. As in every sector, some risks need to be taken to achieve this goal in this sector. The risks faced by the banking sector can be summarized as interest rate risk, market risk, credit risk, risks arising from off-balance sheet elements, technology and operational risks, exchange rate risk, sovereign or country risk, liquidity risk and bankruptcy risk (Ertürk, 2010: p.62). In the banking sector, in its most general definition, risk management means managing that business itself. The concept of risk management has been on the agenda in the developed countries in the banking and finance sector since the mid-1980s and in Turkey after the 2001 financial crisis. When one tries to explain risk management concretely, it becomes the expression of specific mathematical methods (Yavuz, 2002: p.21). With the increase in environmental and social problems and the demands of stakeholders for them to be sustainable businesses, banks started to take into account the economic dimension and the environmental and social dimension in their risk management activities and integrate these two dimensions into their risk management activities.

5. RESEARCH METHODOLOGY

The following section includes the purpose, scope, importance, assumptions and limitations of the research, data collection methods, data analysis and findings.

4.1. Purpose, Scope and Importance of the Research

With the participation of 130 banks, the Principles for Responsible Banking was published in New York on September 22, 2019, to ensure that the strategies and practices of the signatory banks are in line with the Paris Climate Agreement and the Sustainable Development Goals. Garanti BBVA, ING, Development Investment Bank, Şekerbank, TSKB, Yapı Kredi signed these principles from Turkey.

The study aims to examine the work of the six banks that signed these principles regarding sustainable risk management from an economic, social and environmental point of view.

Since it would be challenging to evaluate the sustainable risk management studies of 130 banks, the author selected the six banks that signed the *Responsible Banking Principles* from Turkey as a sample.

Banks, which have a fundamental role in obtaining funds by accepting deposits from customers and making these funds available to customers in need through loans, are one of the main building blocks of the economic system. Jul Banks are one of the largest banks in the world. Therefore, banks that play an active role in the successful continuation of the development process should also take into account sustainable development, although their activities are not directly related to the environment, in doing so.

When the literature was reviewed, local authors focussed on sustainability, sustainable development and risk management, amongst other variables. There are many studies conducted in the field; however, studies evaluating sustainable risk management activities, especially for banking and financial institutions, are limited. In addition, although these studies are evaluated by the descriptive analysis method, there are statements in the data acquisition and analysis sections that they evaluate by content analysis; there is a confusion of concepts and information pollution related to the analysis method in the literature. In this context, it is of great importance that the findings obtained from this study fill the gap in the literature, clarify the analysis method and be an example for financial institutions to take part in sustainability studies even if it is not a production enterprise.

4.2. Limitations and Assumptions of the Research

This study was carried out within the framework of various assumptions and constraints. This study assumes that the sustainable risk management activities of the six banks that signed the Responsible Banking Principles from Turkey are carried out under *the economic, social and environmental dimensions*. Although the population of the research consists of 130 banks from around the world, only the six Turkish banks that signed the agreement were selected as the sample since there may be difficulties in the evaluation phase. The research process was limited to 01.02.2021-30.06.2021. The findings obtained from the research only cover the six evaluated banks. Therefore, findings cannot be generalized to all financial institutions, and they cannot be generalized to banks abroad that have signed the *Responsible Banking Principles* since they may yield different results.

4.3. Research Method

This research was carried out in the type of descriptive research. A qualitative research method was chosen to obtain the necessary data within the scope of the research. The websites of the six Turkish banks that signed the Responsible Banking Principles were subjected to document analysis. Content analysis was chosen as the analysis method because it was suitable for the research to clarify the obtained data. Qualitative research is defined as “research in which qualitative data collection techniques such as observation, interview and document analysis are used, and a qualitative process is followed to reveal perceptions and events in a realistic and holistic way in the natural environment”. Qualitative research studies are conducted with a small number of samples without using probabilistic sampling, and there

is no concern for reaching definite conclusions or generalizing the results to the society (Yıldırım & Şimşek, 2008:39, p.48-65).

In qualitative research, the determinist approach is not prioritized, cause and effect relationships are not established between events, numerical data statistics are given less space, verbal qualitative analyses are given more place. Qualitative research methods provide flexibility to the researcher in the design and execution of the research. It allows developing new methods and approaches according to the situation at every research stage. Another feature of qualitative research is that they are exploratory. These features are instrumental in illuminating the less studied subjects (Neuman, 2012: p.224, 228).

4.3. Data Collection and Analysis Methods

The analysis of written documents in order to obtain data related to the subject examined within the scope of the research is called document analysis (Yıldırım&Şimşek, 2008: p.188). In the study, which was designed as a qualitative one, document analysis was performed as a data collection method. In the document review, data can be obtained from written sources such as books, magazines, articles, surveys and records, as well as from images, photos and video recordings. In addition, documents can also be obtained from electronic sources such as web pages, newsgroups, blogs, and e-mail (Baş & Akturan, 2008: p.118).

In the scope of the research, the data obtained by document analysis were evaluated by the descriptive analysis method. The descriptive analysis method is aimed to organize, interpret and present the data obtained by interview, observation or document analysis to the reader. The data are classified, summarized and interpreted according to predetermined themes. The descriptive analysis consists of four stages. The first stage creates a framework for data analysis based on research questions, research framework, dimensions in an interview, observation or document analysis. Without a previously determined conceptual framework, descriptive analysis will be complicat*ed. In the second stage, the Processing of Data According to the Thematic Framework, the author* reads and organizes data according to the pre-built framework and some data may be left out if considered not significant. At this stage, direct quotations to be used in conclusion are also selected. In the third stage, one defines the organized data, supported by direct quotations. In the fourth stage, there is the explanation, association and interpretation of the identified findings (Yıldırım & Şimşek, 2008: p.224).

4.4. Evaluation of Findings

In this part of the study, the banks' practices concerning sustainability and *risk management* published on their websites are summarized, interpreted, and evaluated using direct quotations. The published work of these six banks on risk management are analyzed within the framework of *environmental, economic and social dimensions*, which are the dimensions of sustainability in the literature.

GARANTI BBVA

Garanti BBVA (2021c) defines sustainability as: 'a commitment to create a strong and successful business model for the future by sharing long-term values with customers, employees, shareholders and all audiences in the places where it operates, as well as minimizing negative impacts on the environment and society'. According to Garanti BBVA (2021a,b, c);

> sustainable banking involves technological innovations, management of the environmental footprint of activities, environmental and social risk assessment developed within the risk management framework. On the other hand, they argue that there should be an effective organizational structure and robust corporate governance to achieve sustainability goals with continuous development.

Garanti BBVA's sustainability policy framework supports the practical identification and evaluation of sustainability risks and opportunities in Turkey. Garanti BBVA's sustainability policy covering its operations in Turkey has been developed with institutional arrangements under the legislation; It entered into force with the approval of the Board of Directors. Garanti BBVA believes that operating in a sustainable manner will play a fundamental role in the bank's long-term success and aims to promote and implement sustainable banking in Turkey. In order to support sustainable development, Garanti BBVA contributed TL 1.5 million in 2019 to convey information and raise awareness to its stakeholders, including public institutions, private enterprises, universities and non-governmental organizations. It allocated 78.65% of this amount to lobbying activities for climate change, 15.04% for sustainable finance activities, and 6.31% for other lobbying activities (Garanti BBVA, 2021 a,b,c).

The BBVA Group has determined its priority issues based on the analysis outputs completed for global non-governmental organizations and investors. It reached all internal and external key stakeholder groups through surveys, meetings and phone calls, conducted stakeholder analysis and completed the materiality analysis for 2020. As a result of the analysis, capital adequacy and financial performance, climate change, se of personal data, cyber security, COVID-19 have been determined as having more priority than the other 13 issues. Along with these prominent topics, all material issues are grouped under six main headings: Financial Health, Sustainability, Reaching More Customers, Operational Superiority, Best and Most Connected Team, and Data and Technology.

In addition to these six main topics, Corporate Governance and Effective Management of All Risks and the COVID-19 have been integrated with all the units and presented in a report. The COVID-19 pandemic has affected the world and is the biggest crisis since World War II. Realizing that development and growth are impossible without sustainability has been the only positive effect of this pandemic. Enterprises understood that they should conduct more comprehensive studies on risk and opportunity management. The risks and opportunities compiled from the studies conducted within the framework of

Garanti BBVA's risk management approach, through various formal and informal controls, within the framework of the performance sections and the priority issues described in the section entitled "Corporate Governance", are illustrated in the table below (Garanti BBVA, 2021 a,b,c).

Table 1: Topics Covered within the Scope of Garanti BBVA Risk Management

Mega Trends	Risk Factors	Relevant Strategic Priorities
(1)Work Environment	Customer Empowerment, Remote Working, Competitiveness for Talent, Transparency, Efficiency, Rapid Adaptation, Gender Equality, Next Generation Workforce, Social Media	Operational Excellence, Best and Most Connected Team, Data and Technology
(2)Economy	Sustainable Finance, Green Healing, Inclusive Capitalism, Sharing Economy, Financial Health and Inclusion, Circular Economy, Decreasing Globalization	Sustainability, Financial Health, Reaching More Customers
(3)Society	21st Century Talent Gap, Sustainable Development, Increasing Inequalities, Forced Migration, Food Security, Entrepreneurship, Pandemic, Individual Upgrade, Mega Cities, Consumerism	Sustainability
(4)Environment	Climate Crisis, Extreme Weather Events and Natural Disasters, Resource Scarcity, Environmental Awareness, Biodiversity, Plastic Pollution, Water Scarcity	Sustainability
(5)Technology	Automation, Big Data, Internet of Things and Artificial Intelligence, Cloud, Cyber Security, Blockchain and Cryptocurrencies, Digitization, Privacy and Responsible Use of Data, Increasing Connectivity and Decreasing Privacy	Data and Technology, Operational Excellence

Source: (adapted by author from Garanti BBVA, 2021 a,b,c).

Garanti BBVA defines sustainability as 'a commitment to create a strong and successful business model for the future by sharing long-term values with its customers, employees, shareholders and all audiences in the places where it operates, as well as minimizing the negative effects on the environment and society' (Garanti BBVA, 2021 a,b,c). One notes that it attaches importance to carbon footprint management and technological innovations in its activities.

When the studies of Garanti BBVA related to risk management are examined, one can see that it defines risk management as environmental and social risk. To support sustainable development and create awareness in public and private institutions, universities, and civil society organizations contributed in cash. When the risks that Garanti BBVA prioritizes are examined, it is seen that it considers the

environmental, economic and social dimensions that are the dimensions of sustainability (Garanti BBVA, 2021 a,b,c).

ING

ING, one of the banks that signed the United Nations Environment Conference Finance Initiative (UNEP FI), has maintained a zero carbon footprint since 2007. ING Turkey reflects the environmental awareness adopted by the ING Group directly and indirectly to its activities. In this context, ING regularly reports to the ING Group about reducing waste, reducing carbon emissions, saving water, and renewable energy. On the other hand, it has committed to reducing its carbon emissions, global waste and water footprint by 2020. ING obtains about 80% of the electrical energy it consumes from renewable energy. It is amongst the targets of guaranteeing the entire electrical energy supply with an internationally accepted certificate. ING considers that every step taken for nature is a continued investment in the future.

ING Turkey acts in parallel with the "Equator Principles" prepared based on the environmental and social responsibility standards that the ING Group has voluntarily adopted since 2003, taking into account environmental risks in project financing. Furthermore, in order to take the current practices in the financial sector to the next level in Turkey and mobilize all actors for a sustainable future, Global Compact Turkey is within the scope of the “Declaration on Sustainable Financing”; it aims to make social and environmental risk study a part of the credit assessment process in financing investment projects.

To direct its activities within the scope of its social, ethical and environmental vision, ING has consolidated its efforts under the name of Our Environmental and Social Risk Policies, an integral part of ING's credit risk management practices. In other words, it examines all possible social and environmental side effects of its activities in depth. Before the communication process with each customer begins, the first compliance assessment is carried out within the scope of the policies prepared for environmental and social risks and regularly updated. In this context, ING advises clients on potential social and environmental vulnerabilities (ING, 2021c).

When ING Turkey’s sustainability and risk management activities are examined, one notes that it reflects environmental awareness directly and indirectly. ING Turkey has maintained a zero carbon footprint since 2007. ING Turkey works in waste management, reduction of carbon emissions, water-saving and renewable energy sources. In financing projects, ING Turkey acts within the social and environmental dimension, one of the dimensions of sustainability, by including the social and environmental risk study in the evaluation (ING, 2021a).

DEVELOPMENT, INVESTMENT BANK OF TURKEY

While carrying out its activities, the Development and Investment Bank of Turkey acts in line with Turkey's sustainable development priorities. In this direction, it has adopted meeting the financing needs of entrepreneurs, spreading the capital to the base, contributing to the structural transformation, cooperating with domestic and foreign institutions and providing consultancy support" as its primary mission (kalkinma.com.tr). Among the main objectives of the Development and Investment Bank of Turkey, one finds managing the *risks and opportunities* that may arise from its activities, economic development, and social and environmental dimensions, which are the basic building blocks of sustainable development. In this direction, considering the principles of responsible and sustainable development from a holistic perspective, it helps create common value for all stakeholders with the strategic initiatives it implements and expands its sphere of influence.

The bank provides financing for projects to bring domestic renewable energy sources to the economy and supports projects that reduce the energy/resource use of enterprises producing in sectors with high energy density. In this way, it contributes to sustainable development by supporting enterprises with renewable energy production licenses and investments to effectively use raw materials and water resources.

Development Investment Bank of Turkey approaches the risks and threats within the scope of the environment and sector in which it operates with a comprehensive *risk management* framework. The risk management mechanism established by the bank consists of three stages: *defining the risk, prioritizing, and continuing its activities by minimizing the risk* without deviating from the strategy. The Bank's Risk Management Unit carries out these stages of risk management through risk reports prepared at regular intervals specific to the bank. The three mechanisms on which the bank's risk management is based include *Risk Management Unit, Risk Committees, Implemented/Planned Risk Areas* (Development and Investment Bank, 2021a,b,c).

When the Development and Investment Bank website is examined to obtain the risk management studies, one notes that it acts in line with sustainable development priorities. In this context, the primary purposes of the bank on the website are; (1) The expressions of managing the risks and opportunities that may arise from activities; (2) economic development; and (3) social and environmental dimensions. Based on this finding, it is seen that the bank considers environmental and social dimensions, which are among the dimensions of sustainability, in its risk management activities. Furthermore, when the bank's website is examined, it will be seen that it provides financing for projects aiming to bring renewable energy resources into the economy. Based on this finding, it is understood that the bank attaches importance to the sustainability of economic development.

The expression "... *The Bank approaches risks and threats within the scope of the environment and sector in which it operates, with a comprehensive risk management framework"* is found *on the website.*

(Development Investment Bank, 2021c). In this direction, as mentioned above, the bank manages environmental and economic risks arising from its activities with an effective risk management mechanism.

ŞEKERBANK

With its corporate mission of supporting production and social development, Şekerbank takes a leading role in sustainable banking. The Sustainability Report has supported sustainable development by conducting studies on the digital transformation accelerated by the COVID-19 pandemic on a global scale with its *economic, social and environmental* impacts in front of key stakeholder groups. Şekerbank is one of the 130 banks participating in the Principles for Responsible Banking implemented by the United Nations Environment Programme Finance Initiative (UNEP FI) as a founding signatory from around the world. Within the scope of responsible banking, it has been sharing its sustainability report with its stakeholders and the public every two years since 2013. In order to raise awareness about sustainable development throughout the country, the bank has conducted numerous studies and manages the environmental and economic risks arising from its activities with an effective risk management mechanism.

In 2012, Şekerbank represented Turkey at the Rio+20 United Nations Sustainable Development Conference, as part of the work carried out before the Ministry of Development, with EKOkredi, Turkey's first banking product in the field of energy efficiency. Şekerbank (2021b) has gathered its strategic activities under four groups: “sustainable agriculture”, “fighting energy efficiency and climate change”, “financial inclusion and women’s banking”, “supporting production and employment”.

In Şekerbank Risk Management System, one finds the risk/return structure of the bank’s future cash flows. It also includes the quality/level of activities through the implementation procedures, limits, policies and strategies determined for monitoring, controlling and changing when necessary. The system also consists of the decision-making and implementing unit, which was established to identify, measure, monitor and control the risks that may arise due to the bank’s activities and strategies.

The objectives of Şekerbank’s Risk Management System are noted here. The system is structured to cover organizational, managerial, operational, and information technology processes and risk awareness is provided. It is associated with all bank activities, and its employees at all levels are held responsible. In addition, it is structured to include subsidiaries and affiliates within the scope of consolidation (Şekerbank, 2021c).

Şekerbank’s website was examined for activities related to sustainability and risk management. The website states that “... Sustainable Report supports sustainable development by carrying out studies for the digital transformation accelerated by the COVID-19 epidemic globally, with its economic, social and environmental effects, before the key stakeholder groups”. Therefore, it is seen that Şekerbank

considers sustainable development in its activities. However, environmental and social dimensions were not directly encountered in Şekerbank's risk management activities.

TSKB

One of the leading entities in sustainable banking, the Industrial Development Investment Bank of Turkey (TSKB), aims to support Turkey's development by defining the concept of sustainability in *social, economic and environmental* dimensions. In this context, TSKB has established its Sustainability Policy, which is determined by the basic principles that guide its activities. Furthermore, TSKB integrates sustainability into all its banking processes and supports the transition to a low-carbon economy by controlling the carbon footprint of operational activities. With this initiative, a commitment letter has been prepared in which the social, environmental and corporate governance principles that financial institutions will implement in their investments are determined. The first bank from Turkey to sign the undertaking, which was approved by more than 170 financial institutions globally, was the Turkish Industrial Development Bank.

In addition to supporting financing models and investment projects within the scope of combating climate change, TSKB also follows an approach that aims to reduce the effects at the source by considering social and environmental issues. By measuring the environmental impacts arising from banking activities every year, measures are taken to mitigate these effects. TSKB is Turkey's first carbon-neutral bank. It publishes its sustainability reports periodically and transparently shares all social and environmental performance results with its stakeholders. TSKB integrates its goals in sustainability with its budget, plans and strategies. Its policies support four main areas, *"financing of sustainability", "management of internal and external social-environmental effects of the bank", "human resources education", and "corporate social responsibility"* (TSKB, 2021a).

Risk management is accepted as one of the leading corporate governance functions for sustainable development at TSKB. According to TSKB, risk management is defined as "an essential tool in the process of transferring capital and other resources to placements that will provide maximum returns to shareholders" (TSKB, 2021b). TSKB's risk management aims to systematically provide input at the decision-making stages of bank management using up-to-date analysis techniques that ensure the implementation of profitable and sophisticated banking practices.

The bank, which has ISO 14001 and 14064 certificates, established the Climate Risks Working Group in 2020 to manage the direct and indirect effects. Furthermore, it considers the publications and tools published by TCFD and UNEP-FI on climate risks to include climate risks in all business processes and analyze the indirect effects caused by their activities; it carries out its studies in this context.

Focusing on protecting its stakeholders from the possible effects of the epidemic during the global COVID-19 pandemic, which negatively affected 2020, the bank switched to the remote working model.

It continued to support the Turkish economy. This process also issued a lease certificate for the food industry.

According to the evaluations made by Sustainalytics, TSKB has been ranked first among Turkish Banks with its *environmental, social and governance* (ESG) risk rating. Furthermore, it came within the second percentile worldwide with an ESG rating of 16.7, putting the bank in the sixth position among 372 banks.

On the other hand, awareness is increasing that the risks arising from climate change are financial risks and will force businesses on a micro-scale and significantly affect the world's economic and financial stability on a macro scale. TSKB aims to integrate climate-related risks and opportunities into its business processes by following the effects arising from its activities and cooperating with its stakeholders. In 2020, TSKB established the Climate Risks Working Group under the Sustainability Subcommittee. In addition, it carries out its studies on sustainability with working groups affiliated with the Sustainability Subcommittee. It also established the Green Swan Platform to bring together all stakeholders to raise awareness about climate change (TSKB, Climate Risks Report, 2021: p.8).

In order to access TSKB's sustainability and risk management related activities, the website has been reviewed "*... TSKB aims to support the development of Turkey by defining the concept of sustainability in social, economic and environmental dimensions"*. In this context, TSKB controls the carbon footprint of its operational activities by integrating it into all its processes where it can be maintained and supports the low-carbon economy.

According to the website, "TSKB ranked first among Turkish banks with its environmental, social and governance risk rating".

Based on this finding, it can be said that TSKB carries out risk management effectively and pays attention to environmental and social dimensions. *Furthermore, the website also states that "TSKB established the Climate Risks Working Group under the Sustainability Subcommittee in 2020"*. From this statement, it is understood that TSKB considers the environmental dimension of sustainability in its risk management activities.

YAPI KREDİ

Yapı Kredi seeks to create sustainable value for all its stakeholders and integrates this into all business forms. Evaluating the effects of its sustainability performance on business processes and results, Yapı Kredi develops its business strategies in line with sustainability principles. Yapı Kredi benefits from Koç Holding's experience in sustainability. It secures sustainability studies with measurement, monitoring, evaluation and reporting processes. Yapı Kredi Sustainability Committee is responsible for creating the bank's economic, social and environmental sustainability strategy, integrating this strategy into business processes, and monitoring sustainability activities.

While determining Yapı Kredi's sustainability priorities, "GRI Reporting Standard" considers the expectations of stakeholders, sectoral and global developments, and corporate strategic targets. Priority issues are updated with *the "Identification of Sustainability Priorities Study"* organized every year. Concerning construction loans, the bank received a B (Management) grade from the Climate Change Program, with the report being submitted to the *Carbon Disclosure Project (CDP),* the world's largest environmental reporting platform, in 2019. In addition, it received an A- (Leadership) grade from the Water Programme. The bank also received the highest score in the Turkish Finance sector in the Yapı Kredi CDP Water Program. Furthermore, it was amongst the CDP 2019 Turkey Water Leaders, where it became one of the banks with the highest rating.

In the banking sector, loans are where the leverage effect is felt most intensely, and the sustainability effect is the widest. Yapı Kredi develops environmentally friendly goods and services that create sustainable value for the society in which it operates. In the projects it has financed, it is obligatory to fulfil social and environmental standards beyond the requirements and legal requirements determined by the Banks' policies. In order to achieve this, the *Environmental and Social Risk Assessment System*, which was structured in 2016, was implemented in 2017.

In addition to this policy, the Sustainability management system was developed under "the identification of environmental and social risks of lending activities". A request for a construction loan of over $10 million needs to be evaluated under the investment, social and environmental aspects of project finance loans. Within the framework of "Determination of Environmental and Social Risks of Lending Activities", the risk category of the project is determined, and monitoring and action plans are created in accordance with this category. Corporate and Commercial Loans management assumed primary responsibility for risk assessment and categorization operations. Within the scope of the Environmental and Social Risk Assessment Model, risks are grouped into three categories: high, medium, low. Category A - high - represents adverse severe social and environmental risks and jobs that may have irreversible consequences. Category B -medium- represents works specific to the general project location, are mainly reversible, and mitigation measures can be applied and may have limited

negative social and environmental risks and impacts. Category C - low- represents jobs with minimal or zero environmental, social and environmental risks and impacts (Yapi Kredi, 2021a,b,c,d,e).

When Yapı Kredi's website is examined, statements about sustainability and sustainability reports are encountered. Again on the bank's website, "… the Environmental and Social Risk Evaluation System, which was structured in 2016 in order to achieve this, was implemented in 2017". In addition to these policies, "Detection of Environmental and Social Risks of Lending Activities" developed within the scope of the Sustainability Management System… was encountered. Based on this finding, it is understood that the environmental and social dimensions of sustainability are taken into account in the risk management activities of Yapı Kredi bank.

CONCLUSION AND RECOMMENDATIONS

The invention of steam engines and the developments in information technology accelerated industrialization. A production model that did not consider the environment and natural resources led to unplanned urbanization and unconscious consumption. The price of unconscious production and consumption has been paid by the depletion of natural resources and damage to the environment. Environmental and social dimensions have not been considered while carrying out economic development. When the relevant literature is examined, one notes that the relationship between the environment and economic development has started to be brought to the agenda since the 1970s.

Global warming, climate change, reduction of natural resources, damage to biodiversity, unemployment, rapid population growth, and other environmental and social problems are the reasons for this awareness. Other environmental and social problems mentioned and not listed here have forced businesses to make environmentally friendly decisions and consumers to develop conscious purchasing and consumption behaviour. Efficiency in resource use, recycling, waste management, and sustainability issues are on the agenda of many businesses. Attention to these issues is reflected in sustainability reports.

The role of banks in the economic system within financial institutions is to provide loans to people through the money other customers deposit with the bank. From this point of view, banks do not affect the environment in such a direct way as a production enterprise. However, banks are one of the building blocks of economic growth. They affect the environment, albeit indirectly, in the business processes they perform. Therefore, banks need to consider the environment in their activities and attach importance to sustainable development. This means meeting the needs of the present without compromising the needs of future generations. Therefore, banks need to be sustainable by integrating economic, environmental and social dimensions within their development framework.

On the other hand, banks face many different risks arising from their activities while reducing their effects. This is achieved with effective risk management. Moreover, considering their activities' environmental and social impacts, banks should emphasize sustainability in their risk management activities.

This study investigated the extent to which the six banks that signed the *Responsible Banking Principles* from Turkey integrate sustainability into their risk management activities. Then risk management activities and the three dimensions of sustainability, economic, environmental and social dimensions, are examined together.

It is understood from the findings obtained as a result of the analysis that Garanti BBVA pays attention to the environmental and social dimensions in risk management and carries out extensive studies.

ING Turkey has gathered its credit risk management activities under the name of our Environmental and Social Risk Policy. In addition, ING Turkey has included environmental and social risk studies in the credit evaluation process in financing investment projects. Based on these findings alone, it is seen that ING Turkey has included the environmental and social dimensions, which are the dimensions of sustainability, into its risk management activities.

The author also found that the Development and Investment Bank of Turkey manages the risks and opportunities that may arise from its activities by considering the environmental and social dimensions, which are the basic building blocks of sustainable development. Based on this finding, it is understood that it integrates risk management and sustainability.

Şekerbank has established a comprehensive risk management policy against risks and threats in the sector and environment in which it operates. No statements regarding the economic, environmental and social dimensions, which are the dimensions of sustainability, were encountered in Şekerbank's risk management activities. However, the bank prepares a sustainability report.

It would not be correct to say that Şekerbank does not consider risk management's environmental and social dimensions since only websites are considered. However, the reason can be explored if the bank does not consider the environmental and social dimensions in its risk management activities.

It is seen that TSKB attaches importance to sustainable development, prepares sustainability reports, and measures its environmental impacts in economic, environmental and social dimensions. In addition, the fact that the bank ranks first among Turkish banks with its environmental, social and governance risk rating in the assessment made by *Sustainalytics* shows that it integrates risk management activities and sustainability.

Yapı Kredi also has a sustainability committee. Yapı Kredi launched the *Environmental and Social Risk Assessment System* in 2017. The bank strives to integrate economic, environmental and social strategies into all business processes, demonstrating that it is on its way to becoming sustainable banking. In addition, by preparing the *Environmental and Social Risks Determination procedure of Lending Activities*, Yapı Kredi determines the risk category of the project in financial consultancy services and takes action accordingly.

Based on all these findings, it is seen that the six banks that signed the Responsible Banking Principles from Turkey attach importance to sustainable development in all their activities, support sustainability-related projects and prepare sustainability reports. On the other hand, when the risk management activities, which are the main subject of the study, are examined, it is seen that all six banks carry out effective risk management. Almost all of them have established teams related to risk management and prepared written policies and procedures.

Risk management is a field that requires financial expertise and must be applied carefully, rather than a process by which banks will only detect and carry out financial risks. When the literature part of the study and the findings obtained as a result of the research are compared, the issues prioritized by the six banks and all the risk management processes of these six banks are essential for the continuation of profitability and sustainable development.

The risk management activities of banks that did not sign the Responsible Banking Principles are not included in this study. In addition, the issue of why banks do not sign the Responsible Banking Principles is another research topic. Nevertheless, it is crucial as it reminds all banking institutions in Turkey that they should attach importance to sustainability in their sustainability studies and risk management activities.

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Entrepreneurship Among Young People in Spain and Turkey: incentives and challenges to overcome

Pedro Adalid Ruiz[a], **Cantürk Kayahan**[b]

[a] Dr. Universidad Cardenal Herrera (CEU). Department of Education, Spain
[b] Prof.Dr. Afyon Kocatepe University, Department of Business Administration, Turkey

ABSTRACT

Entrepreneurs are the leading creators of employment, facilitating the economic-social regeneration of countries. The crisis that occurred in recent years, together with the negative impacts generated by COVID 19, has given rise to an unprecedented scenario, which leads to the need to deepen the study of the determinants of entrepreneurship in youth. This work aims to carry out a bibliographic review on the primary motivators for entrepreneurship in young people in Spain and Turkey and the challenges to overcome under the current scenario. The results show that although there is a positive attitude towards entrepreneurship among young people, they focus on working independently, being an alternative to unemployment or increasing income sources. Due to the devastating global economic-financial crisis that the pandemic has generated, their actions have had to either stop, be limited, or not be able to start. However, those who have done so have found a good option in the digital environment.

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****Corresponding author:***
Cantürk Kayahan
cankay1@hotmail.com

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1. INTRODUCTION

Over the last few years, one has observed that job opportunities are becoming increasingly scarce; due to technologies, companies digitalized many of their processes and require highly qualified personnel with experience and the management of a series of skills and competencies (cognitive, technical, digital). Therefore, such factors supported their ethics and personal values, decreasing employment opportunities, especially for young people.

In addition, the pandemic of the new coronavirus (Covid-19) is generating a negative impact worldwide in various fields, including that of economic activities. Identifying, measuring, and understanding them is the basis for defining appropriate public policies to protect established and start-up companies, thus preserving their human and organizational capital and innovative potential for the economic and social reconstruction that will provide a way out of the crisis.

Young people are among those most affected by unemployment due to the lack of job opportunities and the increasing employability standards of companies, and they see the digital sector as one of the best alternatives (González, et al., 2017). While university education can increase employability, some struggle to find work, and while knowledge allows the emergence of profitable, sustainable and responsive entrepreneurs, it alone may not guarantee the ability to build a successful venture (Brunet and Alarcón, 2004).

Having a good idea, location, or even a great product is not the only guarantee of success, especially for young entrepreneurs. Some success factors are specific to the entrepreneur, but other factors, such as the economic environment, create an essential advantage in catching and evaluating success and opportunities. According to Brunet and Alarcón (2004), nowadays, some companies emerge out of necessity, while others take advantage of some opportunity. Therefore, in addition to the existence of opportunities, entrepreneurs should have the ability to use better, evaluate and appreciate these opportunities (Fayolle and Liñán, 2014).

A unique entrepreneurial culture and approach are given to students studying economics, Administrative Sciences, and other related fields in higher education institutions, especially in European countries. Countries with young populations such as Turkey should consider successful models and experiences set by other countries to establish a better pedagogical process of entrepreneurship. In addition, for better entrepreneurship, the applied education approach should be developed within the scope of the university project and integrated with businesses. (Pérez, 2013).

Today, people have had to turn to entrepreneurship more than ever as a way to achieve the quality of life they want or to get rid of unemployment (Uhlaner and Thurik, 2007). In this process, especially for specific countries, young entrepreneurs with sustainable and creative ideas are needed. Furthermore, the 2008 financial crisis showed that businesses need to be more collaborative, connected, global and innovative. Therefore, entrepreneurs should be more creative, international and collaborative. This research aims to discuss the steps to identify and solve the main challenges and problems in the business projects of young people in both countries and the support provided to entrepreneurs to promote entrepreneurship among young people in Turkey and Spain. In addition, the results of this study will be a valuable source of information for future entrepreneurs. For this, it will be beneficial for the future if public authorities continue to develop the entrepreneurial culture, encourage the creation of new

ventures through the right education policies and financing, and include practices that support the economic interests of young entrepreneurs.

Theoretical Framework

Entrepreneurs employ skills and behaviours that give them a particular personal profile oriented towards creativity, self-confidence, innovation capacity, sense of responsibility, constant work, and risk management. In addition, entrepreneurship as an option is carried out by people who have good communication skills, leadership skills, know how to identify opportunities, and analyze both external factors (economic, social, environmental, and political) and internal factors (ability to have people as well as material and financial resources), (Salinas and Osorio, 2012).

According to the European Commission, entrepreneurship is the ability of an individual to turn ideas into action. It includes creativity, innovation, risk-taking, and the ability to plan and manage projects to achieve goals (European Commission, 2003).

On the other hand, in Turkish sources, entrepreneurship is defined based on the Organization for Economic Cooperation and Development (OECD) and the Global Entrepreneurship Monitor (GEM). GEM indicates that entrepreneurship is an activity that involves creating or expanding a business by an individual or a group of individuals (GEM, 2018), meaning GEM also has intrapreneurship or entrepreneurial activities in an already established company.

On the other hand, the OECD defines an entrepreneur as a person who acts on new business opportunities and shapes them efficiently using all possible resources (OECD, 2012). Likewise, in Turkey's Entrepreneurship Strategy and Action Plan booklet (Kosgeb, 2018), an entrepreneur is defined as owning or co-owns a small or medium-sized business. At this point, the concept of innovation can be explained not as a necessary element for entrepreneurship but as something that adds more value to an enterprise.

It is essential to understand that entrepreneurship is key to creating small and medium enterprises (SMEs). SMEs are vital for both EU and Turkish economies as they are the driving force of these economies. SMEs worldwide constitute more than 90.0% of all businesses in the EU and Turkey. In addition, it is the primary source of employment for Turkish (75.5%), Spanish (71.8%) and European (66.9%) people (Eurostat, 2017 and European Commission, 2015). For this reason, the most critical contribution of entrepreneurship is the creation of new

employment opportunities focused on economic and social development for entrepreneurs and potential employees.

The post-pandemic (covid-19) situation generated the need to migrate much of the business sector into the digital realm with the help of ICT. In a "healthy" environment, technology in innovative companies considerably improves productivity. With this new creative sector in constant and rapid growth, economic development is accelerated, noting the direct importance of entrepreneurship in the socio-economic benefits it provides (Önce et al., 2014). However, under the pandemic crisis, this changes a bit because of the negative impacts that have been generated. Still, it is then when entrepreneurship is most needed to cope with the situation, create employment and maintain production.

The General Enterprising Tendency Test establishes five characteristics in the successful entrepreneur: a) need for achievement, b) need for autonomy and independence, c) creativity, d) calculated risk-taker, and e) strength and determination (Rusque, 2005). Although many economic factors affect entrepreneurship, entrepreneurial culture and eco-system stand out as the most relevant factors. If people grow up in environments that offer specific cultural characteristics and prepare the ground for this, their entrepreneurial activities are affected by these preferences and their probability of becoming an entrepreneur increases. Research shows that four of Hofstede's six cultural dimensions are associated with entrepreneurial tendencies. These dimensions are a) power distance, b) individualism/collectivism, c) masculinity/femininity, and d) uncertainty avoidance (PiQak and Eroglu, 2011). In addition, it shows that the place of entrepreneurship, educational status, demographic factors, and environment also directly affect entrepreneurship.

Power distance is one of the cultural factors that affect entrepreneurship. Since the hierarchical structure of societies that can normalize the power distance is based on solidarity and mutual interaction, when it is not, the corporate culture becomes more rigid and command-oriented. Furthermore, the culture of entrepreneurship differs in individualism and collectivist organizations. For example, people's performances are associated with the organization in socially oriented cultures; individual-centred organizations face a more selfish structuring. Another factor, masculinity and femininity, also shows a different dimension of entrepreneurial culture. While there is an environment of solidarity, kindness, equality, and love in predominantly female societies, competition and materialistic passions come to the fore in masculinity-oriented societies. The last factor is uncertainty avoidance. This factor is higher in

societies that cannot foresee the future, where job stress and risk perception are high. Therefore, a future-oriented structure with fewer risk factors can be followed in societies with more prominent factors. Therefore, if the factors are interpreted in entrepreneurship culture, differences can be observed in western societies compared to eastern societies. However, in today's world, where global trends accelerate and technological factors are rapidly affected, we can see a shift towards a structure where power centralization is normalized, collectivist understanding is dominant, and equality, respect and love are taken into account. According to these cultural dimensions, the EU has a more favourable environment than Turkey; however, this structure can change with better promotion of entrepreneurship and more government support.

The emergence of quality entrepreneurs depends on various competencies (skills, attitudes, values, skills and knowledge) developed by families from childhood through adolescence and the education system that supports this structure. After this process, the culture of the individual will be reflected in the companies they work with (Kantis and Ibarra, 2014). Is not the culture of lifelong learning a result of this understanding? After all, a society's culture and education system provides suitable conditions for entrepreneurs and direct them to more education-oriented participation and decisions.

1.1. Methodology

The type of research implemented is qualitative and descriptive, whose methodology is mainly based on the literature review, especially on the reports of the Global Entrepreneurship Monitor (GEM, 2018), it being the most recent where both nations under study (Spain and Turkey) are included. In addition, the GEM report of 2020 was also consulted, even though Turkey is not within this report, together with the report by Ipsos group, 2020. All these documents were used as a source of updated information to obtain data on entrepreneurship in both countries under study, mainly those related to personal, cultural factors, incentives, and barriers that influence entrepreneurship.

1.2. Results and discussion

1.2.1. Entrepreneurship in Spain

Since the financial crisis in 2008, negative values have been recorded in new company openings in Spain; 77% of the new companies belong to single entrepreneurs, with no or very few

employees. Sectors growing at the corporate level are healthcare, legal services and administrative support services.

In general terms, Spaniards have a low perception of opportunities, a growing aversion to risk, and a fear of failure. According to the GEM (2018), the rate of entrepreneurial activity for 2018 stood at 6.4% on average of the entire population surveyed; specifically, 3.3% in young people aged 18 to 24 years, and 7.5% in young people aged 25 to 34 years. The perception of opportunities stood at 29.1%, and the expectation of job creation stood at 8.7%. These values are relatively low when considering the positive aspects of entrepreneurship, such as access to good physical infrastructure and services, consumers that value innovation and government programs that promote the entrepreneurial process.

1.2.1.1. Incentives for Entrepreneurship in Young Spaniards

According to the data provided by the GEM (2018), the main reason for entrepreneurship in Spain is a business opportunity (70.7%). However, the ratio of companies created out of necessity has also increased (32.4%). It can be seen that young people with high levels of education are more competitive and perceive opportunities better than older people, having a greater willingness to undertake risk (35%) and specific training for entrepreneurship (42%). However, they are more afraid of failure and have fewer entrepreneurial skills.

Education has a positive influence on reducing the fear of failure, so higher education institutions should work in this direction and provide more or better training in entrepreneurship. Training provides knowledge, tools, and skills essential to managing and controlling fear of failure.

In the same way that education helps to minimize fear and strengthen entrepreneurial incentives, the family plays an important role when it comes to making entrepreneurial decisions, both because of its opinion regarding entrepreneurship and because it is a source of support, funding, and other vital resources for the young entrepreneur.

Favorite entrepreneurship sectors, generally preferred by Spanish youth, are professional services and consultancy, digital marketing, advertising, design and engineering; Young people under the age of 25 seem to prefer online and social businesses (Jauregui et al., 2016). In this sense, digital businesses are a promising field for young entrepreneurs and programs that will encourage them should be focused on.

1.3.1.2. Challenges to Overcome in the Entrepreneurship of Young Spaniards

One of the main difficulties of young entrepreneurs among Spaniards is the lack of start-up capital. This is compounded by the complexity of administrative procedures and the regulatory framework's lack of stability and predictability. Since access to financing from traditional financial sources to set up a new company is an obstacle, it is common to see that the initial capital comes from the entrepreneur's network of contacts (Ipsos, 2020).

Additional difficulties young people may encounter are fear of failure or other barriers such as financing and the surrounding economy. The fear of failure brings forth several factors: financial burdens if the business fails, loss of reputation, family opposition, loss of self-esteem, the threat of economic crisis, and unemployment

.

For young entrepreneurs to overcome many of these barriers, policies can be created that provide greater access to financing, streamline and facilitate administrative procedures and the taxation to which they are subjected, and strengthen entrepreneurial education from early school stages.

1.3.2. Entrepreneurship in Turkey

It should be known that entrepreneurship is, first of all, a personal attitude and that entrepreneurship originates from the person himself. In addition, it is known that entrepreneurship differs according to culture and place of residence. For example, the female/male entrepreneurship ratio is 0.89 in Spain and 0.42 in Turkey (GEM, 2020). One should also note that the differences between these rates are expected to decrease in the future. Based on this data, we can state that the entrepreneurial attitude of men is more active in the eventual creation of companies in Turkey. In addition, in Turkish society, men are expected to have a more comprehensive network of professional and economic relations than women, and it is expected to affect new businesses to the same extent.

In conclusion, we can highlight that men tend to be more educated in business-related matters. However, the role of women in Turkish society is changing and developing day by day. This situation is expected to affect their economic and social status in the future. On the other hand, sometimes social perceptions do not support innovative and creative dynamics in women's environments and may prevent them from participating in the business world and entrepreneurial activities (Albarracin et al., 2015). Turkey offers an appropriate legal and

financial framework to promote and consolidate new companies and SMEs in general regarding the economic and legal conditions that encourage entrepreneurship. As a result, there are also improvements in this area. According to the data given in the GEM (2018), the rate of entrepreneurial activity is 14.3 per cent in the youth group aged 18-24; in the 25-34 age group, it is 14.2 per cent. Therefore, it can be stated that there is a 44.3% perception of opportunity and a high rate of employment creation expectation (45.9%).

1.3.2.1. Entrepreneurship Incentives for Young People in Turkey

The Turkish population, in general, sees entrepreneurship as a good option (80.8%) compared to Spain (53.1%). One of the incentives for young people in Turkey is autonomy at work and social status. They also have a high expectation of growth and job creation, distinguishing Turkish entrepreneurs from other countries (GEM, 2018).

One of the incentives for young people in Turkey to be entrepreneurial is the perception that starting a new business is a desirable career choice, in addition to perceiving that those who are successful in creating a new business have higher status and respect in society, positively influencing the likelihood of starting a new business (Borke and Sener, 2019).

Due to entrepreneurship's economic and social importance, public institutions support and encourage entrepreneurial initiatives. An example of this in Spain is the law of 14/2013 of 27 September to assist entrepreneurs and their internationalization. It also encourages entrepreneurship in Turkey. For example, KOSGEB[1] and İş-Kur[2] (KOSGEB, 2018)have made significant contributions to entrepreneurship in recent years. Incentives, especially for women and young entrepreneurs, continue to change and develop daily. Entrepreneurship courses in universities have been made compulsory in the education curricula, and training continues to realize their talents. However, there may be some deficiencies or application difficulties in certain aspects. However, successful entrepreneurial country examples in the world can set an example for better studies, and bilateral or multi-country collaborations can also enable new initiatives to be formed.

1.3.2.2. Challenges to Overcome Entrepreneurship Among Young People in Turkey

The intense economic-financial crisis in both Turkey and Spain and the problems that emerged with COVID 19 has increased the necessity for entrepreneurship for countries. Therefore, it should not be forgotten that every crisis brings new opportunities. However, although there are

[1] Small and Medium Enterprises Development Organization of Turkey.
[2] General Directorate of Turkish Employment Agency.

successful entrepreneurs in Turkey, there is a lower percentage of fear of failure (34.1%) when compared to those in Spain (43.1%) (GEM, 2018). Barriers to entrepreneurship, including the fear of failure, highlighted by knowing someone, who has had to close their business in 2020, should be considered (GEM, 2020), and efforts to overcome these barriers should be accelerated.

On the other hand, a key feature of entrepreneurship in Turkey is that it tends to be concentrated in the segment of the population with the most purchasing power and that entrepreneurship is self-financing. This suggests that to encourage entrepreneurship, authorities should focus on the part of the population with less economic resources, as it is the segment most in need of money and job creation (Albarracín et al., 2015).

There is a need for the government and educational institutions to work together to enhance entrepreneurship, as there is still a lot to be done in this field in Turkey and Spain. A more proactive attitude towards entrepreneurship is needed from the government, educational institutions at all levels, businesses, and society in general. This attitude will promote and encourage the creation of new companies and the growth of existing companies, favouring a revival and greater competitiveness in the economy.

The focus should be on looking at entrepreneurship more as an opportunity than a necessity. For this, it is necessary to have a favourable environment for entrepreneurship and a good index of global competitiveness at the time of entrepreneurship.

1.3.3. Turkey and Spain General Entrepreneurship Comparison

The above section highlighted the general policies implemented by both Spain and Turkey in entrepreneurship and the difficulties experienced in the process. The examples of Turkey and Spain were compared under 12 headings within the scope of the global entrepreneurship outlook. Table 1 shows the entrepreneurship framework data for Spain and Table 2 for Turkey. In the grading of countries in terms of global entrepreneurship framework, values were given between 1 and 5. Five represents a high value, whilst 1 indicates a low value. While a similar entrepreneurship framework view is formed between countries, Spain provides a better score than Turkey, especially in terms of commercial and legal infrastructure. It has a better outlook in terms of domestic market dynamics in Turkey.

Table 1. Spain Entrepreneurial Framework Conditions.

Global Entrepreneurship Indicators	Same as the Global Average	Above the Global Average	Below the Global Average
Enterpreneurial finance	Close to 3		
Cultural and social norms			Close to 3
Physcical infrastructue			Close to 4
Internal market burdens and entry regulation	3		
Internal market Dynamics			3
Commercial and legal infrastructure		Close to 4	
R&D Transfer		3	
Enterpreneurial education at post school stage		3	
Enterpreneurial education at school stage			2
Government enterpreneurship programs		3,5	
Government policies: taxes and bureaucracy	2,5		
Governmental policies: Support and relevance		3	

Source: Adapted from GEM, 2020.

Table 2. Turkey Entrepreneurial Framework Conditions.

Global Entrepreneurship Indicators	Same as the Global Average	Above the Global Average	Below the Global Average
Enterpreneurial finance		3	
Cultural and social norms	3		
Physcical infrastructue	3,5		
Internal market burdens and entry regulation	2,5		
Internal market Dynamics		Close to 4	
Commercial and legal infrastructure		3	
R&D Transfer		Close to 3	
Enterpreneurial education at post school stage		3	
Enterpreneurial education at school stage			2
Government enterpreneurship programs			2,5
Government policies: taxes and bureaucracy			2
Governmental policies: Support and relevance		2,5	

Source: Adapted from GEM, 2018.

1.3.4. Recommended Measures to Activate Entrepreneurship

As noted, in both nations, there are barriers and limitations to entrepreneurship, either by factors specific to each country (the environment, culture, policies) or by external factors such as the current global crisis. Hence there is a need to continue joining efforts in this area to encourage

entrepreneurship, minimize the obstacles that arise and rejuvenate the economy while maintaining the development of nations. Accordingly, Ipsos (2020) recommends taking the following steps to activate entrepreneurship:

Create supportive policies, which may include:

Maintain a single strategy of the administrations to face the crisis

Organizational agility: telematic processing and reduction of deadlines Unify criteria for regulations at the regional level

Ease of procedures and reduction of bureaucracy

Adequacy of taxes to the capacity to generate income

Increase in public aid.

1.3.4.1. Support financing through:

Adequacy of financing conditions according to actual needs.

Increase public and private funding.

Facilitate access to financing for groups with fewer resources.

Facilitate alternative financing channels (access to business angels, crowdfunding, among others).

Provide financial solutions for pre-entrepreneurship.

Adapt financial support to the entrepreneurial phase.

1.3.4.2. Create and Strengthen Support Programs:

Programs need to be tailored to groups with more significant difficulties and in specific sectors of activity (digitalization, sustainability).

It is necessary to establish programs to discover and develop the talents of young people, especially university students. Furthermore, the effectiveness of programs to encourage entrepreneurship should be ensured and monitored.

In coordination with relevant institutions, efforts to strengthen entrepreneurship programs should be encouraged to avoid unnecessary repetitions.

1.3.4.3. Work in Culture, Education and Technology:

Promotion of entrepreneurial culture.

This should be focused on providing effective business management and entrepreneurship education in schools and creating new business opportunities that are R&D oriented and support the primary industry.

It is necessary to encourage the creation of high value-added technology-based companies and to ensure greater participation of universities in transferring research results to society.

Conclusions

Entrepreneurs are the leading employment creators, facilitating countries' social and economic regeneration. A good part of the population evaluated shows a positive attitude towards entrepreneurship, with the reasons for entrepreneurship being autonomy at work and self-realization. Concerning the difficulties for entrepreneurship, fear of failure is one of the most significant obstacles, together with other obstacles that should be minimized so that economic growth is not hindered and the business fabric is not damaged.

There is still much to be done to promote and facilitate entrepreneurship among young people in Spain and Turkey, but they must first be recognized as being on the right track in both countries. Therefore, creating or strengthening entrepreneurship programs and supporting an entrepreneurial education that predisposes children to future businesses is necessary. This is considered an option as desirable and feasible as any other.

The business fabric of both Spain and Turkey is predominantly composed of SMEs. Therefore, entrepreneurs should focus not only on their regions but also on global markets. In addition, since young entrepreneurs will be the employment generators of the future, it is of great importance to provide entrepreneurship training with a solid infrastructure.

Although the current pandemic is a crisis, it offers an opportunity to reinvent oneself through innovation and focus on the current needs of society by managing decisions with empathy towards the people who are the economic heart of the country. Entrepreneurs are the key to

stimulating the economy, and by adapting to changes, they show a significant impact on the economy and society with innovative proposals. In addition, the technological transformation will provide SMEs with a significant competitive advantage to face the challenges because digital transformation is currently a necessity that must be somehow integrated into business models and not excluded.

As a result, the world is rapidly changing and developing. Therefore, adaptation and transformation to significant changes need to occur globally. It will be young people and young entrepreneurs who will meet this need and create added value for their countries.

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